Wake Forest Board of Commissioners
Meeting Agenda
October 17, 2023 at 6:00 PM
All items listed are for discussion and possible action.

Notice

In accordance with the requirements of Title II of the Americans with Disabilities Act of 1990 (ADA), the Town of Wake Forest will not discriminate against qualified individuals with disabilities on the basis of disability in its services, programs, or activities. For individuals with impaired hearing, special equipment is available for use during meetings in the Town Hall board chambers. Anyone who requires an auxiliary aid or service for effective communication, or a modification of policies or procedures to participate in a program, service, or activity of Town of Wake Forest should contact ADA Coordinator Mickey Rochelle at 919-435-9455 or Town Clerk Terry Savary at 919-435-9432 as soon as possible, but no less than 48 hours before the scheduled event.

Cable & Online Broadcast of Board of Commissioners Meetings

All Board of Commissioners (BOC) meetings are broadcast live on WFTV 10 beginning at 6 p.m. Meetings are also streamed online on the Public Meetings Portal on the Town of Wake Forest website. Archived meeting videos are also provided and available for one year after the original air date.

Meeting Agendas

The BOC meeting agenda is available to be viewed and downloaded by noon on the Friday prior to the third Tuesday of each month. Citizens may request copies of the agenda or submit questions concerning agenda items by calling the Town Clerk's office at 919-435-9432. Citizens may also receive a copy of each month's agenda via email by enrolling in the free E-Notifier subscription service.

Public Hearings

When an agenda item is denoted as a Public Hearing, persons attending shall be permitted to address the BOC regarding the item under consideration.Anyone wishing to address the BOC concerning a public hearing item should complete and submit the BOC Public Comment Form on the Town website. Proponents and opponents shall each be given three minutes of time to speak and may choose to allow one speaker to utilize the time. In the event either proponent(s) or opponent(s) have not designated a speaker to represent the view, each speaker will be allowed three minutes each to express his/her comments, ideas, concerns, expressions, and desires. A designated speaker for a group will be allowed 10 minutes to speak. Only comments on a Public Hearing will be allowed during this time.

Public Comment

During the Public Comment period, anyone wishing to address the BOC concerning an issue or topic that is not a public hearing item or an agenda item should complete and submit the BOC Public Comment Form on the Town website. Then, during the Public Comment portion of the meeting, Mayor Jones will recognize you and invite you to the podium at which time you will have three minutes to speak. Thank you for your cooperation.

Call to Order

Pledge of Allegiance

1.Approval of Agenda

2.Approval of Minutes

2.A. September 5, 2023 Work Session
September 19, 2023 Regular Meeting
DraftBOCWSMinutesSept202305.pdf
DraftBOCMinutesSept202319.pdf

3.Presentations

3.A. Proclamation Recognizing November 2023 as "Native American Heritage Month"
NativeAmericanHeritageMonth_Oct202317.pdf

3.B. Consideration of Approval of a Resolution Authorizing an Increase in Funds for Enhancements at Flaherty Park Field #2.

Summary Sheet - Consideration of Approval of a Resolution Authorizing an Increase in Funds for Enhancements at Flaherty Park Field #2..docx
Resolution for BOC - Consideration of Approval to Increase Funds for Enhancements at Flaherty Park Field #2..docx
Exhibit A - Flaherty Park Field #2 Cost Estimate.xlsx

3.C. Introduction of Candidates for the Board of Adjustments and Planning Board
Summary Sheet_Candidates Oct202317.pdf

3.D. Presentation of Annual Reports from the Town's Advisory Boards
2023 Advisory Boards Annual Report.pdf

4.Public hearings / Public Comment

4.A. Public Hearing on LEGISLATIVE CASE RZ-20-05-01, Fuller Capital Boulevard Property, a rezoning map amendment filed by Red Line Engineering to rezone 29.367 acres located at 4925 Unicon Drive, 4975 Unicon Drive, and 10200 Capital Blvd (portion), being Wake County Tax PINs 1739-51-8319, 1739-61-2717,

1739-51-4482 (portion) from Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) to Light Industrial Conditional District (LI-CD).

BOC Agenda Summary RZ-20-05-01.pdf
RZ-20-05-01 Staff Report.pdf
Attachment A - Neighborhood Meeting Information.pdf
Attachment B - Application.pdf
Attachment C - Maps.pdf
Attachment D - RZ-20-05 Ordinance
Attachment E - Planning Board Recommendation.pdf
Exhibit 1 - Legal Description.pdf
Exhibit 2 - Consistency Statement.pdf
Ordinance RZ-20-05-01 Fuller Capital Blvd Property_v2.docx

4.B. Public Hearing on LEGISLATIVE CASE RZ-23-05, 2117 Averette Road, a rezoning map amendment filed by Douglas and Sarah Machado to rezone 2.822 acres located at 2117 Averette Road, being Wake County Tax PIN 1851-90-8235, from Wake County's Residential-30 (R-30) to General Residential 5 (GR5).
BOC Agenda Summary RZ-23-05.pdf
RZ-23-05 Staff Report.pdf
Attachment A - Neighborhood Meeting Information.pdf
Attachment B - Application.pdf
Attachment C - Maps.pdf
Attachment D - Planning Board Recommendation.pdf
Exhibit 1 - Legal Description.pdf
Exhibit 2 - Consistency Statement.pdf
Ordinance RZ-23-05 2117 Averette Road.docx

4.C. Public Hearing on LEGISLATIVE CASE RZ-21-08, Joyner Property, a rezoning filed by McAdams Company to rezone 124.68 acres located at 1180 and 1200 (portion) Club Villas Dr, being Wake County Tax PINs 1841091336 and 1831895139 (portion) from General Residential 3 Planned Unit Development* (GR3 PUD*); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O) to General Residential 10 Conditional District (GR10-CD); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O). (*While these parcels are labeled as GR3 (PUD), the parcels are not subject to any PUD regulations as the PUD regulations were removed when SU-99-02-01 was approved. Due to the zoning map label, staff will refer to the current zoning as GR3 PUD until such time the official zoning map is amended to remove the PUD text.)
BOC Agenda Summary RZ-21-08.pdf
RZ-21-08 Staff Report.pdf
Attachment A - Neighborhood Meeting Information.pdf
Attachment B - Application.pdf
Attachment C - Maps.pdf

Attachment D - Special Use Permit SU-99-02 Approvals.pdf
Attachment E - Special Use Permit SU-99-02-01 Approval.pdf
Attachment F - Plan Consistency Analysis.pdf
Attachment G - TIA Executive Summary and NCDOT Review Report.pdf
Exhibit 1 - Legal Description.pdf
Exhibit 2 - Consistency Statement RZ-21-08.pdf
Exhibit 3 - Proposed Conditional District Plan.pdf

4.D. Public Hearing to receive public comment on the Installment Financing (160A-20) of Street Resurfacing project
Public Hearing Street Rehab financing_summary.pdf
Draft Timetable_Streets IPA.pdf

4.E. Public Hearing to receive public input on capital needs for inclusion in the five-year Capital Improvements Plan (CIP) update for FY 2024-2029
First CIP Public Hearing FY 2024-2029_summary.pdf
CIP Schedule 2024 (Tentative).docx

4.F. Public Hearing on Fire Impact Fee Update
Agenda Item Summary_Fire Impact Fee Update 2023_PublicHearing.docx
Resolution 2023-xx_Fire_Impact_Fees.docx
Wake Forest Fire SDF 2023 Update Report 20230825.pdf
Wake Forest 9-5-23 Presentation FINAL.pdf

4.G. Public hearing on a petition requesting annexation submitted by Douglas and Sarah Machado for property associated with the rezoning request RZ-23-03, located at 2117 Averette Road being Wake County PIN 1851-90-8235 being approximately 2.822 acres.
101723 BOC Agenda Summary AN-23-03.pdf
Attachment A Legal Description AN-23-03.pdf
Attachment B Annexation Map AN-23-03.pdf
Attachment C Contiguous Annexation Petition AN-23-03.pdf
DRAFT ORDINANCE AN-23-03.docx

5.Consent Agenda

(A Consent Agenda is a group of items passed with a single motion and vote. These matters are of a generally routine nature. No debate is allowable on any item included on the Consent Agenda. If a Commissioner or any citizen of Wake Forest or its ETJ wants separate consideration of any item, it may be removed from the Consent Agenda by request.)

5.A. Town Approval of the UNRBA Consensus Principles
Summary.docx

Attachment A_CP II Resolution.docx
Attachment B_ConsensusPrinciples II_20230920_Board approved.pdf
Attachment C_2023_09_20 Final UNRBA Concepts and Principles for Reexamination.pdf

5.B. Approval of Resolution Authorizing Primary and Secondary Agents for NC Department of Public Safety (FEMA) relative to Smith Creek Reservoir Dam Mitigation Project (LPDM-PF-04-NC-2022-001)
Designated Agents_Summary.pdf
Resolution 2023-xx_Designation of Authorized Agents.docx
NCDPS.DAform.pdf

5.C.
Approval of municipal infrastructure improvements at the u-turns on Hwy 98 near south franklin intersection
Attachment_A_summary_Signalized Uturns 98.docx
Attachment_B_Resolution Uturns 98.docx
Attachment_C_Reimbursement Agreement - Holding Village (Traffic Control Improvements).pdf
Attachment D_Exhibit A_Construction Plans.pdf
Attachment_E_Exhibit_B_Reimbursement Estimate.pdf
Attachment_F_Exhibit C - NCDOT Traffic Agreement.pdf

5.D. Approval of municipal infrastructure improvements along South Franklin
Summary_S._Franklin_Exp__3_.docx
Attachment_A_Resolution Franklin Exp.docx
Attachment_B_DA S. Franklin Exp.pdf
Attachment_C_CIP Franklin Exp.pdf

5.E. Approval of a resolution for the Town Manager to enter into an agreement for the FY24 Streets Resurfacing Project.
Summary.docx
Attachment_A_2023-xx_Resolution__5_.docx
Attachment B_Street Resurfacing_Bid_0002-2023.pdf
Attachment C_Bid Tab_FY24.pdf

5.F. Approval of a Resolution Accepting a Downtown Revitalization Grant from Electricities of North Carolina
SUMMARY - BOC Acceptance of Electricities Downtown Revitalization Grant 9.27.23.docx
BOC Resolution Accepting Elecricities Downtown Revitalization Grant 9.27.23.docx

5.G. Approval of a Resolution to Enact an Ordinance Prohibiting Smoking and the Use of Tobacco Products and Vapor Products in Town Buildings, in Town Vehicles, and on Town Grounds

Agenda Item Summary_Tobacco Resolution_10.10.2023.docx
TWF Tobacco Ordinance (003)_DRAFT.docx

5.H. Approval to authorizing execution on the behalf of the Town of Wake Forest, a contract with A. Morton Thomas and Associates, Inc. for the warrant analysis, future planning options, design, and survey for the future signal, listed as a CIP project, at the intersection of Forestville Road (State Road 2049) and Coach Lantern Ave/Green Drake Drive.
Summary_Forestville Coach Lantern Signal Intersection.docx
Attachment_A_Resolution_Forestville_Coach_Lantern_Signal (3).docx
Attachment_B_Agreement - 540 - A. Morton Thomas and Associates, Inc..pdf

6.Legislative Items

6.A. Appointment of Candidates for the Board of Adjustment and Planning Board
Board ofAdjustment and Planning Board Candidates Cover letter_2.pdf
Board of Adjustment Candidate 10-17-2023.pdf
Planning Board Candidates 10-17-2023.pdf

7.Planning Items

7.A. Consideration of a petition requesting annexation submitted by Douglas and Sarah Machado for property associated with the rezoning request RZ-23-03, located at 2117 Averette Road being Wake County PIN 1851-90-8235 being approximately 2.822 acres.

7.B. Consideration of LEGISLATIVE CASE RZ-20-05-01,Fuller Capital Boulevard Property, a rezoning map amendment filed by Red Line Engineering to rezone 29.367 acres located at 4925 Unicon Drive, 4975 Unicon Drive, and 10200 Capital Blvd (portion), being Wake County Tax PINs 1739-51-8319, 1739-61-2717, 1739-51-4482 (portion) from Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) to Light Industrial Conditional District (LI-CD).

7.C. Consideration of LEGISLATIVE CASE RZ-23-05, 2117 Averette Road, a rezoning map amendment filed by Douglas and Sarah Machado to rezone 2.822 acres located at 2117 Averette Road, being Wake County Tax PIN 1851-90-8235, from Wake County's Residential-30 (R-30) to General Residential 5 (GR5).

7.D. Consideration of LEGISLATIVE CASE RZ-21-08, Joyner Property, a rezoning filed by McAdams Company to rezone 124.68 acres located at 1180 and 1200 (portion) Club

Villas Dr, being Wake County Tax PINs 1841091336 and 1831895139 (portion) from General Residential 3 Planned Unit Development* (GR3 PUD*); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O) to General Residential 10 Conditional District (GR10-CD); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O). (*While these parcels are labeled as GR3 (PUD), the parcels are not subject to any PUD regulations as the PUD regulations were removed when SU-99-02-01 was approved. Due to the zoning map label, staff will refer to the current zoning as GR3 PUD until such time the official zoning map is amended to remove the PUD text.)

8.Administration and Financial Items

8.A. Consideration of a Resolution amending Fire Impact Fee Update
Agenda Item Summary_Fire Impact Fee Update 2023_Resolution.docx
Wake Forest 9-5-23 Presentation FINAL.pdf
Wake Forest Fire SDF 2023 Update Report 20230825.pdf
Resolution 2023-xx_Fire_Impact_Fees.docx

8.B. Consideration of an Ordinance to approve and authorize the execution and delivery of the Amended and Restated Full Requirements Power Sales Agreement (FRPSA)
Summary.pdf
AmendedandRestatedFRPSA.pdf
TenthAmendedand RestatedFRPPA.pdf
Ordinance2023-XX_FRPSA_Oct202317.pdf

9.Public Services Items

10.Parks and Recreation Items

11.Public Safety Items

12.Other Business

12.A. Department Monthly Report
September 2023 Monthly Report.pdf

12.B. Wake County Tax Release
WF-TXREP-OCT-2023-BOC-MTG.pdf

12.C. Commissioner Reports

13.Adjournment

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-269-
Submitted by: Terry Savary
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
September 5, 2023 Work Session
September 19, 2023 Regular Meeting

Recommendation:

Item Summary:

ATTACHMENTS
- DraftBOCWSMinutesSept202305.pdf
- DraftBOCMinutesSept202319.pdf

Wake Forest Board of Commissioners
Work Session Meeting Minutes

The Wake Forest Board of Commissioners met on **Tuesday, September 5, 2023,** at **6:00 p.m.** in the Board Room at Wake Forest Town Hall, 301 S Brooks Street.

Mayor Jones called the meeting to order at 6:00 p.m.

Commissioners Present: Mayor Vivian A. Jones, Commissioner Jim Dyer, Commissioner Chad Sary, Commissioner Keith Shackleford, Commissioner Nick Sliwinski, and Commissioner Adam Wright.

Commissioners Absent: None.

Staff Members Present:

Town Manager Kip Padgett
Assistant Town Manager Candace Davis
Assistant Town Manager/Chief Financial Officer Aileen Staples
Town Attorney Hassan Kingsberry
Town Clerk Theresa Savary
Finance Director Samantha Sanchez
Planning Director Courtney Tanner
Assistant Planning Director Jennifer Currin
Engineering Director Joe Guckavan
Senior Planner Tim Richards
Senior Planner Kari Grace
Planner II Emma Linn
Manager Brad West
Facilities Steven Carpenter
Facilities Director Mickey Rochelle
Police Chief Jeff Leonard
Fire Chief Ron Early

1. Presentations

1.1 Proclamation Recognizing Constitution Week, September 17 - 23, 2023.

Mayor Jones recognized Constitution Week, September 17 – 23, 2023.

PROCLAMATION
CONSTITUTION WEEK

WHEREAS, *September 17, 2023 marks the two hundred and thirty-sixth anniversary of the drafting of the Constitution of the United States of America by the Constitutional Convention; and*

WHEREAS, *it is fitting and proper to officially recognize this magnificent document and the anniversary of its creation; and*

WHEREAS*, it is fitting and proper to officially recognize the patriotic celebrations which will commemorate the occasion; and*

WHEREAS, *public law 915 guarantees the issuing of a proclamation each year by the President of the United States of America designating September 17 through 23 as Constitution Week;*

NOW, THEREFORE, *I, Vivian A. Jones, by virtue of the authority vested in me as Mayor of the Town of Wake Forest, North Carolina, and the Board of Commissioners do hereby proclaim the week of*

"SEPTEMBER 17 THROUGH SEPTEMBER 23 CONSTITUTION WEEK"

in the Town of Wake Forest, and ask our citizens to reaffirm the ideals the Framers of the Constitution had in 1787.

Mayor Jones said the proclamation would be sent to the General James Moore Chapter, Daughters of the American Revolution (DAR).

1.2. Presentation on AGNC, LLC and Town of Wake Forest Reimbursement Agreement for Downtown Streetscape Improvements on N White Street and E Roosevelt Avenue.

Planning Director Courtney Tanner presented the Reimbursement Agreement with AGNC, LLC, and the Town of Wake Forest. Ms. Tanner explained the agreement is for Downtown Streetscape Improvements on N. White St. and E. Roosevelt Ave. that exceed what is required in the Town's Unified Development Ordinance (UDO) as well as the Town's Comprehensive Transportation Plan. The streetscape improvements are similar to what you see along S. White St. being brick-paved wider sidewalks, pedestrian scale lighting, benches, and other amenities along those lines. Ms. Tanner noted those were identified in the Town's Capital Improvement Plan (CIP) and under state law they can enter an agreement for a developer to install those on behalf of the Town and the Town will reimburse them. Ms. Tanner stated they're deducting what would've been the developer's requirements from that amount and will exceed a little over three million dollars to install along Spring St. heading south on N. White St. going around the CVS Store, over to the Food Hall.

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No questions were asked.

1.3. Presentation of Proposed Ordinance Adding Chapter 30; Article IV Parking, Stopping, and Standing Section 30-164 Enforcement of Temporary Parking Restrictions.

Engineering Director Joe Guckavan brought before the Board a request to approve a text amendment for Chapter 30 for language to allow the Town to enforce temporary no parking restrictions. There would be signs placed on the streets with the date and times no parking is allowed as well as door hangers and letters that would go out on those occasions. Mr. Guckavan stated in addition to this operation, the language was intentionally written broad enough that if there were special events or other circumstances in the Town that needed temporary no parking, they would have the language to allow that.

No questions were asked.

1.4 Unified Development Ordinance Comprehensive Update Work Session #4 with Consultants.

Senior Planner Kari Grace explained the section brought before the Board this evening will be getting into the Development Standard Regulations. Ms. Grace noted this presentation will be posted online on the project webpage after the meeting by the end of the week along with all the other presentations that have been held so far.

Consultant Jackie Berg with Houseal Lavigne provided a high-level overview of the following preliminary Chapters of the Unified Development Ordinance:

- Chapter 4 – General Development Standards
- Chapter 6 – Building Design Standards
- Chapter 8 – Tree Protection, Buffers, and Landscaping
- Chapter 9 – Access and Mobility
- Chapter 10 – Outdoor Lighting

Commissioner Wright asked how standard is a 15′ retaining wall in other communities. Ms. Berg replied it's a pretty common number. Ms. Berg mentioned that Ms. Grace had done some research looking into existing retaining walls in the community and had found that to be a consistent number.

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Mayor Jones asked if all the qualifiers for Residential Infill Development aren't met would it still be an infill Ms. Grace said they welcome any feedback on this but explained one of the ideas they tried to capture is infill is typically small-scale.

Ms. Grace spoke about the following qualifiers. Infill development includes development that meets the following qualifiers:

1. A development site less than five acres in area; and
2. Development on a block that is 80% or more built out; and
3. Development on a lot with existing water mains along the development site frontage or
4. Development on a lot that was platted more than 20 years prior to the adoption of this UDO and not developed.

Mayor Jones asked what if the development is only 75% built out. Ms. Grace said they can continue looking at the parameters and ensure they're not excluding too many properties.

Commissioner Sary said these are pretty typical infill standards and asked what would happen if a house burned down in an older neighborhood, and how that would be affected. Ms. Grace replied if lot lines are not changing, or the lot isn't being subdivided they'd be required to submit a permit and no additional approval would be required. Ms. Grace said the setbacks would be applicable. Commissioner Sary wouldn't encourage that because if someone had a small lot and couldn't meet the setbacks.

Commissioner Wright asked if adult trees are being replaced with the same size trees. Ms. Grace replied they're proposing to increase the minimum size the trees need to be at the time of installation; however, it's not a great increase. Ms. Grace said a larger tree doesn't establish well and it's hard to find grown trees.

Commissioner Wright asked how many years it would take to provide tree canopy coverage on trees being required. Ms. Grace said it would be difficult to estimate but offered to provide him with more information at a later date.

Commissioner Sary asked if there's going to be a minimum lot size or a percentage of trees allowed on a parcel without requiring a tree survey. Ms. Berg stated it would require the new development on that lot to get a survey regardless of the size of the parcel, but they can consider some type of threshold or limit. Commissioner Sary said that would be sensible and whatever is reasonable, and rationale makes sense.

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Commissioner Wright said one of the things that came about in the preliminary report was that citizens want to see more landscaping in parking lots. He said parking lots produce a lot of heat and anything that can be done to offset the heat that parking lots produce would be beneficial.

Commissioner Sary believes a lot of it has to do with the placement and type of species. He said the goal is to have the whole parking lot covered with shade. He said sometimes less is more when it comes to shade.

Commissioner Sliwinski asked if sight lines were considered at the entrance and exit of parking lots. Ms. Berg replied, yes.

Mayor Jones said she's been talking about taking away the minimal parking requirements based on things she's learned recently about downtown. She asked if they should have minimum requirements in the downtown. Ms. Berg stated the downtown environment is the least likely area for a community to require parking.

Ms. Berg provided the following update on the next steps:

- Anticipated Draft UDO Part 4 Content
  - Chapter 5 Subdivision Standards
  - Chapter 7 Parks and Open Space Standards
  - Chapter 11 Natural Resource Protection Standards
  - Chapter 12 Sign Standards
  - Chapter 13 Performance and Maintenance
  - PUD standards (added to Chapter 2)

No further questions or comments were heard.

1.5 Presentation of Draft Wake Forest Public Transit Plan (CPA-23-02)

Planning Director Courtney Tanner said Jared Draper with Toole Design would be presenting the final draft of the Wake Forest Public Transit Plan. She said at the next meeting they'll have a few minor edits they had found in it that they included in the adoption process. She said at this point what they see is relatively intact with what would be adopted.

Jared Draper with Toole Design provided a presentation on the Wake Forest Public Transit Plan.

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Commissioner Wright asked if there are options for advertisements on micro-transit vehicles to help reduce costs. Town Manager Padgett said if the Town is funding micro-transit the answer is yes, but if they're using federal funds, it may be subject to their guidelines.

Commissioner Wright stated there needs to be prioritization on installing shelters and lights at bus stops. He said it's a disservice to patrons and is something the Town should be providing.

Commissioner Wright said as far as the total number of buses, he suggested starting a bit slower with micro-transit and seeing how ridership does and if the demand is there, they can increase service.

Commissioner Sliwinski asked if the $2 micro-transit fee going door-to-door would extend to Wakefield or if it would be for Wake Forest residents only. Mr. Draper said it would cover anywhere in the zone. Mr. Draper said the zone itself is something that would be refined in more detail once they're working with an operator.

Commissioner Sliwinski asked with the number of buses and the level of micro-transit service are they able to start at a lower level, and if there's enough interest and the need for it, how difficult is it to potentially add buses to the loop or add vehicles to the micro-transit zone. Planning Director Tanner said they can modify a route three to four times a year.

Commissioner Sliwinski asked would the new loops capture the needs of current riders. Mr. Draper replied they are capturing ridership that exists today as well as expanding to a place they believe would potentially add more ridership.

Mayor Jones asked if anyone currently taking the bus would have to change buses if they were going to Wakefield. Mr. Draper replied yes, they would transfer buses in Town to get to Wakefield.

Mayor Jones asked when they could apply for more funding through Wake Transit. Ms. Tanner said she'd have to get back to her with the answer.

Commissioner Dyer asked if Toole Design was part of consulting in any other communities in North Carolina that have micro-transit. He also asked if any of those communities had been in business for more than two years. Mr. Draper replied that Toole Design was not part of the consulting in other communities. Mr. Draper stated

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they looked at three case studies for micro-transit and spoke with those communities and don't believe any of them have been in operation for more than two years.

Commissioner Sary asked where the Annual Operating Cost Statistics are being pulled from. Mr. Draper replied it's done by revenue hour cost. Mr. Draper said they're looking at the number of hours it costs on the low end and what it could be on the high end.

Mayor Jones asked what feedback was received from the Town of Wilson and Morrisville regarding the services they provide. Mr. Draper said he doesn't know if they had asked that question; specifically, but he did say everybody they've talked to was excited about micro-transit. He believes there are still challenges but in general, there's been really good feedback and other communities are starting to explore micro-transit.

Commissioner Dyer said in the definitions of riders there are youths and seniors. He asked if youths could ride by themselves and what age is considered a senior. Mr. Draper said all those things can be worked out with the contract. He said if you have a vendor, they may have certain regulations on who can and can't ride by themselves. Mr. Draper said he didn't have the answer but could find out.

1.6 Presentation and Discussion of Fire Impact Fees

Greg Grayson with NC Fire Chief Consulting provided an overview of the Fire Impact Fees and Mihaela Coopersmith with Raftelis provided an overview of the technical provisions of the analysis.

Commissioner Sary said he's all for the Planning Board review and asked Town Manager Padgett if they've done that before. Mr. Padgett stated it's in the local legislation.

Commissioner Sliwinski asked with the effective date being January 1, 2024 would that affect only applications that come in after the January 1, 2024 date. Ms. Coopersmith replied, yes.

No further questions or comments were heard.

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1.7 Consideration of a Resolution to Enact an Ordinance Prohibiting Smoking and Use of Tobacco Products and Vapor Products in Town Buildings, in Town Vehicles, and on Town Grounds

Assistant Town Manager Candace Davis provided a presentation on the proposed ordinance language on Prohibiting Smoking and Use of Tobacco Products and Vapor Products in Town Buildings, in Town Vehicles, and on Town Grounds

Commissioner Sary asked when the signage would go up. Ms. Davis replied they would have to design and develop the signs first and then determine where the signs would be placed.

Commissioner Dyer suggested a warning for 1st offense and a $100 violation thereafter.

Mayor Jones asked if the Town could enforce penalties on school property. Assistant Town Manager Candace Davis replied the Town could not enforce it on school property. Commissioner Dyer asked if the county has an ordinance for schools. Assistant Town Manager Davis replied, yes.

Commissioner Shackleford asked if the signage would have the penalty on it. Ms. Davis replied that the Town could include the penalty on the signage but not the amount; otherwise; the signage would need to be changed out if the violation amount changes. Commissioner Shackleford suggested putting "subject to fines" on the sign instead of an amount.

The general consensus of the Board was to impose a warning for 1st offense and raise the fine to $100.

Commissioner Sliwinski asked if the proposed language of "on-town grounds" includes parking lots at the parks and someone sitting in their private vehicle in the parking lot. Town Manager Padgett replied, yes.

1.8 Wake Forest Public Art Commission 2023 Art Plan

Public Art Commission Chair Delphine Peller provided a presentation of the Draft Wake Forest Public Art Commission (PAC) 2023 Art Plan.

Commissioner Sary thanked the PAC members and appreciated all their time and effort in the public arts.

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Mayor Jones thanked the PAC members for all their work.

Commissioner Shackleford commented that the Draft 2023 PAC Art Plan was wonderful and professionally done.

Commissioner Dyer asked for the date of the Professional Development Opportunity on Fostering Engagement. Ms. Peller replied that it will be held at the Renaissance Centre on Thursday, September 28, 2023 from 6 – 8 p.m.

Mayor Jones asked when the Art Program would be held. Ms. Peller said it would be held on Saturday, October 7, 2023 at 9:00 a.m.

1.9 Presentation of LEGISLATIVE CASE RZ-23-01, 4Rivers - Wake Forest Self Storage, a conditional rezoning filed by Rob Caudle on behalf of Franklin Village, LLC, to rezone 2.64 acres located at 0 Friendship Chapel Road, being Wake County Tax PIN 1850066925, from General Residential 10 (GR10) to Highway Business Conditional District (HB-CD).

Senior Planner Tim Richards provided a presentation on Case RZ-23-01, 4Rivers - Wake Forest Self-Storage located at 0 Friendship Chapel Rd.

Mr. Richards stated the following two additional conditions were proposed by the developer since the Planning Board Meeting on Monday, August 21, 2023:

- In addition to the requirements of UDO 5.6.2.C, the façade colors shall include a minimum of two compatible colors. All colors shall also complement the buildings located on PIN 1840972490 (Gateway Commons).
- The façade of building corners shall include enhanced architectural features to create a visual interest, and each building corner visible from public streets shall maintain a relation to each other but are not required to be identical. Building corners shall relate to each other with enhanced glass elements and accent colors.

Mr. Richards stated the Planning Board heard input from staff and the developer and those present who desired to speak. Following the Public Comment Session at the August 21, 2023 Meeting the Planning Board recommended denial 5-0. The Planning Board found the request inconsistent with the Comprehensive Plan.

Mr. Richards stated staff's recommendation is for disapproval of the rezoning as proposed and finds it to be inconsistent with the Comprehensive Plan and not in the public interest because it is inconsistent with the Community Plan direction for:

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1. Neighborhood Commercial areas,
2. Activity Center areas,
3. Parking lots,
4. Screening and buffering, and
5. Community character.

Commissioner Wright disclosed he works for a self-storage company and said he'll try to be as impartial as he possibly can.

Commissioner Dyer remarked there seems to be a need for the facility and was intrigued that the statistics show that the Town of Wake Forest is short of storage facilities. Mayor Jones said she was also surprised that the Town is short of storage facilities.

Mayor Jones said the current zoning is General Residential 10 (GR 10) and the applicant is requesting a Highway Business Conditional District (HB-CD). She doesn't see why this is not a reasonable development for that corner. She said the applicant has proposed enhanced architectural standards and the neighbors weren't terribly opposed to it. She stated self-storage facilities are allowed in Neighborhood Business Districts with the approval of conditional zoning.

2. Discussion of Monthly Financial Report

2.1. Monthly Financial Report

Received.

3. Review of Draft Agenda for Upcoming Regular Meeting

3.1. Review of Draft Agenda for Upcoming Regular Meeting

The draft agenda was reviewed.

Town Manager Padgett said there are three items needing to be added based on tonight's meeting:

4.C. Proposed Fire Impact Fees (Public Hearing Item)
4.D. General Public Comment (Public Hearing Item)

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8.B. Consideration of Fire Impact Fees (Administration and Financial Item)

8.C. Tobacco Ordinance (Administration and Financial Item)

4. Other Business

No other business was presented.

5. Commissioner Reports

Commissioner Dyer congratulated Michelle Michael for receiving the 2023 Robert E. Stripe Award from the Preservation North Carolina. He shared that the Human Relations Council is preparing for Good Neighbor Day to be held on Saturday, September 16, 2023. He reminded everyone the Memorial Flag-Raising Ceremony is on Monday, September 11, 2023 at 11:00 a.m.

Commissioner Wright said the Technical Advisory Board Meeting did not meet quorum at their last meeting and he's asking if the Board can meet via Zoom. He said they would've been able to meet quorum if they were able to meet virtually. Attorney Kingsberry stated the Town has an electronic meeting policy that the Board adopted in April 2020 which brings all the Boards and Advisory Boards under that policy. Attorney Kingsberry stated during the State of Emergency, that is when virtual/remote meetings were allowed but after the State of Emergency was lifted, we have no authority for remote meetings.

Commissioner Sliwinski thanked those who attended the Concert in the Park at Joyner Park. He also thanked the PRCR Advisory Board for the Unplugged Event. He shared there would be another Concert in the Park on Sunday, September 10, 2023 at 5:30 p.m.

Commissioner Shackleford attended the National Alumni Association of Dubois High School Banquet on Saturday, September 2, 2023. He will be attending the Wake Forest Downtown Meeting on Wednesday, September 6, 2023.

Commissioner Sary again thanked the Public Arts Commission. He'll be at the Citizens Academy on Thursday, September 7, 2023. Friday, he'll host the last FNOW of the year on September 8, 2023. He shared there will be a South Main Street Corridor Study Open House on Wednesday, September 13, 2023 from 6:00 – 8:00 p.m. at 1839 S. Main St. at the Factory.

Mayor Jones thanked Sustainability Coordinator Jeanette Johnson for establishing the Sustainability 101 Classes. Mayor Jones thanked event organizer Brandon Wright for Wake Forest Comic-Con and said it was a great event. She met with Congresswoman Deborah Ross. Mayor Jones and Town Manager Padgett went with Mary Wills Bode and some chamber representatives to meet with Secretary Boyette and Joey Hopkins at NCDOT to discuss Capital Blvd. She attended NC Tap and the Dubois Alumni Meeting. Mayor Jones missed the August 15, 2023 Board of Commissioners Meeting because she was at the Electricities Conference. She attended a Triangle Community Coalition presentation in the Fenton Mixed-Use Development in Cary, NC.

Town Manager Kip Padgett had no report.

6. Adjournment

The Board of Commissioners adjourned the meeting at 8:33 p.m.

Duly approved in open session this 17th day of October 2023.

(ATTEST)

_____
Vivian A. Jones, Mayor

_____
Theresa Savary, Town Clerk

DRAFT

Wake Forest Board of Commissioners
Meeting Minutes

The Wake Forest Board of Commissioners met on **Tuesday, September 19, 2023,** at **6:00** p.m. in the Board Room at Wake Forest Town Hall, 301 S Brooks Street.

Mayor Jones called the meeting to order at 6:00 p.m.

Boy Scout Troop 500 led everyone in the Pledge of Allegiance.

Council Members Present: Mayor Vivian A. Jones, Commissioner Jim Dyer, Commissioner Sary, Commissioner Keith Shackleford, Commissioner Adam Wright, and Commissioner Nick Sliwinski.

Commissioner Members Absent: None.

Staff Members Present:
Town Manager Kip Padgett
Assistant Town Manager Candace Davis
Assistant Town Manager/CFO Aileen Staples
Town Attorney Hassan Kingsberry
Town Clerk Theresa Savary
Planning Director Courtney Tanner
Assistant Planning Director Jennifer Currin
Finance Director Samantha Sanchez
Planner II Emma Linn
Public Facilities Specialist Nick Parrish
Senior Planner Tim Richards
Long Range Planning Manager Brad West
Fire Chief Ron Early
Fire Captain Ian Moffatte
Police Chief Jeff Leonard
Police Captain Julius Jefferson
Police Captain Brandon High

1. Approval of Agenda

ACTION:
Mover: Commissioner Dyer moved to approve the agenda as presented.
Seconder: Commissioner Sary.
Vote: Motion carried 5-0.

2. Approval of Minutes

2.A. Approval of Minutes:

- July 6, 2023 Work Session
- July 18, 2023 Regular Meeting
- August 1, 2023 Work Session
- August 15, 2023 Regular Meeting

ACTION:
Mover: Commissioner Wright moved to approve the minutes as presented.
Seconder: Commissioner Dyer.
Vote: Motion carried 5-0.

3. Presentations

3.A. Proclamation Recognizing the Month of October 2023 as "P.A.N.D.A.S. Month"

Mayor Jones read the proclamation into the record:

PROCLAMATION
RECOGNIZING OCTOBER 2023 AS "P.A.N.D.A.S. AWARENESS MONTH" IN THE TOWN OF WAKE FOREST, NORTH CAROLINA

WHEREAS, *Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections, better known as PANDAS, is said to be a rare condition but is actually rarely diagnosed; and*

WHEREAS, *PANDAS is a term used to describe a subset of children who have Obsessive Compulsive Disorder and/or tic disorders such as Tourette Syndrome and in whom symptoms worsen following strep infections such as Strep Throat and Scarlett Fever; and*

WHEREAS, *children are often misdiagnosed and treatment is delayed. There are many treatments and options for treating this condition but, unfortunately, they are often very expensive and not covered by insurance;*

WHEREAS, *my friend Jay Jay Wilson suffers from this debilitating condition and I have been issuing proclamations for 10 years on his behalf; and*

WHEREAS, *Jay Jay's parents work so hard to provide everything he needs to live a good life; and*

DRAFT

NOW THEREFORE, *I, Vivian A. Jones, Mayor of the Town of Wake Forest and the Board of Commissioners, do hereby proclaim October 2023 as*

"P.A.N.D.A.S. MONTH IN THE TOWN OF WAKE FOREST"

and urge all citizens to become aware of this debilitating condition for children and work to make it more readily recognized by the medical profession and insurance providers.

Mayor Jones presented the proclamation to the Wilson Family.

3.B. Proclamation Recognizing "Public Power Week" October 1- 7, 2023

Mayor Jones read the proclamation into the record:

PROCLAMATION
PROMOTING NORTH CAROLINA PUBLIC POWER DURING
PUBLIC POWER WEEK, OCTOBER 1 – 7, 2023

WHEREAS, *public power meets the electric needs of 40 million Americans, almost 15 percent of electricity consumers; and*

WHEREAS, *North Carolina's public power communities provide homes, businesses and local government agencies with safe and reliable electricity employing sound business practices designed to ensure the best possible service; and*

WHEREAS, *many of North Carolina's 70 public power cities and towns have been electric providers for more than 100 years and provide 1.2 million citizens with safe, reliable power; and*

WHEREAS, *North Carolina's public power utilities are dependable institutions that provide excellent service and a commitment to community and they are valuable community assets that contribute to the well-being of the community and provide economic development opportunities; and,*

NOW, THEREFORE, *I, Vivian A. Jones, Mayor of the Town of Wake Forest do hereby proclaim the week of October 1-7 the 37th annual Public Power Week, a week to promote North Carolina's public power cities and towns for their contributions to their communities; and urge all citizens of Wake Forest to join with all public power systems in the United States in this celebration of public power.*

Mayor Jones presented the proclamation to Electric Utility Manager Jason Shambley who accepted the proclamation on behalf of the Wake Forest Power Department.

3.C. Proclamation Recognizing Deacon Tyrone Moore

DRAFT

PROCLAMATION
RECOGNIZING DEACON TYRONE MOORE

Whereas, *Deacon Tyrone Moore has been a member of Ledge Rock Missionary Baptist Church since 1979; and,*

Whereas, *over these forty-four years, Deacon Moore has served as a faithful member always volunteering to maintain the lawn, fix anything that needed it, and making sure the Church was clean and spotless for every Worship Service; and,*

Whereas, *Deacon Moore has served as President of the Hospitality Ministry, has served in the Pastor's Aide Ministry, and has served in the Male Chorus; and,*

Whereas, *in 1987 he began serving as a Trustee and then was recommended to be a Deacon in 1989. He served as the Chairman of the Deacon Board for eighteen years; and,*

Whereas, *Deacon Moore has never met a stranger; he believes in unconditional love; he is always willing to help others and be a servant of the Lord. Deacon Moore walks always by faith and has been a true blessing to Ledge Rock Missionary Baptist Church and everyone he has met throughout the years.*

Now, Therefore, I, *Vivian A. Jones, Mayor of the Town of Wake Forest do hereby proclaim that Deacon Tyrone Moore is a blessing to our community and thank him for his service.*

Mayor Jones said the proclamation was sent to the church.

3.D. Introduction of Candidates for the Planning Board

Mayor Jones recognized the following Planning Board applicants:

James Barber	Jarrett Lane
Matt Davis	John Mann
Joshua Epperson	Phillip Martin
Daniel Gardiner	Shipman Northcutt
Jennifer Haley	Sarah Mobraten
Kevin Haynes	Veronica Roanhouse
Benny Jenkins	Elaine Sheppard
Kevin King	Anna Shope
Jay Tilley	Adam Redler

Matt Davis introduced himself to the Board of Commissioners and expressed his interest in service to the Planning Board.

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Jarrett Lane introduced himself to the Board of Commissioners and expressed his interest in service to the Planning Board.

Phillip Martin introduced himself to the Board of Commissioners and expressed his interest in service to the Planning Board.

Sarah Mobraten introduced herself to the Board of Commissioners and expressed his interest in service to the Planning Board.

Veronica Roanhouse introduced himself to the Board of Commissioners and expressed his interest in service to the Planning Board.

Elaine Sheppard introduced herself to the Board of Commissioners and expressed his interest in service to the Planning Board.

Anna Shope introduced herself to the Board of Commissioners and expressed his interest in service to the Planning Board.

Adam Redler introduced himself to the Board of Commissioners and expressed his interest in service to the Planning Board.

4. Public hearings / Public Comment

4.A. Public Hearing on LEGISLATIVE CASE RZ-23-01, 4Rivers - Wake Forest Self Storage, a conditional rezoning filed by Rob Caudle on behalf of Franklin Village, LLC, to rezone 2.64 acres located at 0 Friendship Chapel Road, being Wake County Tax PIN 1850066925, from General Residential 10 (GR10) to Highway Business Conditional District (HB-CD).

Jamie Schwedler with Parker Poe at 301 Fayetteville St., Suite 1400, Raleigh, NC 27601 provided a presentation on RZ-23-01: 4Rivers – Wake Forest Self Storage.

Commissioner Dyer asked if the original drawing had a loading dock in the back. Hunter Dawkins with 4Rivers Property Group stated at one point there was, and they shifted the building over to create a farther setback from the neighborhood.

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Margaret Watkins, 304 Belmellen Ct., Wake Forest, NC 27587 spoke in opposition of Case RZ-23-01 - 4Rivers - Wake Forest Self Storage.

No other questions or comments were heard.

Mayor Jones declared the public hearing closed at 7:01 p.m.

4.B. Public Comment: If anyone would like to address the Board of Commissioners on an item other than a public hearing item during the time of public comment, please sign up with the Town Clerk prior to the meeting. Each speaker is asked to limit comments to 3 minutes. Please provide the clerk with copies of any handouts you have for the Board. Although the Board is interested in hearing your concerns, speakers should not expect Board action or deliberation on subject matter brought up during the Public Comment segment. Topics requiring further investigation will be referred to the appropriate Town Staff and may be scheduled for a future agenda. Thank you for your consideration of the Board of Commissioners, staff and other speakers.

Mayor Jones asked if anyone had any public comments.

Margaret Watkins, 304 Belmellen Ct., Wake Forest, NC 27587 remarked that any Planning Board candidates who were not present during tonight's meeting should not be considered by the Board.

5. Consent Agenda

(A Consent Agenda is a group of items passed with a single motion and vote. These matters are of a generally routine nature. No debate is allowable on any item included on the Consent Agenda. If a Commissioner or any citizen of Wake Forest or its ETJ wants separate consideration of any item, it may be removed from the Consent Agenda by request.)

5.A. Approval of AGNC, LLC and Town of Wake Forest Development Agreements for Downtown Streetscape Improvements on N White Street and E Roosevelt Avenue

[Filed in the Clerk's Office as Resolution 2023-43.]

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5.B. Approval of Ordinance Adding Chapter 30; Article IV Parking, Stopping, and Standing Section 30-164 - Enforcement of Temporary Parking Restrictions

[Filed in the Clerk's Office as Ordinance 2023-23.]

5.C. Approval of a resolution to schedule the public hearing and certify the sufficiency for a petition requesting annexation submitted by Douglas and Sarah Machado for property associated with the rezoning request RZ-23-03, located at 2117 Averette Road being Wake County PINs 1851-90-8235 being approximately 2.822 acres.

[Filed in the Clerk's Office as Resolution 2023-44.]

ACTION:
Mover: Commissioner Dyer moved to approve the consent agenda as presented.
Seconder: Commissioner Sary.
Vote: Motion carried 5-0.

6. Legislative Items

6.A. Consideration of Appointment of Candidates for the Planning Board

Town Clerk Savary stated the following applicants were selected for the Planning Board:

- Anna Shope
- Adam Redler, ETJ

ACTION:
Mover: Commissioner Wright moved to approve as read into the record.
Seconder: Commissioner Sliwinski.
Vote: Motion carried 5-0.

7. Planning Items

7.A. Consideration of LEGISLATIVE CASE RZ-23-01, 4Rivers - Wake Forest Self Storage, a conditional rezoning filed by Rob Caudle on behalf of Franklin Village, LLC,

DRAFT

to rezone 2.64 acres located at 0 Friendship Chapel Road, being Wake County Tax PIN 1850066925, from General Residential 10 (GR10) to Highway Business Conditional District (HB-CD).

ACTION:
Mover: Commissioner Sary moved to approve Case RZ-23-01, 4Rivers-Wake Forest Self Storage with the proposed conditions and consistency statement.
Seconder: Commissioner Dyer.

Commissioner Sary said this is a rare example of where the Town's Community Plan and the Future Land Use Map probably got it wrong. He understands the Planning Staff and the Planning Board's recommendation and appreciates that because it's based on the Community Plan. He said it's the Board's responsibility to look at each request and ask themselves if it makes sense. He stated the property is zoned General Residential-10, and as a use-by-right, you can have ten to twenty-five townhomes or apartments go there without any type of request from this Board. He said there's more of a buffer on this property than on the Heritage Property to the east and south. The applicant had worked with neighbors who expressed concern. Commissioner Sary thinks the appearance of the structure is not your typical 1980s or 1990s storage unit and will look like a Class A office. He said there's obviously a need for something like this for folks moving to the Town. He does not have any problems with the request and appreciates staff and the Planning Board's recommendation but thinks this is one that was maybe overlooked when putting the Town's Community Plan and Future Land Use Map together.

Commissioner Dyer stated based on the topography he agrees 100 percent.

Vote: Motion carried 3-2.

Aye	Nay
Chad Sary	Adam Wright
Jim Dyer	Nick Sliwinski
Keith Shackleford	

A copy of the proposed conditions and consistency statement are attached to the meeting minutes filed in the Clerk's Office.

DRAFT

8. Administration and Financial Items

8.A. Consideration of a resolution authorizing the filing of an application for approval of a financing agreement authorized by NC General Statute 160A-20 (Street Resurfacing)

Assistant Town Manager/CFO provided an overview of the process of filing an application for approval of a financing agreement authorized by NC General Statute 160A-20 (Street Resurfacing). The Board was provided with the Town of Wake Forest Street Resurfacing Financing (160A-20) Timetable.

ACTION:
Mover: Commissioner Wright moved to approve a resolution authorizing the filing of an application for approval of a financing agreement authorized by NC General Statute 160A-20 (Street Resurfacing).
Seconder: Commissioner Dyer.
Vote: Motion carried 5-0.

8.B. Approval of a Resolution to Support Development of the S-Line Rail Corridor and to Provide Local Funding to Match a Federal Grant Opportunity for Mobility Hub Design and Project Development Activities

Long Range Planning Manager Brad West said it's a great opportunity not only for NCDOT but VDOT to further enhance the S-Line project. It'll primarily pay for a commuter rail and Amtrak Station. A majority of the funds would be used for construction with some design work. Mayor Jones asked if this would be over a period of three years. Mr. West replied yes, in 2026.

ACTION:
Mover: Commissioner Wright moved to approve a resolution to support the development of the S-Line and to provide local funding to match a federal grant opportunity for mobility hub design and project development activities.
Seconder: Commissioner Dyer.
Vote: Motion carried 5-0.

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9. Public Services Items

No Public Service Items presented.

10. Parks and Recreation Items

No Parks and Recreation Items presented.

11. Public Safety Items

No Public Safety Items presented.

12. Other Business

12.A. Department Monthly Report

Received.

12.B. Commissioner Reports

Commissioner Dyer attended the Citizens Academy and participated in the Memorial Flag Raising Ceremony. He reminded everyone that the next Memorial Flag Raising Ceremony is on Monday, October 2, 2023 at Town Hall Plaza. He participated in the POW/MIA Recognition Day Reading of the Names. He shared that the Tunnel to Towers Run & Walk is scheduled for Saturday, October 7, 2023.

Commissioner Wright attended Good Neighbor Day and was happy Jay Jay Wilson won the youth award for Good Neighbor of the Year. He said some of the things people are doing in the Town's neighborhoods make him proud to be a commissioner for the Town of Wake Forest. He will be helping at the Tree Trail Trek Event at Joyner Park.

Commissioner Sliwinski thanked Chief Early and the Fire Department for putting on the September 11th Event last week. The Mental Wellness & Self Care Fair will take place on Saturday, October 21, 2023 from 1:00 to 4:00 p.m. at the Renaissance Centre. He attended the Memorial Flag Raising Ceremony.

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Commissioner Shackleford attended the Memorial Flag Raising Ceremony, the 911 Service, and the Northeast Coalition Meeting.
Commissioner Sary shared that he kicked off FNOW. He said he enjoyed the Citizens Academy session and promoted Wake Forest's National Night Out scheduled on Monday, October 2, 2023 from 5:00 to 7:30 p.m.

Mayor Jones attended the Metro Mayor's Rail Work Group, NCDOT held a virtual update on the S-Line Coalition, she attended the Senior Expo, the Senior Information Networking Group held their five-year anniversary to celebrate being an official 501(c)(3) Organization, she attended the Makery Ribbon Cutting, she had lunch with Wake Forest Power Staff, and she attended the open house for S. Main St. planning.

Mayor Jones explained at the Board's last meeting she said it wasn't worth the time and money to go to Washington D.C. regarding Capital Blvd. and what she meant was she didn't think the Town should pay for any of the Board members to go at this time. She'd like to propose they not authorize the trip at this time and save it for a time that would benefit the Town's residents.

Commissioner Sary said they all want what's best for Wake Forest, but based on conversations he's had he doesn't think going to Washington D.C. would accomplish anything.

Commissioner Wright strongly disagrees. He said this Town has every right to know we're going to advocate for citizens. He said it's about building connections and relationships.

Commissioner Dyer asked how much a trip to Washington D.C. would cost. Mayor Jones replied $1500 per person.

Commissioner Sliwinski said the trip is about more than just Capital Blvd. He said it's an opportunity for the Chambers to start making connections, and if they're asked to go, they should consider going in support of the Chamber. He suggested they continue to talk about the trip.

Commissioner Shackleford asked when it was scheduled. Commissioner Wright replied on October 24 and 25, 2023.

Commissioner Sary said he agrees with Commissioner Wright that they need to put themselves in the best light but if it's just a trip for Capital Blvd. it's not worth the time. Commissioner Wright replied that the Chamber doesn't want to go just for Capital Blvd. Commissioner Sary said he hasn't heard anything about this, and it's all been behind closed doors. Commissioner Sary remarked if the Chambers want to provide a presentation, he welcomes them to come talk to the Board. Commissioner Wright said there has been discussion about it but not in a public setting.

Commissioner Shackleford asked do we use Town funds to pay for representatives of the Town Board to go. Commissioner Shackleford asked where that falls under their budget. Town Manager Padget stated if the Town is paying for you to attend you would go in your official capacity as commissioner. Commissioner Sary asked if they could continue the discussion at the Work Session. Commissioner Sliwinski asked, based on the timing of the trip, would the Board have time to wait and discuss at the Work Session or should they reach out to the Chambers and get clarification on the agenda items. Mayor Jones said they would work on it and get the information to the Board. Town Manager Padgett said he would reach out to the Chambers and ask them for a revised agenda and talking points on what the meeting is about, and he'll invite Chamber Staff to the October 3, 2023 Board of Commissioners Work Session.

Town Manager Padgett said there was an issue with some of the legal ads for tonight, so those items will be scheduled for the October Work Session. He mentioned the Planning Board candidates who were voted on this evening would take office immediately due to trouble meeting quorum. Mr. Padgett said there are two Planning Board members whose terms expire at the end of the year who will not seek reelection, so the Board will act on those at a future date.

Town Manager Padgett stated that Executive Director Kristen Brannock of Resources for Seniors requested a meeting with Town Manager Padgett, Mayor Jones, and Assistant Town Manager Aileen Staples. He said the Senior Center is growing exponentially with programs, new participants, and members of the Senior Center. That coupled with some change of funding from the County and some redirection from the Resource for Seniors Board is going to cause an approximate $50,000 deficit this year, and to balance that deficit they're going to look at cutting programs at the Senior Center. Town Manager Padgett asked before they cut any programs, he wanted to bring this to the Board of Commissioners to see if they'd be willing to take money out of their fund balance to fill that $50,000 gap. Town Manager Padgett mentioned at the Board's Retreat in January

2024, they would discuss the future of the Senior Center and what that means for the Town. They will also discuss how to fund and operate the Senior Center going forward. Commissioner Wright said he recently had a conversation with folks about how much they loved the Senior Center. Commissioner Wright asked how it would affect the Town financially. Town Manager Padgett replied they'd be fine and could afford to do that.

ACTION:
Mover: Commissioner Wright moved to approve a budget adjustment of $50,000 for the Senior Center.
Seconder: Commissioner Sary.
Vote: Motion carried 5-0.

12.D. Closed Session - Closed Session to establish, or to instruct the public body's staff or negotiating agents concerning the position to be taken by or on behalf of the public body in negotiating the price and other material terms of a contract or proposed contract for the acquisition of real property by purchase, option, exchange, or lease. N.C.G.S. § 143.318.11(a)(5)

ACTION:
Mover: Commissioner Dyer moved to go into closed session at 7:39 p.m.
Seconder: Commissioner Sliwinski.
Vote: Motion carried 5-0.

The Board reconvened to open session at 8:10 p.m.

ACTION:
Mover: Commissioner Wright moved to approve authorization to acquire property located at 0 Devon Square Blvd. for $3.1275 million dollars.
Seconder: Commissioner Sary.
Vote: Motion carried 5-0.

13. Adjournment

With no further business to discuss, the meeting was adjourned at 8:13 p.m.

DRAFT

Duly approved in open session this 17th day of October 2023.

(ATTEST)

Vivian A. Jones, Mayor

Theresa Savary, Town Clerk

DRAFT

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-268-
Submitted by: Terry Savary
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Proclamation Recognizing November 2023 as "Native American Heritage Month"

Recommendation:

Item Summary:

ATTACHMENTS
- NativeAmericanHeritageMonth_Oct202317.pdf

TOWN *of*
WAKE FOREST

301 S. Brooks Street
Wake Forest, NC 27587
t 919.435.9400

www.wakeforestnc.gov

PROCLAMATION
RECOGNIZING NOVEMBER 2023 AS
"NATIVE AMERICAN HERITAGE MONTH"

WHEREAS, the history and culture of our great nation have been significantly influenced by American Indians and indigenous peoples; and

WHEREAS, the contributions of American Indians have enhanced the freedom, prosperity, and greatness of America today, and

WHEREAS, their customs and traditions are respected and celebrated as part of a rich legacy throughout the United States; and

WHEREAS, Native American Awareness Week began in 1976 and recognition was expanded by Congress and approved by President George Bush in August 1990, designating the month of November as National American Indian Heritage Month; and

WHEREAS, in honor of National American Indian Heritage Month, community celebrations as well as numerous cultural, artistic, educational, and historical activities have been planned.

NOW, THEREFORE, I, Vivian A. Jones, by virtue of the authority vested in me as Mayor of the Town of Wake Forest, North Carolina do hereby proclaim November 2023 as

"Native American Heritage Month"

in the Town of Wake Forest and urge all our citizens to observe this month with appropriate programs, ceremonies, and activities.

This the 17th day of October 2023.

ATTEST:

Theresa Savary
Town Clerk

Vivian A. Jones
Mayor

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-289-
Submitted by: Ruben Wall
Submitting Department: Parks & Recreation
Meeting Date: October 17, 2023

SUBJECT
Consideration of Approval of a Resolution Authorizing an Increase in Funds for Enhancements at Flaherty Park Field #2.

Recommendation:

Item Summary:

ATTACHMENTS

- Summary Sheet - Consideration of Approval of a Resolution Authorizing an Increase in Funds for Enhancements at Flaherty Park Field #2..docx
- Resolution for BOC - Consideration of Approval to Increase Funds for Enhancements at Flaherty Park Field #2..docx
- Exhibit A - Flaherty Park Field #2 Cost Estimate.xlsx

Consideration of Approval of a Resolution Authorizing an Increase in Funds for Enhancements at Flaherty Park Field #2.

Summary

Agenda Item: Consideration of Approval of a Resolution Authorizing an Increase in Funds for Enhancements at Flaherty Park Field #2.

Summary: In October 2022, the Town entered into a partnership with NCABC, Inc (DBA FUNGO). Both parties agreed Flaherty Park Field #2 would be the home field for FUNGO and enhancements would have to be made to the field. The cost for enhancements would be divided between the Town and FUNGO. Due to recommendations and request from both parties, the cost to make these enhancements has increased.

Explanation: Items Requested by the Town/FUNGO

- Proposed concrete areas has increased from 450 SY to 650 SY – this was due to moving everything down the foul lines as much as possible (to existing light poles), addition of exterior refreshment sales area.
- Seating areas have increased in size, added stadium seating.
- Bullpens have increased in size, now consist of synthetic turf.
- Synthetic turf mounds and player benches added to bullpens.
- Changed perimeter fence from 4' high chain-link to 6' high decorative fence.
- Increased amount of field fencing to be replaced.
- Addition of warning track mix from current termination points to outfield fence.
- Electrical improvements added for servicing exterior refreshment area.

Original Cost Estimate - $603,220 Total
$301,610 Town Portion
$301,610 FUNGO Portion

New Cost Estimate - $837,375 Total
$418,687.50 Town Portion
$418,687.50 FUNGO Portion

Total Amount Increase $234,155

Difference/Increase $117,077.50 Each

Staff feels these recommendations will provide a top-quality facility at the completion of the project.

RESOLUTION

CONSIDERATION OF APPROVAL OF A RESOLUTION AUTHORIZING AN INCREASE IN FUNDS FOR ENHANCEMENTS AT FLAHERTY PARK FIELD #2.

WHEREAS, in 2022, NCABC, Inc (DBA FUNGO) baseball approached the Town about a potential partnership to offer a collegiate summer baseball league to provide enjoyment and entertainment for the citizens of Wake Forest; and

WHEREAS, both parties entered into a partnership in October 2022 and agreed to divide the cost for the enhancement of Flaherty Park Field #2.

WHERAS, recent cost estimates have increased, and additional funds will be necessary to make enhancements. (See exhibit A)

WHEREAS, the total estimated cost has increased by $234,155 with the town responsible for $117,077.50 of this cost.

WHEREAS, funding for said enhancements will come from recreation impact fees.

NOW, THEREFORE, BE IT RESOLVED the Board of Commissioners of the Town of Wake Forest authorizes the Manager to allot additional funds as needed to make the recommended enhancements as suggested by staff and representatives with FUNGO baseball.

Duly adopted this 17th Day of October 2023.

_____
Vivian A. Jones
Mayor

(ATTEST)

_____
Theresa Savary
Town Clerk

Exhibit A

	Original Cost Estimate
Total Cost	$603,220
Town Portion	$301,610
FUNGO Portion	$301,610

	Updated/New Cost Estimate
Total Cost	$837,375
Town Portion	$418,687.50
FUNGO Portion	$418,687.50

Total Increase	**$234,155**
Difference/Increase	**$117,077.50 Each**

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-275-
Submitted by: Ella Dowtin
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Introduction of Candidates for the Board of Adjustments and Planning Board

Recommendation:

Item Summary:

ATTACHMENTS
- Summary Sheet_Candidates Oct202317.pdf

Agenda Item: Introduction of candidates for the Board of Adjustments and Planning Board.

Summary: Candidates have been invited to the October 17, 2023, meeting to be introduced and share why interested in being appointed to the advisory board of their choice.

Attachment: None.

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-290-
Submitted by: Ella Dowtin
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Presentation of Annual Reports from the Town's Advisory Boards

Recommendation:

Item Summary:

ATTACHMENTS
- 2023 Advisory Boards Annual Report.pdf

TOWN *of*
WAKE FOREST

301 S. Brooks St.
Wake Forest, NC 27587
919.435.9400
wakeforestnc.gov

Advisory Boards and Commissions

Annual Reports
October 2023

Historic Preservation Commission

Human Relations Council

Public Art Commission

Parks, Recreation & Cultural Resources Advisory Board

Technology Advisory Board

Urban Forestry Advisory Board

TOWN OF WAKE FOREST
HISTORIC PRESERVATION COMMISSION
Annual Report to the Board of Commissioners FY 2022-2023

Members:

Andrea Radford, Chair	12/31/24
Elizabeth Miller, Vice-Chair	12/31/25
David Bennett	12/31/24
Melvin Hill, Jr.	12/31/25
Paige Bivens	12/31/23
Nancy Ginger	12/31/23
Charlotte Jenkins	12/31/23
Angela Wright	04/16/25
Jason Mobraten	12/31/25

James Dyer, Board of Commissioners, Ex-Officio
Michelle Michael, MHP, Senior Planner (Historic Preservation), Staff Liaison
Courtney Hotchkiss, PhD., Planner I (Historic Preservation)

REGULAR ACTIVITIES

Certificates of Appropriateness (COA's)	2020	2021	2022	2023*
• COA's Major Works:	7	2	3	0
1. COA's Minor Works:	13	2	5	4
• COA's for Demolition HPC approval:	0	0	1	0
• Staff Demo Review (No COA Required)	10	4	9	1

*Staff recognizes the low number of COA's in 2023 and are attributing it to a limited number of restoration contractors as well as supply chain issues and inflated material costs.

COMMISSION TRAINING

Historic Preservation Commission Training: Town of Wake Forest attorney, Hassan Kingsberry, provided the HPC a training on quasi-judicial zoning decision-making. Commission members who attended included Andrea Radford, David Bennett, Charlotte Jenkins, Nancy Ginger, Angela Wright, Melvin Hill, Elizabeth Miller.

Certified Local Government Training: Historic Preservation Commission members and staff are required to attend approved annual training to maintain Certified Local Government standing and therefore eligibility to compete for grant funds. This year, commission members and the staff liaison attended virtual training provided by the NC Historic Preservation Office as well as the Preservation NC virtual conference.

AWARDS

Certified Local Government (CLG) Grant FY 23-24: The HPC and Town of Wake Forest applied for and received a Certified Local Government Grant to conduct public workshops. The workshops will be held during the 2024 calendar year.

Jandy Ammons Grant 2023: In partnership with the Wake Forest Historical Museum, a grant of $5,045 was awarded for design, fabrication, and installation of three interpretive panels at the Alston-Massenburg Center to tell the story of this significant place in the NE Community.

Capital Area Preservation Anthemion Award 2023: The Ailey Young House project was selected by Capital Area Preservation for outstanding restoration and interpretation of a historically significant building in Wake County. The award was presented in September 2023.

MAJOR PROJECTS

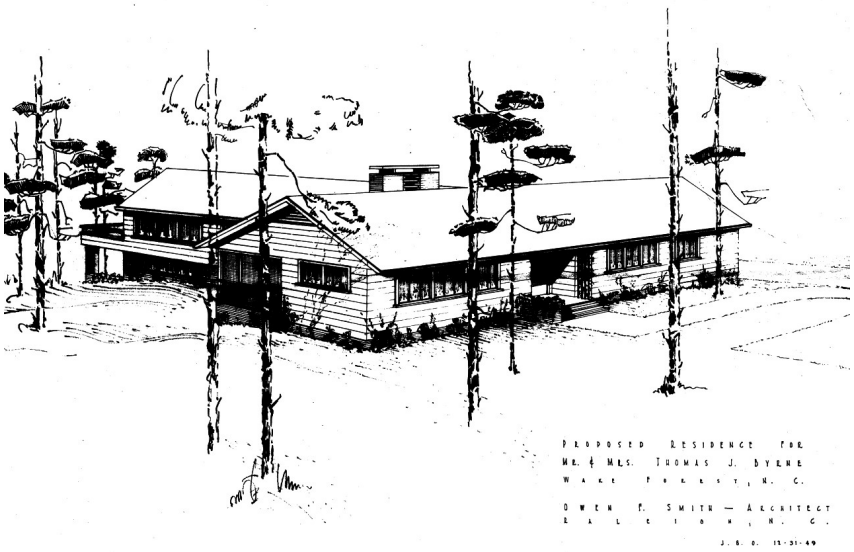
Ailey Young House Erosion Control: The Town and Historic Preservation Commission have been working to rehabilitate the Ailey Young House, a circa 1875 African American historic resource. Staff noticed exposed artifacts due to soil erosion after heavy rain events. Dr. Terry Brock, PhD, RPA, an archaeologist with the Wake Forest Historical Museum and Wake Forest University visited the site and provided some recommendations to mitigate the soil erosion and protect the archaeology. Chris Glass, Engineer with the Town created the construction drawings and submitted for the Town permits. A team from Facilities and Public Works Streets, Wake Forest Power, and Urban Forestry pulled together to complete the project in house. The result is the addition of soil and a berm to divert water away from the house and protect the surrounding archaeology and the installation of sod to stabilize the soil. Kudos to the entire team!

Ailey Young House Erosion Control project completed.

Historic Preservation Plan: The updated Historic Preservation Plan was adopted in October 2022. The Plan aims to not only account for the responsibilities of the Historic Preservation Program, but to identify and react to emerging opportunities and challenges facing the Town's overall preservation efforts.

Summer Internship: The Town and the HPC co-fund an annual summer internship for the Historic Preservation Program to assist the Historic Preservation Planner. There was one summer intern this year, Joshua Thomas, a graduate student in public history at North Carolina State University. Joshua spent part of the summer working on the Northeast Community 1950 census mapping project.

Local Landmark Designation: The Tommy Byrne House was approved by the HPC in September 2022 and approved by the Board of Commissioners in October 2022. The house, constructed in 1950, was designed by prolific North Carolina Architect and NC State University graduate, Owen Smith. The house is significant for its early modernist architecture and association with Tommy Byrne, former pitcher for the Yankees and Mayor of Wake Forest.



Architect's isometric rendering of Tommy Byrne House, 1949

Historic Preservation Month Activities: Staff organized and offered walking tours of the Northeast Community (2), Local Historic District/North Main Street, and South Main Street (2). Commissioner Beth Miller led one Saturday tour.

Juneteenth: The Northeast Community Coalition and the Town of Wake Forest organized a weekend event to celebrate Juneteenth. Commissioners Paige Bivens, Nancy Ginger, Beth Miller and Jason Mobraten spent the day engaging with the community and answering questions about the HPC. Due to a funeral, staff was unable to open the Ailey Young House on Saturday and instead rescheduled the Juneteenth event at the Ailey Young House for the following Monday. Several visitors toured the Ailey Young House for the event.

Historic Home Tour: The Historic Preservation Commission in partnership with the Woman's Club and Wake Forest Historical Museum organized another successful Historic Home Tour

which took place on December 3rd, 2022. Sites included the Mutschler House, Oakforest, Glen Royal Baptist Church, the Calvin Jones House, the Vann-Sikes-Lake House, the Ailey Young House, John Benjamin Power House, Ledford Student Center, Wake Forest Community House, Wake Forest Christian Church, Friendship Chapel Baptist Church, and Forestville Baptist Church. All 1800 tickets were sold. The next tour is scheduled for December 7, 2024.

Screenshot from 2022 Historic Home Tour marketing video.

Walking Tours: In January 2023, the Town of Wake Forest and the Wake Forest Historical Museum led tours of the Northeast Community every Thursday in February. The tours were well attended. This will be an ongoing event for Black History Month.

Historic Marker Program: Two historic markers for the Olive Branch Baptist Church and the Northeast Community were approved by the HPC. Fabrication is delayed. The signs approved in 2021 are currently in production and the 2022 markers should be completed by Spring 2024.

Sponsorships: The HPC provided donations to Wake Forest Downtown, Capital Area Preservation, Wake Forest Historical Museum, Wake Forest Historical Association, and the Wake County Historical Association.

TOWN OF WAKE FOREST
HUMAN RELATIONS COUNCIL

ANNUAL REPORT

2023

Town of
Wake Forest
North Carolina

Overview of Annual Human Relation Council

HRC Membership Update:

The Human Relations Council (HRC) is comprised of nine members each serving a three-year term in a staggered sequence. The HRC also has three (3) Youth Representatives. Currently, there are four vacancies and two youth representative vacancies. We will need to replace the vacancies hopefully by November 2023. Council Membership lost four members and two youth representatives in 2023. We advertised to fill the vacant positions and are pleased to announce we had 14 applicants and 3 youth representative applicants. We will interview candidates at our October Council meeting. Two of the previous applicants were interviewed during our August Council meeting and helped us with our Good Neighbor Day event in September. The current members are as follows: Robin Smith, Chair (term expires December 31, 2025); Steven Schlossberg, Vice Chair (term expires December 31, 2024); VACANT, Treasurer (term expires December 31, 2024); Chris Shallenberg (term expires December 31, 2024); Natalia Love (term expires December 31, 2023); Megan Deyncourt (term expires December 31,); VACANT (term expires December 31, 2023); Zahra Walker, Youth Representative (term expires December 31, 2024); VACANT; VACANT; VACANT, Youth Representative; VACANT, Youth Representative; Ex-Officio member is Town Commissioner Jim Dyer and Staff Liaison is Human Resources Director, Angela McCray.

SUMMARY of 2022 - 2023 ACTIVITIES:

The HRC sponsored and/or participated in the following initiatives:

- **Martin Luther King Jr. Wake Forest Community Celebration:** This event was hosted by Friendship Chapel Baptist Church and the Wake Forest MLK Committee on January 19, 2023. The HRC supported the scholarship program with a $500 donation. The HRC Chair, Robin Smith attended the ceremony.
- **2023 Black History Month Honor Roll:** Based on the continued success of the Human Relation Council's Black History Month recognition the Council again elected to recognize Wake Forest African Americans during Black History Month in February 2023. The Human Relations Council asked residents to nominate African Americans to be featured during Black History Month. We asked residents to recognize individuals that had not been honored during the previous year. The HRC received 7 nominations and featured them on the Town's webpage as well as on the Town's Facebook and Nextdoor page. The initiative was well received by the residents as well as the highlighted nominees. As a result of the positive feedback of this initiative the HRC plans to continue to make this an annual event.

- **2023 Multicultural Day:** ***"Celebrating the Local Flavor of Wake Forest"*** Our annual event was not held again this year based on the not being able to coordinate the activities we needed in time for this event.
- **2023 Wake Forest Juneteenth Celebration:** The HRC participated in the Juneteenth celebration on June 17, 2023. We handed out Juneteenth embossed wristbands and let the participants know about the upcoming Good Neighbor Day at Joyner Park in September.

- **14th Annual Good Neighbor Day:** This event was held on Saturday, September 16 from 1-4PM at Joyner Park. The council received 1 youth and 10 adult Good Neighbor of the Year nominations. Jay Jay Wilson (Youth) and Sandy Matthews (Adult) were selected to receive the 2023 Good Neighbor of the Year award. Robin Smith, HRC Chairperson and HRC member, Chris Shallenberg presented Jay Jay and Sandy with their award during the Annual Good Neighbor Day event.

Good Neighbor Day Highlights:

- The Wake Forest Lions Club set up a van and provided free eye exams to our youth. They also gave away free reading glasses to those in need.
- The Wake Forest Woman's Club provided 14 volunteers to assist the HRC during the GND activities and provided art activities with the youth.
- Bea-A-Mayzed performed two dance routines.
- The Wake Forest Fire Department grilled hotdogs for the event.
- We had a face painter and balloon twister, corn holes and two bubble makers set up.
- Home Depot provided woodworking projects for the kids again this year.
- The Wake Forest Police Department and Fire Department provided vehicles that the youth could ask questions about and explore.
- One of the requests has always been to provide veggie hotdogs as an alternative to our non-meat eater GND attendees. Wegmans provided us with a $100 gift card for us to use to purchase Veggie Hotdogs this year. The veggie hotdogs were a big hit this year.

POSSIBLE ACTIVITIES/EVENT PARTICIPATION IN THE FUTURE:

The HRC plans to hold an in-person CommUnity Day on March 16, 2024, at the Joyner Community Center from 1-4PM.

Submitted by Human Relations Council Chair, Robin Smith
October 11, 2023

2023 Wake Forest
Public Art Commission Art Plan
Presented 9/5/2023 to
Board of Commissioners Work Session

Executive Summary

A planning task group of the Public Art Commission began work on a new art vision plan in May 2022, building on the first vision plan and the experience of the Commission as it conducted its work between 2009 and 2022. The task group members gathered qualitative information about the Commission's performance, vision, and direction from conducting a series of interviews with town staff and community leaders. The task group prepared a survey of residents to provide quantitative information about public art awareness, acceptance, and preferences which will be conducted at least every three years.

The group reviewed as context the relevant parts of the UDO, the Wake Forest Community Plan, and Wake Forest Strategic Plan as well as the Public Art Ordinance (Chapter 25). The time frame established for the 2023 Public Art Vision Plan is at least five years. The new plan includes mission, vision and values statements for the Public Art Commission and a summary of Commission duties and responsibilities. On 1/26/2023 the Public Art Commission established goals with strategies. The Public Art Commission will pursue these goals and strategies in collaboration with town departments and Wake Forest organizations and residents while responding to changing opportunities through 2028 and beyond.

Benefits of Public Art

The definition of public art has expanded to describe not only physical works of art such as sculptures and murals but also other forms such as festivals, interactive art or art seamlessly integrated into the environment such as bridges, railings, or public buildings. Most critically, Wake Forest recognizes that public art is for all.

Public art:

- Enlivens public spaces.
- Improves livability and quality of life.
- Boosts local economies by attracting visitors and increasing foot traffic to businesses.
- Creates a sense of place and community pride.
- Encourages social connectivity and public engagement.
- Expresses the community's character and identity.
- Tells the story of a community by preserving history and celebrating diversity.

History of Public Art in Wake Forest

1990 - Wake Forest Cultural Arts Association was formed. Several members of this organization went on to serve on the first public art team. The core of the WF Cultural Arts Association was rebranded as ARTS Wake Forest (Wake Forest Arts!).

2008 - The first public art team of 19 members was formed by the town in collaboration with the Wake Forest Cultural Arts Association, the Wake Forest Downtown Revitalization Corporation, the Chamber of Commerce, and the Garden Club. The purpose of this team was to develop public art policy recommendations for Wake Forest.

2009 - In September 2009, the public art team presented the draft of what became the original Public Art Vision Plan. In August 2010, the Board of Commissioners adopted Ordinance 25 which outlined the mission of the public art program, provided definitions, established procedures, cited funding sources, and outlined roles and responsibilities.

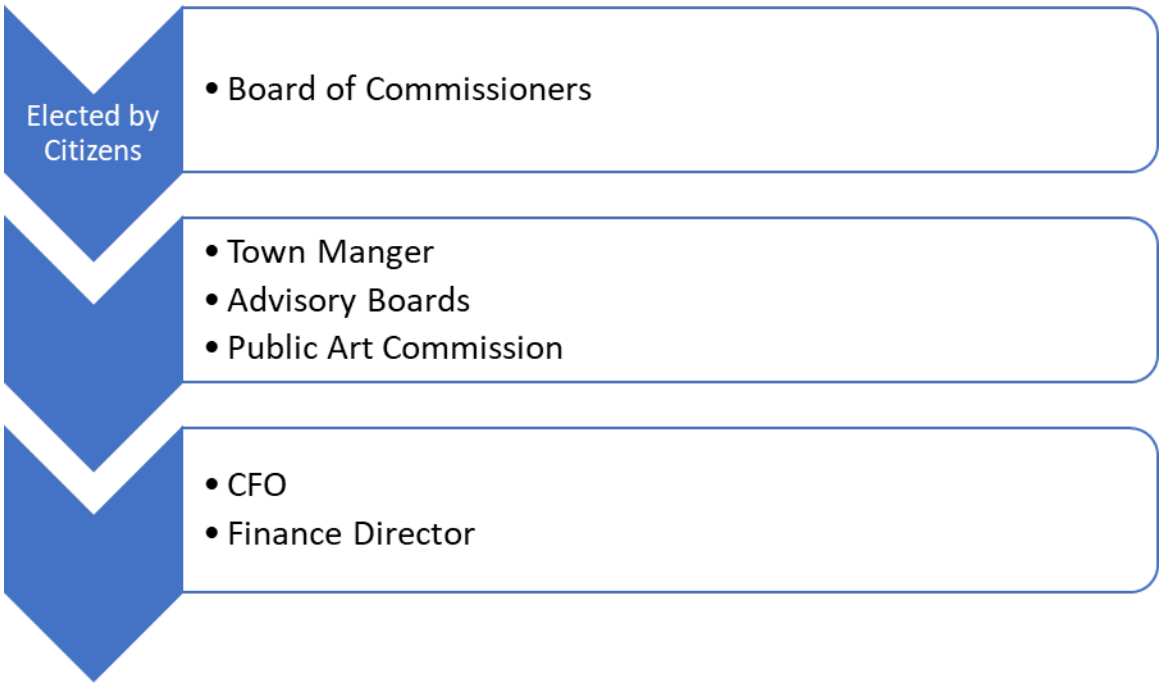
2020 - In October, 2020, Ordinance 25 was amended and restated by the Board of Commissioners to "further the efforts of the Public Art Commission in the facilitation of public art projects." link to ordinance 2020-46

Public Art Commission Support of the Town

The Public Art Commission is established by the passage of Town Ordinance Article 1.-In General with Sec 25-1. Purpose and intent. Adopted and amended on Oct.20, 2020.

The Public Art Commission seeks to support the town's strategic goals and all applicable laws from town, state, and federal governments.

Many levels of Town administration provide support to the Public Art Commission.



Wake Forest Public Art Commission Duties and Responsibilities

The Town of Wake Forest recognizes the importance of facilitating the creation and installation of art for public spaces and therefore tasks the Wake Forest Public Art Commission with a broad range of duties and responsibilities. Article 11.-Public Art Commission

The members of the Commission accept the responsibilities as outlined in Chapter 25 of the Town ordinances. These include adherence to a code of ethics, commitment to the work, good stewardship of the municipal art fund, and meetings required to meet the purpose and intent as adopted.

Sec. 25-1.

The Public Art Commission completes a flow of work to manage the acquiring, maintaining, and deaccession of public art.

Step 1

- CFO authorizes Municipal Art Plan.
- PAC maintains reserve **of** 10% restricted annually.

Step 2

- PAC distributes community survey.
- PAC uses public feedback to access the needs for program management.
- PAC discusses with cooperating town department staff for feedback and planning

Step 3

- PAC designates art task groups to identify the criteria for art, placement, and call for art. Task groups present recommendations to the Commission for approval.
- PAC distributes call following the curated process detailed in Sec.25- 52(d).
- PAC seeks partnership with other town departments as needed for art projects.
- PAC directs staff to complete the contracting process and oversees installation.
- After installation artwork is appraised and sent to appropriate town staff for inclusion in municipal art inventory.
- PAC directs staff to work with town staff and appropriate community outlets to develop a public relations campaign for the public.
- PAC works with facilities department to maintain public art on display.

Funding and Support for Public Art

Through Public Funds
The town of Wake Forest funds public art by designating one percent (1%) of the town's cost for eligible capital improvement projects to art. Possible examples include streetscapes, new construction, and significant renovations of public buildings. The Public Art Commission is tasked with recommending expenditure of those funds to town commissioners.

Through Private Business Partnership
The Public Art Commission of Wake Forest encourages developers and builders to partner with the town to invest in publicly accessible works of art that enhance their projects.

Through Donation/Loan
Organizations or individuals who wish to donate to the Public Art Fund or donate/loan a piece of art to the town's collection may contact the Public Art Commission. Donors are encouraged to provide funding for the ongoing maintenance costs of their gift.

WFPAC as advisory / resource
Organizations are encouraged to seek advice from the Public Art Commission if they are considering purchasing or commissioning artworks. The Commission can serve as liaison between organization, artist, and town and will provide the framework for a successful project. Our assistance includes creating a call for artists, facilitating the selection process, and providing contract samples.

Art Plan Development

A designated task group of the PAC adhered to a systematic approach to gathering information and collaborative feedback to develop the 2023 Art Plan.

Listening Tour
The first step was to gather qualitative information from key stakeholders through interviews of town staff and representatives from Wake Forest Arts, the Chamber of Commerce, downtown development, other arts organizations and Wake Forest Business and Industry Partnership. To achieve some consistency subcommittee members followed an interview guide with key questions and took notes which were compiled by staff. Themes emerged which were used during development of plan goals. This information was also the basis for a discussion of PAC strengths, weaknesses, opportunities and threats (a SWOT analysis) used for goal setting and understanding of past PAC performance.

Opinion Survey
The task group developed a public survey to gain quantitative information; this was posted on the town website in April 2023 and is planned to be continued in future years.

Revision of Purpose Statements
The task group developed a revised vision statement, mission statement, and a list of values to guide the PAC in performance of its duties and responsibilities. During the monthly business meetings, the PAC voted on and unanimously approved the mission statement on 10/27/2022, the list of values and goals on 1/26/2023, and the vision statement on 04/27/2023.

Guiding Principles

Vision Statement
Wake Forest is widely known for accessible, engaging public art and inspirational creative spaces where people and business thrive.

Mission Statement
The Wake Forest Public Art Commission administers a collaborative process to invest public and private funds toward curating art that fosters a unique sense of place to strengthen economic development. This art enlivens public space, connects our community, and enriches a vibrant and engaging Wake Forest.

Values of the Public Art Commission

The Commission established a core set of values that will be used to guide our vision, adhere to the best standard of practice and reflect the town's character through public art. These values are also expressed throughout Ordinance 25, as well as other town plans and documents and was approved by the Commission on 01/26/2023.

1. Community
2. Accessibility
3. Diversity
4. Artistic Quality
5. Responsible Stewardship

2023 Action Plan

On 01/26/2023 the Commission adopted a set of goals that will give focus and priority to our work for the next five years and beyond. These goals were developed with strict adherence to the duties described in Ordinance 25 (Sec. 25-34. - Duties).

The WFPAC will:

1. **Lead and guide the town's public art program ensuring that it is representative and relevant to the community.**
2. **Increase quality public art in Wake Forest**
3. **Engage, educate, and advocate for the value of public art**

As outlined, these goals are an effective tool in the Commission's leadership and implementation of public art policy. Added strategies and tasks further express our commitment to our duties as outlined in Ordinance 25.

1. **Lead and guide the Town's public art program assuring that it is representative and relevant to the community.**
    a. Develop strong relationships with elected town officials and relevant town staff in order to advocate for PAC and its public art program.
        i. Attend Town Commission meetings and planning meetings to advocate for public art
        ii. Review Technical Review Committee agendas and attend meetings when appropriate.
        iii. Strengthen interdepartmental connections. Assign a PAC liaison to town departments, community organizations, and town advisory boards as appropriate.
    b. When appropriate, no fewer than every three years, query Wake Forest community about public art preferences
        i. Create and distribute a survey searching for community input on public art preference {an initial survey}
        ii. Collaborate with other organizations and the town to request input on public art preferences.
    c. Work to make PAC more representative of community.
        i. Build connections with local businesses to recruit commissioners with various skill sets.
        ii. Actively recruit diverse commissioner candidates from various representative groups including age, ethnicity, and skill set.
    d. Set aside PAC meeting time for any public comment and for PAC members to report community input.

2. **Increase quality public art in Wake Forest**
    a. Increase funding for public art.
        i. Advocate with elected officials and relevant town staff for additional funding of public art beyond the current 1% funding.
        ii. Research, network, develop narrative, and apply for grants.
        iii. Pursue private funding for public art by forming partnerships with local civic organizations, the business community, and individual philanthropists.
    b. Streamline workflow.
        i. Create RFQ and RFP templates that can be easily modified for various projects.
        ii. Maintain a roster of pre-approved artists in various media.
        iii. Utilize partners to quickly and widely distribute the call to artists.
        iv. Appoint a rapid review committee for projects that need a quick turnaround.

3. **Engage, educate, and advocate for the value of public art.**
    - **a.** Use public art to engage Wake Forest and beyond.
        - i. Offer targeted participatory art events.
        - ii. Provide interactive art works and projects.
        - iii. Seek new sponsorship opportunities and partners for WFPAC projects.
        - iv. Seek new sponsorship opportunities and partners for participatory art events.
    - b. Increase public awareness of the Public Arts Commission
        - i. Make presentations at neighborhood associations and civic groups.
        - ii. Have the Wake Forest Public Art Commission representatives at Town events and meetings.
        - iii. Invite Town representatives to be guest speakers at WFPAC business meetings.
        - iv. Conduct WFPAC business meetings in various Town locations
    - c. Use social media, Town website, and Town App as tools for public engagement and education.
        - i. Improve online presence by upgrading and maintaining social media and websites.
        - ii. Keep all public art documents, photographs and materials reviewed and updated.
        - iii. Use innovative marketing strategies to introduce new public art acquisitions and to promote current inventory.
    - d. Establish the 'Celebration of the Arts' as an annual event for the community.
        - i. Seek partnerships throughout the community to increase attendance and participation.
        - ii. Increase public awareness through promotion.
    - e. Educate the Wake Forest Public Art Commission members so they can effectively advocate the value of public art.
        - i. Provide mandatory orientation to new members.
        - ii. Include informative staff reports on monthly agendas.
        - iii. Offer presentations by invited guests on relevant topics.
        - iv. Seek professional development for WFPAC town staff.
    - f. Advocate for the value of public art
        - i. Present annual art plan to town officials
        - ii. Maintain a current report of the Town's municipal art fund.
        - iii. Ask elected officials to review Ordinance 25 every 5 years.
        - iv. Work with Town communications to promote public art (new projects or acquisitions)

References/ Appendix

Virtual tour
Code of Ordinances Title VI
Wake Forest Community Plan
Add Art and Value Guide for Developers Current UDO
(Updates in Progress)
List of Current Public Art Commission Members Original
Vision Plan (2009)
2023 Public Art Survey

Public Art A-Z
AAhttps://www.aarp.org/livable-communities/about/info-2019/placemaking-wor kshop-breakout-sessions.htmlRP Guide to Livable Communities Placemaking

What is Public Art?
Americans for the Arts
Simply put, public art is art in public spaces. The term "public art" may conjure images of historic bronze statues of a soldier on horseback in a park. Today, public art can take a wide range of forms, sizes, and scales—and can be temporary or permanent. It often interprets the history of the place, its people, and perhaps addresses a social or environmental issue. Public art can include murals, sculpture, memorials, integrated architectural or landscape architectural work, community art, digital new media, and even performances and festivals!

The Wake Forest Public Art Commission 2023 Projects

1. Completion of updating Art Plan. All activities will be directed to a goal or strategy in the plan.
2. Professional development seminar for PAC members and other Town advisory board members on September 28 with national speaker and Piedmont Poet Laurate Dasan Ahanu.
   Discussion and learning on community engagement best practices.
3. Celebration of the ARTS on October 7 at the Wake Forest Renaissance Centre
   This event highlights all forms of art and was free to the public. 237 attendees enjoyed multiple art activities and performances.
4. The members of the Commission have made a commitment to work with the Northeast Community residents to provide more public art at the Alston Massenburg Center.
5. On October 22 the PAC will hold a community open house cohosted with Commissioner Keith Shackelford to hear from the community and develop art ideas together that honors the history and people of the area.

WAKE FOREST PARKS, RECREATION AND CULTURAL RESOURCES ADVISORY BOARD

ANNUAL REPORT
October 4, 2023

The Parks, Recreation and Cultural Resources Advisory Board is pleased to submit our annual report. We are delighted to share some of our goals and accomplishments during 2023. We are also pleased to share our goals for the upcoming year 2024.

PRCRAB Goals & Accomplishments during CY 2023:

1. Welcomed and support new board members.
2. Supported the Departments with National Reaccreditation in 2023.
3. Assisted staff with support to update the PRCR Department Master Plan.
4. Held Advisory Board Planning Session (February 11, 2023)
5. Implemented recommendations created by internal work groups (Marketing for board events sponsors, dates and times and supplies needed, QRFit Trails Program)
6. Attended Commissioners' meetings, as requested.
7. Provided input in the PRCR Department Capital Improvements Plan & budget development process.
8. Advised staff on issues related to parks and greenways in coordination with Town staff.
9. Sponsored and promoted National Trails Day 5K/10K Races – Saturday, June 3, 2023.
10. Hosted Art in the Park at Joyner Park– August 26, 2023
11. Sponsored and promoted annual "Wake Forest Unplugged" @ E. Carroll Joyner Park – Sunday, September 3, 2023.
12. Plan to participate in the Halloween Boo Bash – October 26, 2023.
13. Interview candidates to fill vacant & expired terms.
14. Intend to host Appreciation Luncheon for staff – November 2023.
15. Plan to participate in Santa Calls Event – December 2023.
16. Continue to promote parks and recreation within our community, on social media and community outlets.
17. Continue to serve as ambassadors with a focus on being responsive to the public for parks, greenways, and cultural arts services.

Thank you for your confidence in our Board's capabilities and for the continued support.

Danny Hupp	Ruben Wall
Board Chair	Director of Parks, Recreation and Cultural Resources

PRCRAB Goals for 2024:

The Wake Forest PRCRAB hopes to accomplish the stated goals for 2024 as noted below.

1. Welcome and support new board members.
2. Assisted staff with planning for the PRCR Master Plan update.
3. Facilitate PRCR Advisory Board Planning Session
4. Continue to implement recommendations created by internal task teams (board bylaws, board- sponsored special events, and park history).
5. Attend Commissioners' meetings, as requested
6. Provide input in the PRCR Department Capital Improvements Plan & budget development process
7. Assist with prioritization and implementation of the department Master and Strategic Plans initiatives.
8. Advise staff on issues related to parks and greenways in coordination with Town staff.
9. Sponsor and promote National Trails Day 5K/10K Races – June 1, 2024.
10. Host Art in the Park or similar event - August 24, 2024.
11. Sponsor and promote annual "Wake Forest Unplugged" @ E. Carroll Joyner Park –September 1, 2024.
12. Participate in the Halloween Boo Bash – October 24, 2024.
13. Interview candidates to fill expired terms – October/November 2024.
14. Host Appreciation Luncheon for staff – November 2024.
15. Participate in Santa Calls Event – December 5, 2024.
16. Promote parks and recreation within our community, on social media and community outlets.
17. Serve as ambassadors with a focus on being responsive to the public for parks, greenways, and cultural arts services

Danny Hupp
Board Chair

Ruben Wall
Director of Parks, Recreation and Cultural Resources

The Wake Forest Technology Advisory Board (TAB)
2023 Year End Summary

Connected City / Smarty City Initiatives

> Technology is the cornerstone of Smart Cities. Smart Cities use technology to empower citizens. Smart Cities utilize information and communications technology (ICT) and the Internet of Things (IoT) to connect a *wide-range* of components across the city to enhance livability, workability, and sustainability. Smart Cities use smart multi-modal communication portals to provide citizen access to city government, including access to smart resources that increase meaningful engagement in the exploration of solutions to civic problems that influence quality of life. It's when you can derive data from everything that is connected and utilize it to improve the lives of citizens and improve communication between citizens and the government that a city becomes a smart city.[1]

In February 2023, the town introduced a network of 25 cameras serving as IoT sensors in the downtown area. Accompanying these cameras was the installation of an updated Wi-Fi network, ensuring that all the collected data is seamlessly integrated into the town's network infrastructure.

Three key initiatives have been established through this technological implementation: public Wi-Fi accessibility, smart parking sensors, and crowd monitoring capabilities. Our objective is to have this project completed by the year's end, after which we will actively explore further opportunities for expanding our smart city technology.

Some potential ideas that have been under consideration include deploying moisture level sensors at the park and recreational ball fields, as well as in the dog park.

STEM Subcommittee and Technology Fair Planning

> STEM Saturday aims to expose students to a variety of STEM career options while featuring STEM-related exhibits, demonstrations, and hands-on learning activities. All are welcome to join this annual event to learn, observe, and play.

On April 29, 2023, the board flawlessly executed the STEM Saturday event, which served as a remarkable showcase of the abundant STEM talent within our region. Held at the Joyner Park Community Center, this event featured school teams presenting captivating robot exhibits, vendors offering a diverse range of services and products in the STEM fields, and knowledgeable speakers conducting classes in the classrooms of Joyner Community Center.

During the event, attendees enjoyed a provided lunch, exciting prizes were awarded, and the feedback from surveys overwhelmingly indicated the event's resounding success. We eagerly anticipate the next STEM Saturday, scheduled to take place at the Joyner Park Community Center on April 27, 2023.

Urban Forest Advisory Board Annual Report

The purpose of this document is to satisfy the Wake Forest Code of Ordinances requirement that the Urban Forestry Advisory Board prepare an annual report containing past fiscal year accomplishments and goals for the upcoming year. No additional information was requested by the board of commissioners.

The members of the WF UFB have had a productive year, contributing our combined 80 years' experience in Forestry Management and Horticulture and Agriculture, 30 years of experience in Master Gardening, 22 years of experience in school teaching and administration, and 40 years of experience in a company large and small company management to maintain and improve our urban forest. Here is a look back at 2023- what our board accomplished, what we planned to accomplish, and our future goals.

Maintained Recognition of Wake Forest as a Tree City
Continued as a model for other NC Urban Forestry Boards
Coordinated with and supported the work of our full-time Urban Forester
Presentations at town-wide, community organization events and local community events including the Neuse River Hawk Conservationists Tree Trek and the Wake Forest Garden Club
Contributed valuable input to the community planning processes, including significant opportunities to connect green spaces within WF and to create accessible and maintainable tree canopy
Planning for future "Tree Talks" offering tree-related topics to our community
Planning for future seedling giveaways at town events
Applied for a grant to receive chestnuts to be planted as a means to extend our wealth of native tree species
Created awareness of the opportunity to grow edible produce from trees.
Raised awareness of the tree-killing spread of kudzu in WF and supported eradication efforts.
Began the process of identifying trees to include in a self-guided tree walk at the WF Reservoir.
Looked for opportunities to bring grant money for Tree Projects into Wake Forest
Monitor and report what citizens observe, expect, and value from their Urban Forest
Recognize the value of an active Tree Stewards program to educate young people
Educated ourselves on new topics of potential interest to our community.
Created partnerships with the Master Gardner's, Neuse River Hawks, and other groups with UFB-related missions.
Reviewed and adapted the "Urban Forestry Board Handbook"

We expect to continue to be a key resource in our town's efforts to maintain and increase the Wake Forest Tree Canopy for the enjoyment of our current and future generations.

Respectfully submitted,

_____ISR_____
October 11, 2023
Ira Richman, Chairperson, Wake Forest Urban Forestry Board

2023

The purpose of this document is to satisfy the Wake Forest Code of Ordinances requirement that the Urban Forestry Advisory Board prepare an annual report containing past fiscal year accomplishments and goals for the upcoming year. No additional information was requested by the board of commissioners.

The members of the WF UFB have had a productive year, contributing our combined 80 years experience in Forestry Management and Horticulture and Agriculture, 30 years experience in Master Gardening, 22 years experience in school teaching and administration, and 40 years experience in company large and small company management to maintain and improve our urban forest. Here is a look back at 2023- what our board accomplished, what we planned to accomplish, and our future goals.

Maintained Recognition of Wake Forest as a Tree City
Continued as a model of other NC Urban Forestry Boards
Coordinated with and supported the work of our full-time Urban Forester
Presentations at town-wide, community organization events and local community events including the Neuse River Hawk Conservationists Tree Trek and the Wake Forest Garden Club
Contributed valuable input to the community planning processes, including significant opportunities to connect green spaces within WF and to create accessible and maintainable tree canopy
Planning for future "Tree Talks" offering tree related topics to our community
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Respectfully submitted,

ISR
October 11, 2023
Ira Richman, Chairperson, Wake Forest Urban Forestry Board

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-220-
Submitted by: Emma Linn
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Public Hearing on LEGISLATIVE CASE RZ-20-05-01, Fuller Capital Boulevard Property, a rezoning map amendment filed by Red Line Engineering to rezone 29.367 acres located at 4925 Unicon Drive, 4975 Unicon Drive, and 10200 Capital Blvd (portion), being Wake County Tax PINs 1739-51-8319, 1739-61-2717, 1739-51-4482 (portion) from Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) to Light Industrial Conditional District (LI-CD).

Recommendation:

Item Summary:

ATTACHMENTS
- BOC Agenda Summary RZ-20-05-01.pdf
- RZ-20-05-01 Staff Report.pdf
- Attachment A - Neighborhood Meeting Information.pdf
- Attachment B - Application.pdf
- Attachment C - Maps.pdf
- Attachment D - RZ-20-05 Ordinance
- Attachment E - Planning Board Recommendation.pdf
- Exhibit 1 - Legal Description.pdf
- Exhibit 2 - Consistency Statement.pdf
- Ordinance RZ-20-05-01 Fuller Capital Blvd Property_v2.docx

Agenda Item: Public Hearing on LEGISLATIVE CASE RZ-20-05-01,Fuller Capital Boulevard Property, a rezoning map amendment filed by Red Line Engineering to rezone 29.367 acres located at 4925 Unicon Drive, 4975 Unicon Drive, and 10200 Capital Blvd (portion), being Wake County Tax PINs 1739-51-8319, 1739-61-2717, 1739-51-4482 (portion) from Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) to Light Industrial Conditional District (LI-CD).

Summary: A public comment session was held at the September 12, 2023, Planning Board meeting. The Planning Board voted 5-0 to find the request consistent with the Community Plan and in the public interest and recommended approval of the zoning map amendment (rezoning) request. Planning staff presented the rezoning request to the Board of Commissioners at its October 3, 2023, work session.

Attachments: See Staff Report.

Staff Report
Case RZ-20-05-01: Fuller Capital Boulevard Property Rezoning Amendment

Meeting Date	October 17, 2023
Requested Actions	Consideration of the following items related to the Conditional Zoning request for Fuller Capital Boulevard Property: 1. Act on Plan Consistency Statement 2. Rezone 29.367 acres on the Town of Wake Forest Zoning Map from Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) to Light Industrial Conditional District (LI-CD).
Case Manager	Emma Linn, Planner II - Long Range Planning
Planning Board Recommendation	Recommended approval of the zoning map amendment request by a vote of 5-0. See Attachment E for the Planning Board Recommendation.

PUBLIC MEETINGS

Neighborhood Meeting	Public Comment Session	Public Hearing
June 29, 2023 *(See Attachment A)*	September 12, 2023	October 17, 2023

CASE INFORMATION

Applicant	Timothy Lance Red Line Engineering 123 Raleigh Street Fuquay-Varina, NC 27526
Property Owners	701 Finger Lakes Drive Wake Forest, NC 27587
	Young Group Holdings LLC 2808 Connector Drive Wake Forest, NC 27587
	Patricia Williams Brothers 10200 Capital Boulevard Wake Forest, NC 27587
Location	North of Unicon Drive and Leighton Ridge Drive intersection

Addresses	4925 Unicon Dive, 4975 Unicon Drive, 10200 Capital Boulevard (portion)
Wake County Tax PIN(s)	1739518319, 1739612717, and 1739514482 (portion)
Acreage	29.367 acres
Zoning	Existing: Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) Proposed: Light Industrial Conditional District (LI-CD)
Land Use	Existing: Vacant Proposed: Industrial
Corporate Limits	This application is outside the Town's corporate limits and within the Town's extraterritorial planning jurisdiction (ETJ). An annexation petition has not been filed at this time but will be required prior to construction drawing approval.
Community Plan Designation	Light Industrial

See Attachment B for a copy of the application and Attachment C for Aerial, Zoning, and Land Use Maps. See Community Plan *Page 46 in a description of Light Industrial.*

SURROUNDING LAND USES AND ZONING

	Land Use	Zoning
North	Light Industrial and Heavy Industrial	Light Industrial (LI) and Heavy Industrial (HI)
South	Vehicle Services – Major Repair/Body Work and Light Industrial	Conditional Use Light Industrial (CU-LI), Highway Business (HB)
East	Heavy Industrial	Heavy Industrial (HI)
West	Dwelling – Single-Family (non-subdivision parcel)	Rural Holding District (RD), Highway Business (HB), Capital Boulevard

The proposed land use is generally **compatible** with surrounding land uses.

The proposed zoning is generally **compatible** with surrounding zoning.

See Attachment C for associated maps.

ZONING CASE HISTORY

The zoning map amendment is a modification to the previous rezoning case RZ-20-05 (Ordinance 2020-16) adding approximately 1 acre. The additional 1 acre is to provide supplemental buffering

from the adjacent residential property. RZ-20-05 rezoned 4925 and 4975 Unicon Drive, approximately 28.13 acres to Light Industrial Conditional District (LI-CD). 10200 Capital Boulevard was zoned Rural Holding District (RD) in 2013 when the UDO was adopted. *See Attachment D for Ordinance 2020-16.*

COMPREHENSIVE PLAN CONSISTENCY

Community Plan (2022)	The proposed zoning map amendment request is generally consistent with the adopted 2022 Community Plan.
Comprehensive Transportation Plan (2019)	The Comprehensive Transportation Plan is not applicable to the zoning map amendment request.
Historic Preservation Plan (2021)	The Historic Preservation Plan is not applicable to the zoning map amendment request.
Northeast Neighborhood Plan (2021)	The Northeast Neighborhood Plan is not applicable to the zoning map amendment request.
Park, Recreation, and Cultural Resources Master Plan (2015)	The Parks, Recreation, and Cultural Recourses Master Plan is not applicable to the zoning map amendment request.
Public Art Vision Plan (2009)	The Public Art Vision Plan is not applicable to the zoning map amendment request.
Renaissance Plan (2017)	The Renaissance Plan is not applicable to the zoning map amendment request.

There is no detailed Plan Consistency Analysis since the Land Use Map is the only applicable section of the Community Plan.

STAFF RECOMMENDATION

The zoning map amendment request is generally **Consistent** with the relevant policies in the Comprehensive Plan, and **Approval** of the zoning map amendment request is reasonable and in the public interest.

ATTACHMENTS

Attachment A: Neighborhood Meeting Information
Attachment B: Application
Attachment C: Maps
Attachment D: RZ-20-05 Ordinance
Attachment E: Planning Board Recommendation

EXHIBITS

Exhibit 1: Legal Description

Exhibit 2: Consistency Statement

June 15th, 2023

Moffat Properties, LLC
701 Finger Lakes Drive
Wake Forest, North Carolina 27587

Re: 4925 Unicon Drive Rezoning Application

Dear Neighbor:

Please be advised that a formal application has been submitted to the Town of Wake Forest seeking approval for rezoning for the property located at 4925 Unicon Drive, Wake Forest, NC 27587. This parcel is currently split-zoned. 1.00 acre of the parcel is zoned RD (Rural Holding District), 15.38 acres of the parcel is zoned LI-CD (Light Industrial Conditional District), with a total area of approximately 16.38 acres.

As the owner of the property, we are requesting the Town of Wake Forest to approve this rezoning application to amend the zoning of the 1.00 acre. This will make the zoning consistent with the remainder of the site, which is zoned LI-CD. Currently, we do not have a masterplan for the development of this property.

In compliance with the Town of Wake Forest Rezoning Process, a Neighborhood Information Meeting will be held to provide you an opportunity to become familiar with the property and our rezoning request and to create an opportunity for you to provide valuable feedback as our neighbors. The Neighborhood Information Meeting will be held at **7:00pm on Thursday, June 29th, 2020**, at the Holiday Inn Express, near the site.

Holiday Inn Express
11400 Common Oaks Drive
Raleigh, North Carolina 27614

If you have any questions of comments regarding the meeting, please feel free to contact me at (919) 261-7781 or at cmoffat@moffatproperties.com . Thank you in advance for your participation in this very important meeting.

Warm Regards,

Craig T. Moffat
Member
Moffat Properties, LLC

NEIGHBORHOOD MEETING SIGN-IN SHEET

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Mtg Start 7:00pm
End 8:00 pm

Meeting Address: Holiday Inn Express (11400 Common Oaks Drive, Raleigh, North Carolina 27614)

Date of meeting: June 29th, 2023 Time of meeting: 7:00 pm

Property Owner(s) name(s): 5000 Stroller Ridge Drive, LLC & Young Group Holdings, LLC

Applicant(s): 5000 Stroller Ridge Drive, LLC (c/o Craig Moffat, Member)

Please print your name below, state your address and/or affiliation with a neighborhood group, and provide your phone number and email address. Providing your name below does not represent support or opposition to the project; it is for documentation purposes only. For virtual meetings, applicants must include all known participants and request the information below.

	NAME/ORGANIZATION	ADDRESS	PHONE #	EMAIL	SEND PLANS & UPDATES
1.	Gary McCabe/RLE	123 Raleigh St Fuquay-Varina NC 27526	(919) 779 6851	gary.mccabe@rlenc.com	
2.	Timothy Lance/RLE	"	"	tim.lance@rlenc.com	
3.	PARKER HUDSON	701 FINGER LAKES DR.	(252)-714-8789	Phudson@moffatproperties.com	
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					

Use additional sheets, if necessary.

SUMMARY OF DISCUSSION FROM THE NEIGHBORHOOD MEETING

This document is a public record under the North Carolina Public Records Act and may be published on the Town's website or disclosed to third parties.

Property Owner(s) name(s): 5000 Stroller Ridge Drive, LLC & Young Group Holdings, LLC

Applicant(s): 5000 Stroller Ridge Drive, LLC (c/o Craig Moffat, Member)

Contact information (email/phone): cmoffat@moffatproperties.com

Meeting Address: Holiday Inn Express (11400 Common Oaks Drive, Raleigh, North Carolina 27614)

Date of meeting: June 29th, 2023 Time of meeting: 7:00 pm - 8:00 pm

Please summarize the questions/comments and your responses from the Neighborhood Meeting or emails/phone calls received in the spaces below (attach additional sheets, if necessary). Please state if/how the project has been modified in response to any concerns. The response should not be "Noted" or "No Response". There has to be documentation of what consideration the neighbor's concern was given and justification for why no change was deemed warranted.

Question/Concern #1:

No neighboring parcel owners were in attendance.

Applicant's Response:

Question/Concern #2:

Applicant's Response:

Question/Concern #3:

Applicant's Response:

Question/Concern #4:

Applicant's Response:

Haddock Properties III LLC
c/o Caliber Bodyworks of North Carolina
548 Glenville School Rd
Glenville, NC 28736

ETS Property, LLC
3227 Wellington Ct
Raleigh, NC 27615

Capcitcur Properties, LLC
2607 Leighton Ridge Dr
Wake Forest, NC 27587

Mark & Karen White
115 Oak Grove Church Rd
Youngsville, NC 27596

Carolina Sunrock Corp.
PO Box 25
Butner, NC 27509

Family Trust
u/w Walter R Lane
2522 E Woodlyn Way
Greensboro, NC 27407

Flexx, LLC
PO Box 250
Middlesex, NC 27557

Toy Storage, LLC
417 S Main St
Rolesville, NC 27571

Starr Road, LLC
2125 Rolling Rock Rd
Wake Forest, NC 27587

SMBC Leasing and Finance, Inc.
277 Park Ave
New York, NY 10172

Trident Realty LLC c/o Scott Moore
2627 Leighton Ridge Dr, Suite #100
Wake Forest, NC 27587

Puryear Investments, LLC
5844 Lease Ln
Raleigh, NC 27617

Robert William & Nancy Fan Lenfestey
2717 Leighton Ridge Dr
Wake Forest, NC 27587

PS NC I LP Ltd Partnership
701 Western Ave
Glendale, CA 91201

JMS Properties of Durham, LLC
c/o Stephen Lewis
8536 Windsong Valley Dr
Wake Forest, NC 8536

Nora Properties, LLC
2624 Leighton Ridge Dr, Suite #108
Wake Forest, NC 27587

Paws At Play Of Wake Forest, Inc
779 Fleming Rd
Youngsville, NC 27596

Jajd Holdings, LLC
222 N Bickett Blvd
Louisburg, NC 27549

M-Kal Enterprises, LLC
2616 Leighton Ridge Dr
Wake Forest, NC 27587

Northpoint Business Condominiums
Real Estate Trust
Patrick L Fleming, Jr Trustee
PO Box 3299
Wilson, NC 27895

L2 Partners, LLC
5208 Parker Manor Ct
Raleigh, NC 27614

Meen, LLC
2624 Leighton Ridge Dr, Suite #140
Wake Forest, NC 27587

Keith R & Mary Locker
6021 Glenthorne Dr
Raleigh, NC 27613

Vantagecpi, LLC
2624 Leighton Ridge Dr, Suite #116
Wake Forest, NC 27587

South End LLC
88 Intracoastal Overlook
Hampstead, NC 28443

Patricia Williams Brothers
10200 Capital Blvd
Wake Forest, NC 27587

Young Group Holdings, LLC
2808 Connector Dr
Wake Forest, NC 27587

Buth Na Bodhaige, Inc
148 Lafayette St, Floor #5
New York, NY 10013

Turner Real Estate Holdings, LLC
5805 Lease Ln
Raleigh, NC 27617

Argos Ready Mix (Carolinas) Corp
3015 Windward Plz, Suite #300
Alpharetta, GA 30005

Town of Wake Forest
301 Brooks St
Wake Forest, NC 27587

RSE Properties, LLC
7412 Churchill Dr
Wake Forest, NC 27587

South Forest Service Center Condo
PO Box 1125
Wake Forest, NC 27588

Map Amendment (Rezoning) Application

(Map Amendment (Rezoning) - Planning Board Workflow)

Town of Wake Forest, NC
301 S. Brooks St.
Wake Forest, NC 27587-2932
TEL (919) 435-9510 I FAX (919) 435-9539

Project Overview #1003407

Project Title: 4925 Unicon Drive Rezoning
Application Type: Map Amendment (Rezoning)
Workflow: Map Amendment (Rezoning) - Planning Board
Jurisdiction: Town of Wake Forest (Wake County)
State: NC
County: Wake

Checklist - Map Amendment (Rezoning)

A submittal checklist is available to view additional documents which are required to submitted with this application. After answering the application questions, you will be asked to upload the required documents.

VIEW MAP AMENDMENT (REZONING) SUBMITTAL CHECKLIST

Missing items will result in the application being declined and returned to the applicant to resubmit. A revised and complete application including all missing items must be received or the application will be not be deemed complete and routed for review.

Please confirm you have reviewed the associated submitted checklist for this permit and confirm you will submit all documents required on the submittal checklist: Yes

Pre-Application Meeting

Has a pre-application conference been held?: Yes

*Note: This type of project requires a pre-application conference be completed prior to official submittal. If this has not been completed, please return to the home screen and select **Pre-Application Conference** from the application type drop down list in order to schedule your required meeting.*

Pre-Application Conference Date: 03/20/2023
Staff Member Met With: Tim Richards, Michelle Michael, & Timothy Beasley
Pre-application Conference Project Number:

Address & Basic Site Information

Please Note:
In some cases, a parcel address may not verify. In the event that our system is unable to verify the address you enter, please submit the project as an *Unverified Parcel* and provide zoning and land use information as requested below. For verified addresses, the zoning and land use information will be added to the application automatically (you do not need to provide it below).

Project Address or PIN:
- 4925 Unicon Dr (1739518319)
- 4975 Unicon Dr (1739612717)
- 4975 Unicon Dr (1739612717)

Tax PIN:
- 1739518319
- 1739612717
- 1739612717

Acreage: 1.00
Name of Existing Development/Subdivision (if applicable--for reference only):

For unverified addresses/parcels only, please provide below 1) the current use of the parcel, 2) the zoning district(s) it is in, and 3) any overlay districts that apply. Reference the zoning map and the overlay districts map on the town's website.

Current Use & Zoning (required only if address/parcel is unverified):

*Note: Projects falling outside the limits of the Town or ETJ will be required to submit an annexation petition in conjunction with their project submittal. In this case, please return to the home screen and select **Annexation Petition** from the application type drop down.*

GIS Site Information (Automatically Generated - Not Available for Unverified Addresses)

Parcel Area: GIS Acreage
- 4925 Unicon Dr: 15.38
- 4975 Unicon Dr: 12.75
- 4975 Unicon Dr: 12.75

Current Use: Land Use Development
- 4925 Unicon Dr: Industrial
- 4975 Unicon Dr: Industrial
- 4975 Unicon Dr: Industrial

Wake Forest (WF):

Planning and Zoning: Jurisdiction
- 4925 Unicon Dr: WAKE FOREST
- 4975 Unicon Dr: WAKE FOREST
- 4975 Unicon Dr: WAKE FOREST

Base District: Zoning
- 4925 Unicon Dr: LI CD
- 4975 Unicon Dr: LI CD
- 4975 Unicon Dr: LI CD

In SH1-O Overlay: Special Highway Overlay - US 1
- 4925 Unicon Dr: yes
- 4975 Unicon Dr: yes
- 4975 Unicon Dr: yes

In SH2-O Overlay:

In Water Supply Watershed Protection Overlay:

In TND Overlay:

In SF Overlay:

In HL-O Overlay:

In MVCP-O Overlay:

In National Register of Historic Places:

In Flood Hazard Area:

Additional Zoning Information

Currently a Conditional District?: Yes

Currently a Conditional Use?: No

Is there an existing Special Use Permit for the Property?: No

Case Number of related site plan (if applicable):

Case Numbers of other related approvals: RZ-20-05

Project Contacts

Please enter all project contacts related to your application.

This is an important step to ensure all members of the applicant team receive email notifications associated with the project which may include comments, requested revisions, scheduled meetings or hearings, and final decisions. This also informs Town staff of the team members assigned role with the project.

Project Contact - Applicant
Timothy Lance, E.I.
Red Line Engineering, P.C.
123 Raleigh Street
Fuquay-Varina, NC 27526
P: (Phone)9197996851

Project Contact - Property Owner
Craig Moffat
Moffat Pipe Inc.
4901 Unicon Drive
Wake Forest, NC 27587
P: (Phone)9196697469
cmoffat@moffatproperties.com

Map Amendment: Rezoning

Proposed Zoning: LI, Light Industrial

Description of Request:
This application is for the rezoning of 1.00 acre of 4925 Unicon Drive, recently recombined from 10200 Capital Boulevard. This portion of the parcel is currently zoned RD (Rural Holding District) and is proposed to be rezoned to LI-CD (Light Industrial Conditional District), to match the existing zoning of 4925 Unicon Dr.

Justification of Consistency with Comprehensive Plan:
The rezoning will match the existing zoning of the rest of the parcel and the surrounding area for industrial use, as shown in the Current Zoning Map in Wake Forest Community Plan Update.

July 27, 2023

5000 Stroller Ridge Drive, LLC
701 Finger Lakes Drive
Wake Forest, North Carolina 27587

Re: 4925 Unicon Drive Conditional Rezoning Application

To Whom It May Concern:

The following rezoning conditions are proposed for the property addressed at 4925 Unicon Drive (PIN# 1739-51-8319):

- A 50' landscaped buffer (Type A) and 6' tall opaque wooden fence (painted a neutral color) shall be provided along the entirety of the shared property line adjacent to the Powell House property.

- The LI Zoning District Perimeter 50' buffer along the western property line that is required by Section 2.2.5.A.2 shall be a Type A landscaped buffer as defined in Section 8.5.3.A of the Udo. This buffer shall remain undisturbed and supplemental plantings added where necessary.

- At the time of development of the subject site, the applicant shall provide a Sanitary Sewer Easement to PIN 1739-53-6077. The easement location shall be approved by City of Raleigh Water. A plat shall be recorded showing the easement.

- The allowable uses for the property are limited to:
    - Industry, Light (Ps)
    - Light Manufacturing Workshops
    - Storage – Outdoor Storage Yard
    - Storage – Warehouse, Indoor Storage
    - Wholesaling & Distribution
    - Heavy Equipment/Manufactured Home Rental/Sales
    - Vehicle Services – Minor Maintenance/Repair
    - Vehicle Services – Major Repair/Body Work
    - Amusements, Indoor
    - Amusements, Outdoor
    - Public Safety Station
    - Parking Lot/Structure – Principle Use
    - Gardens (Community and Private)
    - A distributed antenna system (DAS) node
    - DAS hub (Ps)
    - Concealed attached antennae are permitted (Ps)
    - Utilities – Class 1
    - Utilities – Class 2
    - Utilities – Class 3 (SUP)

If you have any questions or comments regarding the proposed conditions, please feel free to contact me at (919) 261-7781 or at cmoffat@moffatproperties.com; or the authorized agent for the 4925 Unicon Drive Conditional Rezoning, Gary J. McCabe, PE at (919) 779-6851 or at gary.mccabe@rlenc.com. Thank you in advance for your acceptance of these conditions.

Warm Regards,

Craig T. Moffat
Member
5000 Stoller Ridge Drive, LLC

Agent Authortization Form

TOWN *of* WAKE FOREST

The Wake Forest Unified Development Ordinance (UDO) states that applications for development approvals may only be made by the landowner, a lessee or person holding an option or contract to purchase or lease the land, or an authorized agent of the landowner (see Sec. 15.2.5.C). This agent authorization form must be signed by the landowner and included with any application not submitted by the landowner or lessee as specified above. If more than one landowner is involved, a separate agent authorization form must be submitted by each landowner.

Address(es) and Tax PIN(s) for which authorization is granted: 4975 Unicon Drive (PIN: 1739-61-2717)

Landowner's name*: Young Group Holdings, LLC

Application(s) for which authorization is granted (e.g., Rezoning, Special Use Permit): Rezoning

Person authorized to submit application(s) as landowner's agent *(must be the same person listed as the applicant on the application form)*: Timothy Lance; Gary J. McCabe, PE

Landowner's Signature: Jason W. Young

Date: 6/29/23

Please provide below the name, address, and other information of the person signing this form.

Name: Jason Young

Address: 2808 Connector Drive

Telephone number: 919-435-9922

Email address: jason@yccllc.com

If signing for a corporation or other entity, please specify title and/or relationship to the corporation or other entity *(e.g., Member, Executive Officer)*: Member

**Owner of record as shown on the latest equalized assessment rolls of Wake County, or, if ownership has recently been transferred, the grantee shown on the recorded deed (a copy of the deed must accompany this form).*

Agent Authortization Form

TOWN *of* WAKE FOREST

The Wake Forest Unified Development Ordinance (UDO) states that applications for development approvals may only be made by the landowner, a lessee or person holding an option or contract to purchase or lease the land, or an authorized agent of the landowner (see Sec. 15.2.5.C). This agent authorization form must be signed by the landowner and included with any application not submitted by the landowner or lessee as specified above. If more than one landowner is involved, a separate agent authorization form must be submitted by each landowner.

Address(es) and Tax PIN(s) for which authorization is granted: 4925 Unicon Drive (PIN: 1739-51-8319)

Landowner's name*: 5000 Stroller Ridge Drive LLC

Application(s) for which authorization is granted (e.g., Rezoning, Special Use Permit): Conditional Rezoning

Person authorized to submit application(s) as landowner's agent *(must be the same person listed as the applicant on the application form)*: Timothy Lance; Gary J. McCabe, PE

Landowner's Signature: _____

Date: _____

Please provide below the name, address, and other information of the person signing this form.

Name: Craig Moffat

Address: 701 Finger Lakes Drive

Telephone number: 9192954630

Email address: cmoffat@moffatproperties.com

If signing for a corporation or other entity, please specify title and/or relationship to the corporation or other entity *(e.g., Member, Executive Officer)*: member/manager

**Owner of record as shown on the latest equalized assessment rolls of Wake County, or, if ownership has recently been transferred, the grantee shown on the recorded deed (a copy of the deed must accompany this form).*

TOWN OF WAKE FOREST

AGENT AUTHORIZATION FORM:

Application #: _____ Submittal Date: February 23, 2023

Patricia Williams Brothers is the owner of the property for which the attached application is being submitted:

- [x] General Use Rezoning or Conditional District Rezoning
- [ ] Site Master Plan
- [ ] Subdivision Master Plan
- [ ] Construction Drawings
- [ ] Variance
- [ ] Major Architectural Review

The property is located at: 10200 Capital Blvd. (PIN: 1739-51-4482)

The agent for this project is: Red Line Engineering, PC

I am the owner of the property and will be acting as my own agent.

Name: PATRICIA BROTHERS

Address:

Telephone Number: 919 622 1958 Fax:

Email Address: spbros@earthlink.net

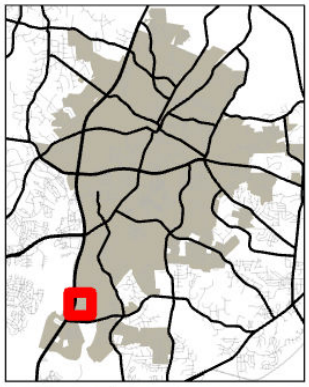
Signature(s) of Owner(s): Patricia Brothers

Print or type name(s): PATRICIA BROTHERS

Attach additional sheets if there are additional owners.

***Owner of record as shown on the latest equalized assessment rolls of Wake County. (An option to purchase does not constitute ownership). If ownership has been recently transferred, a copy of the deed must accompany this authorization.**

Last update: August 2018



Aerials

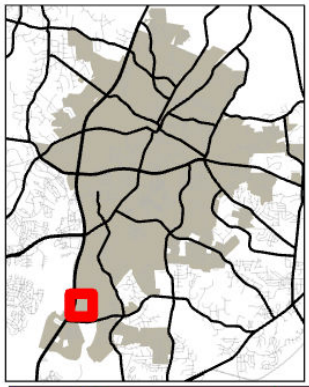
TOWN *of* WAKE FOREST

RZ-20-05-01
Fuller Property
PINs:1739612717, 1739518319 & 1739514482 (portion)

8/21/2023

Please note that this map is intended for illustrative purposes only. For specific inquiries regarding zoning boundaries, contact the Town Wake Forest Planning Department at 919-435-9510.

0 500 1,000 US Feet

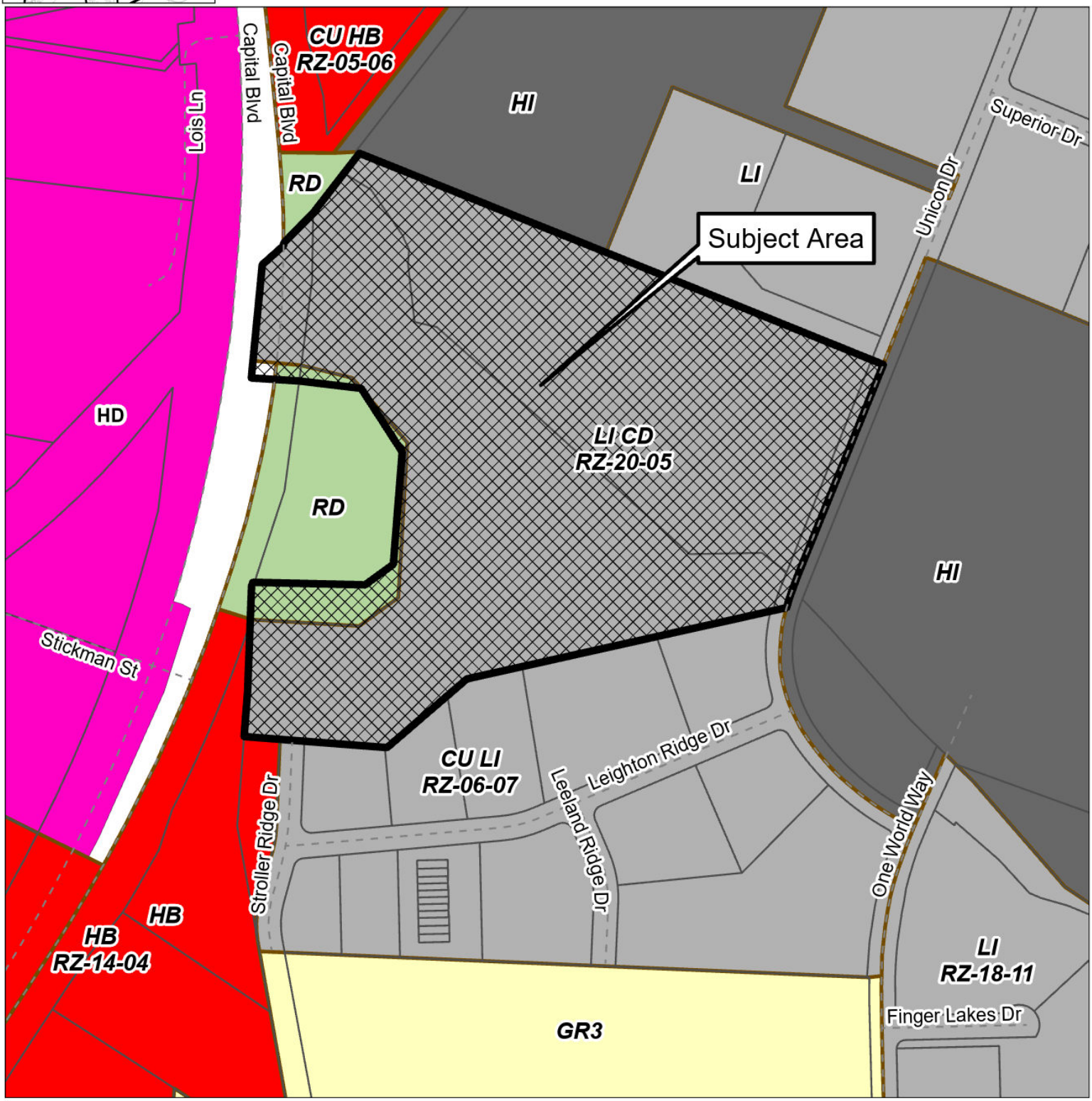


Current Zoning

TOWN of WAKE FOREST

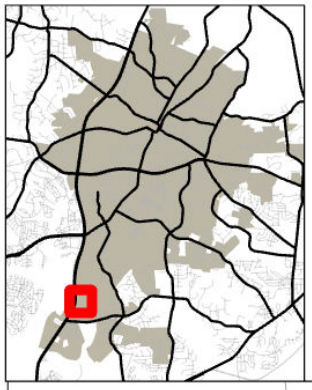
RZ-20-05-01
Fuller Property
PINs:1739612717, 1739518319 & 1739514482 (portion)

8/21/2023



Please note that this map is intended for illustrative purposes only. For specific inquiries regarding zoning boundaries, contact the Town Wake Forest Planning Department at 919-435-9510.

0 500 1,000 Feet

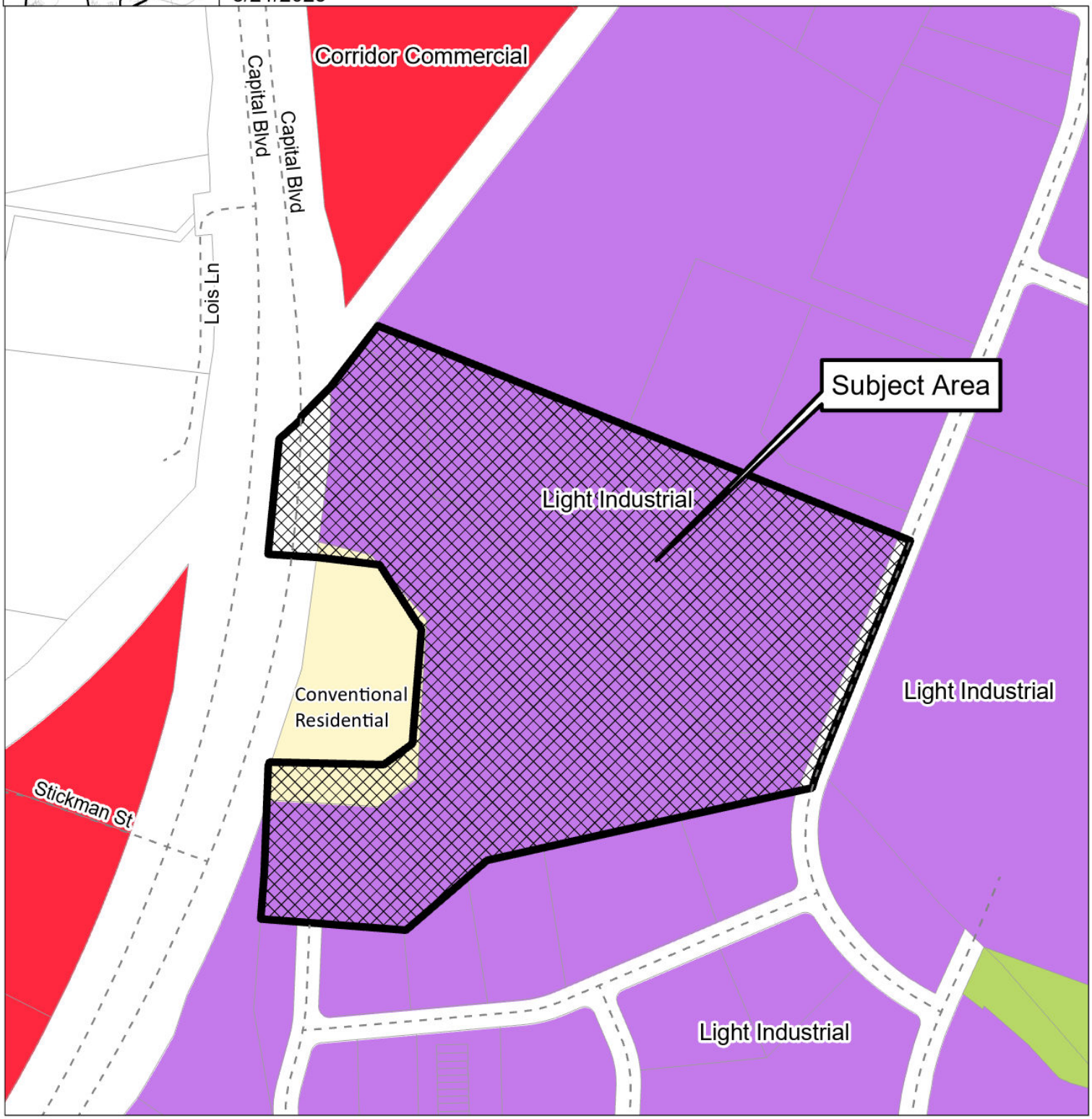


Land Use Plan

TOWN *of* WAKE FOREST

RZ-20-05-01
Fuller Property
PINs:1739612717, 1739518319 & 1739514482 (portion)

8/21/2023



Please note that this map is intended for illustrative purposes only. For specific inquiries regarding zoning boundaries, contact the Town Wake Forest Planning Department at 919-435-9510.

0 500 1,000 Feet

N W S

ORDINANCE 2020-16

ORDINANCE AMENDING THE OFFICIAL ZONING DISTRICT MAP OF THE TOWN OF WAKE FOREST TO CHANGE THE ZONING OF APPROXIMATELY 28.13 ACRES LOCATED AT 0 CAPITAL BOULEVARD FROM RESIDENTIAL HOLDING DISTRICT (RD) TO LIGHT INDUSTRIAL CONDITIONAL DISTRICT (LI-CD)

RZ-20-05, Fuller Capital Boulevard Property

WHEREAS, the application submitted by Moffat Properties, LLC for the rezoning of lands hereinafter described was duly filed with the Planning Department and thereafter a public hearing was held hereon on the 5th day of May, 2020 before the Planning Board and the Board of Commissioners, pursuant to due notice mailed, the property posted and notice published pursuant to G.S. § 160A-384. Thereafter, the Planning Board submitted its recommendation to the Board of Commissioners recommending approval of said application for the rezoning of the lands hereinafter described, all in accordance with the requirements of the Town of Wake Forest Unified Development Ordinance and the provisions of Chapter 160A, Article 19, of the North Carolina General Statutes; **NOW, THEREFORE,**

BE IT ORDAINED BY THE BOARD OF COMMISSIONERS OF THE TOWN OF WAKE FOREST

Section 1: The lands that are the subject of the Ordinance are those certain lands described in Attachment "A" – Legal Description which is incorporated herein by reference, and said lands are hereafter referred to as the "Rezoned Lands."

Section 2: The parcel identified by the Wake County Tax Parcel Identification Number, 1739-51-9596, and described in Attachment "A", is located within the Town of Wake Forest's planning jurisdiction and/or corporate limits.

Section 3: The Town of Wake Forest Unified Development Ordinance, including the Town of Wake Forest North Carolina Official Zoning District Map which is a part of said Ordinance, is hereby amended by changing the zoning classification of the "Rezoned Lands" from Residential Holding District (RD) to Light Industrial Conditional District (LI-CD), subject to the conditions stated herein.

Section 4: The Administrator is hereby authorized and directed to cause the said Official Zoning District Map for the Town of Wake Forest, North Carolina, to be physically revised and amended to reflect the zoning changes ordained by this Ordinance.

Section 5: After reviewing all the information presented at the public hearing and the Wake Forest plans, policies and ordinances, the Wake Forest Board of Commissioners find the zoning map amendment request reasonable in the public interest and consistent with the Community Plan Unified Development Ordinance and adopted a written consistency statement, which is on file with the Wake Forest Planning Department.

Section 6: The "Rezoned Lands" are subject to all of the following conditions which are imposed as part of this rezoning:

1. A 50' landscaped buffer (Type A) and 6' tall opaque wooden fence (painted a neural color) shall be provided along the entirety of the shared property line adjacent to the Powell House property.

2. The LI Zoning District Perimeter 50' buffer along the western property line that is required by Section 2.2.5.A.2 shall be a Type A landscaped buffer as defined in Section 8.5.3.A of the UDO. This buffer shall remain undisturbed and supplemental plantings added where necessary.

3. At the time of development of the subject site, the applicant shall provide a Sanitary Sewer Easement to PIN 1739-53-6077. The easement location shall be approved by City of Raleigh Water. A plat shall be recorded showing the easement.

4. Uses shall be limited to the following:
   - Industry, Light
   - Light Manufacturing Workshops
   - Storage – Outdoor Storage Yard
   - Storage – Warehouse, Indoor Storage
   - Wholesaling and Distribution
   - Heavy Equipment/Manufactured Home Rental/Sales
   - Vehicle Services – Minor Maintenance/Repair
   - Vehicle Services – Major Repair/Body Work
   - Amusements, Indoor
   - Amusements, Outdoor
   - Public Safety Station
   - Parking Lot/Structure – Principle Use
   - Gardens (Community and Private)
   - A distributed antenna system (DAS) node
   - DAS hub
   - Concealed attached antennae are permitted
   - Utilities – Class 1
   - Utilities – Class 2
   - Utilities – Class 3

Section 8: The "Rezoned Lands" shall be perpetually bound to the conditions imposed including the uses authorized, unless subsequently changed or amended as provided for in the Unified Development Ordinance.

Section 9: This ordinance shall be in full force and effect from and after its adoption.

This the _19th _ day of __May_____ 2020.

Motion by Commissioner__ Jim Dyer_____

Seconded by Commissioner____ Chad Sary____

With __5__ Commissioner(s) voting "aye."
With __0__ Commissioner (s) voting "no."

This the _19th _ day of __May_____ 2020.

Mayor

APPROVED AS TO FORM:

Eric A. Vernon
Town Attorney

ATTEST:

Deeda W. Harr
Town Clerk

TOWN *of*
WAKE FOREST

Report Requirements:

Per NCGS 160D-604, all proposed amendments to the zoning ordinance or zoning map shall have a written report provided from the Planning Board to the Board of Commissioners within 30 days of referral of the amendment to the Planning Board, or the Board of Commissioners may proceed in its consideration of the amendment without the Planning Board report. Furthermore, in no case is the Board of Commissioners bound by the recommendations, if any, of the Planning Board.

Per NCGS 160D-604, the Planning Board shall advise and comment on whether the proposed zoning amendment is consistent with all applicable officially adopted plans, and provide a written recommendation to the Board of Commissioners that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with the officially adopted plans shall not preclude consideration or approval of the proposed amendment by the Board of Commissioners.

GENERAL INFORMATION

Applicant:	Timothy Lance, Red Line Engineering
Owners:	5000 Stroller Ridge Drive, LLC, Young Group Holdings, LLC, and Patricia Williams Brothers
Requested Action:	Rezone 29.367 acres on the Town of Wake Forest Zoning Map from Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) to Light Industrial Conditional District (LI-CD).
Existing Zoning:	Rural Holding District (RD) and Light Industrial Conditional District (LI-CD)
Location:	4925 Unicon Dive, 4975 Unicon Drive, 10200 Capital Boulevard (portion)
Size:	29.367 acres
Tax PINs:	1739612717, 1739518319, 1739514482 (portion)
Existing Land Use:	Vacant

Applicable Officially Adopted Plans:

The request is generally Consistent with the relevant policies in the Comprehensive Plan, and Approval of the zoning map request is reasonable and in the public interest. The request is consistent with the Land Use Map in the Community Plan.

This report reflects the recommendation of the Planning Board, this the 12th day of September 2023.

Introduced by Planning Board member: Michael Almquist

Seconded by Planning Board member: Michael Siderio

Attest:

Karin Kuropas, Planning Board Chair

Courtney Tanner, Planning Director

CAWTHORNE, MOSS & PANCIERA, PC
MICHAEL A. MOSS, PLS
333 S. WHITE STREET
WAKE FOREST, NC 27587
(919) 556-3148
MIKE@CMPPLS.COM

REZONING
Legal Description for
"LOTS 1 & 2, MARTHA E. FULLER PROPERTY"

BEGINNING at an existing iron pipe in the eastern r/w of (U.S. Highway 1) Capital Boulevard, said existing iron pipe being located N 29°12'45" E a distance of 202.82' from NCGS "SEABOARD" with NAD 83 (2011) coordinates N(y): 791,977.48' E(x): 2,135,335.98'; Thence N 37°49'12" E a distance of 184.54' to an existing iron pipe; Thence S 68°05'58" E a distance of 1348.54' to an existing iron pipe; Thence S 68°05'58" E a distance of 30.00' to a point, being the centerline of Unicon Drive; Thence along the centerline S 21°47'20" W a distance of 607.44' to a point; Thence with a curve turning to the left with an arc length of 33.34', with a radius of 370.00', with a chord bearing of S 19°12'27" W, with a chord length of 33.32', to a point; Thence leaving the centerline of Unicon Drive S 77°25'14" W a distance of 33.98' to a new iron pipe; Thence S 77°25'14" W a distance of 765.33' to a new iron pipe; Thence S 49°18'46" W a distance of 257.33' to a new iron pipe; Thence N 85°34'27" W a distance of 350.00' to a new iron pipe; Thence N 04°25'33" E a distance of 110.89' to a point; Thence N 02°52'04" E a distance of 175.38' to an existing concrete monument; Thence S 86°33'57" E a distance of 264.22' to a new iron pipe; Thence N 53°59'32" E a distance of 118.06' to a new iron pipe; Thence N 03°18'56" E a distance of 378.99' to a new iron pipe; Thence N 40°21'04" W a distance of 207.72' to a new iron pipe; Thence N 76°11'59" W a distance of 129.40' to a new iron pipe; Thence N 76°11'59" W a distance of 120.74' to a point, being centerline of Capital Boulevard; Thence along centerline N 07°07'49" E a distance of 20.17' to a point; Thence N 04°52'30" E a distance of 161.01' to a point; Thence leaving the centerline of Capital Boulevard with a curve turning to the left with an arc length of 208.99', with a radius of 6,409.65', with a chord bearing of N 38°52'15" E, with a chord length of 208.98', to a point; Which is the point of beginning, being all of Lots 1 and 2 having an area of 1,279,204.97' Square Feet, 29.367 Acres.

Consistency Statement of the Wake Forest Board of Commissioners Pursuant to G.S. 160D-605 Addressing Action on Zoning Map Amendment RZ-20-05-01: Fuller Capital Boulevard Property

The Wake Forest Board of Commissioners finds that RZ-20-05-01 is consistent with the Wake Forest Comprehensive Plan. The Wake Forest Board of Commissioners finds that approval of the rezoning request is reasonable and in the public interest for the following reasons:

1. The rezoning allows for the future development of primarily light industrial uses which will support diversification of the Town's tax base and provide employment opportunities.
2. A 50-foot landscaped buffer will be planted along the adjacent property line of the historic Powell House property to reduce visibility and noise impacts, as per approved rezoning conditions.
3. The site is located near two major roadways with access to several connector streets via connectivity throughout the development area.

ORDINANCE 2023-XXX

ORDINANCE OF THE BOARD OF COMMISSIONERS OF THE TOWN OF WAKE FOREST AMENDING THE OFFICIAL ZONING DISTRICT MAP OF THE TOWN OF WAKE FOREST TO CHANGE THE ZONING OF APPROXIMATELY 29.367 ACRES LOCATED AT 4925 UNICON DRIVE, 4975 UNICON DRIVE, AND 10200 CAPITAL BOULEVARD (PORTION), BEING WAKE COUNTY TAX PINs 1739-51-8319, 1739-61-2717, 1739-51-4482 (PORTION) FROM RURAL HOLDING DISTRICT (RD) AND LIGHT INDUSTRIAL CONDITIONAL DISTRICT (LI-CD) TO LIGHT INDUSTRIAL CONDITIONAL DISTRICT (LI-CD).

WHEREAS, the application submitted by Red Line Engineering on behalf of 5000 Stroller Ridge Drive, LLC, Young Group Holdings, LLC, and Patricia Williams Brothers for the rezoning of land hereinafter described was duly filed with the Planning Department; and

WHEREAS, the Planning Board held a public comment session on September 12, 2023 and the Board of Commissioners held a public hearing on October 17, 2023; and

WHEREAS, mailed notices, property sign postings, and a newspaper notice publication were carried out for the public comment session and public hearing in accordance with to G.S. § 160D-602 and the Unified Development Ordinance; and

WHEREAS, the Planning Board submitted its recommendation to the Board of Commissioners recommending approval of said application that was generally consistent with the Comprehensive Plan and in the best public interest for the lands hereinafter described, all in accordance with the requirements of the Town of Wake Forest Unified Development Ordinance and the provisions of Chapter 160D, Article 6, of the North Carolina General Statutes;

NOW, THEREFORE, BE IT ORDAINED by the Board of Commissioners of the Town of Wake Forest:

Section 1: The lands that are the subject of the Ordinance are those certain lands described in Exhibit 1 – Legal Description, which is incorporated herein by reference, and said lands are hereafter referred to as the "Rezoned Lands."

Section 2: The parcels identified by the Wake County Tax Parcel Identification Numbers 1739518319, 1739612717, 1739514482 (portion), and described in Exhibit 1, are located within the Town's Extraterritorial Jurisdiction.

Section 3: The Town of Wake Forest Unified Development Ordinance, including the Town of Wake Forest North Carolina Official Zoning District Map which is a part of said Ordinance, is hereby amended by changing the zoning classification of the "Rezoned

Lands" from Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) to Light Industrial Conditional District (LI-CD) as shown on Exhibit 1, subject to the conditions stated herein.

Section 4: The Administrator is hereby authorized and directed to cause the said Official Zoning District Map for the Town of Wake Forest, North Carolina, to be physically revised and amended to reflect the zoning changes ordained by this Ordinance.

Section 5: After reviewing all the information presented at the public hearing and the Town's plans, policies, and ordinances, the Wake Forest Board of Commissioners finds the zoning map amendment request reasonable and consistent with the 2022 Community Plan and in the interest of the public and adopted a written consistency statement, which is on file with the Wake Forest Planning Department and attached as Exhibit 2.

Section 6: The "Rezoned Lands" are subject to the following conditions, which are imposed as part of this rezoning:

1. A 50' landscaped buffer (Type A) and 6' tall opaque wooden fence (painted neutral color) shall be provided along the entirety of the shared property line adjacent to the Powell House Property.

2. The LI Zoning District Perimeter 50' buffer along the western property line that is required by Section 2.2.5.A.2 shall be a Type A landscaped buffer as defined in Section 8.5.3.A of the UDO. This buffer shall remain undisturbed and supplemental plantings added where necessary.

3. At the time of development of the subject site, the applicant shall provide a Sanitary Sewer Easement to PIN 1739-53-6077. The easement location shall be approved by City of Raleigh Water. A plat shall be recorded showing the easement.

4. Uses shall be limited to the following:
    - Industry, Light (Ps)
    - Light Manufacturing Workshops
    - Storage – Outdoor Storage Yard
    - Storage – Warehouse, Indoor Storage
    - Wholesaling and Distribution
    - Heavy Equipment/ Manufactured Homes Rental/Sales
    - Vehicle Services – Minor Maintenance/Repair
    - Vehicle Services – Major Repair/ Body Work
    - Amusements, Indoor

- Amusements, Outdoor
- Public Safety Station
- Parking Lot/ Structure – Principal Use
- Gardens (Community and Private)
- A distributed antenna system (DAS) node
- DAS hub (Ps)
- Concealed attached antennae are permitted (Ps)
- Utilities – Class 1
- Utilities - Class 2
- Utilities - Class 3 (SUP)

Section 7: The "Rezoned Lands" shall be perpetually bound to the conditions imposed including the uses authorized, unless subsequently changed or amended as provided for in the Unified Development Ordinance.

Adopted and effective this 17th day of October 2023.

_____

Vivian A. Jones
Mayor

ATTEST:

_____

Theresa Savary
Town Clerk

APPROVED AS TO FORM:

_____

Hassan Kingsberry
Town Attorney

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-219-
Submitted by: Emma Linn
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Public Hearing on LEGISLATIVE CASE RZ-23-05, 2117 Averette Road, a rezoning map amendment filed by Douglas and Sarah Machado to rezone 2.822 acres located at 2117 Averette Road, being Wake County Tax PIN 1851-90-8235, from Wake County's Residential-30 (R-30) to General Residential 5 (GR5).

Recommendation:

Item Summary:

ATTACHMENTS
- BOC Agenda Summary RZ-23-05.pdf
- RZ-23-05 Staff Report.pdf
- Attachment A - Neighborhood Meeting Information.pdf
- Attachment B - Application.pdf
- Attachment C - Maps.pdf
- Attachment D - Planning Board Recommendation.pdf
- Exhibit 1 - Legal Description.pdf
- Exhibit 2 - Consistency Statement.pdf
- Ordinance RZ-23-05 2117 Averette Road.docx

Agenda Item: Public Hearing on LEGISLATIVE CASE RZ-23-05, 2117 Averette Road, a rezoning map amendment filed by Douglas and Sarah Machado to rezone 2.822 acres located at 2117 Averette Road, being Wake County Tax PIN 1851-90-8235, from Wake County's Residential-30 (R-30) to General Residential 5 (GR5).

Summary: A public comment session was held at the September 12, 2023, Planning Board meeting. The Planning Board voted 5-0 to find the request consistent with the Community Plan and in the public interest and recommended approval of the zoning map amendment (rezoning) request. Planning staff presented the rezoning request to the Board of Commissioners at its October 3, 2023, work session.

Attachments: See Staff Report.

TOWN of WAKE FOREST

Staff Report
Case RZ-23-05: 2117 Averette Road Rezoning

Meeting Date	October 17, 2023
Requested Actions	Consideration of the following items related to the Zoning Map Amendment request for 2117 Averette Road: 1. Act on Plan Consistency Statement 2. Rezone 2.822 acres on the Town of Wake Forest Zoning Map from Wake County Residential 30 (R-30) to General Residential 5 (GR5).
Case Manager	Emma Linn, Planner II - Long Range Planning
Planning Board Recommendation	Recommended approval of the zoning map amendment request by a vote of 5-0. See Attachment D for the Planning Board Recommendation.

Public Meetings

Neighborhood Meeting	Public Comment Session	Public Hearing
July 12, 2023 *(See Attachment A)*	September 12, 2023	October 17, 2023

Case Information

Applicant	Douglas and Sarah Machado 2117 Averette Rd Wake Forest, NC 27587
Property Owners	Douglas and Sarah Machado 2117 Averette Rd Wake Forest, NC 27587
Location	Directly to the north of Rosedale Subdivision Phase 4 and south of Copper Beech Lane.
Addresses	2117 Averette Road
Wake County Tax PIN	1851908235
Acreage	2.822

Zoning	Existing: Wake County R-30 Proposed: General Residential 5 (GR5)
Land Use	Existing: Dwelling - Single-Family Proposed: Dwelling - Single-Family
Corporate Limits	This application is outside the Town's corporate limits and within the Town's Long Range Urban Service Area. An annexation petition has been filed.
Community Plan Designation	Mixed Residential

See Attachment B for a copy of the application and Attachment C for Aerial, Zoning, and Land Use Maps. See Community Plan page 40 for a description of Mixed Residential.

SURROUNDING LAND USES AND ZONING

	Land Use	Zoning
North	Dwelling – Single-Family (non-subdivision parcels)	Wake County R-30
South	Dwelling – Townhome (Rosedale Subdivision)	Planned Unit Development (PUD)
East	Dwelling – Single Family (Rosedale Subdivision and non-subdivision parcels) and Vacant	Wake County R-30 and PUD
West	Dwelling-Townhome (Rosedale Subdivision)	Planned Unit Development (PUD)

The proposed land use is generally **compatible** with surrounding land uses.

The proposed zoning is generally **compatible** with surrounding zoning.

See Attachment C for associated maps.

COMPREHENSIVE PLAN CONSISTENCY

Community Plan (2022)	The proposed zoning map amendment request is generally consistent with the adopted 2022 Community Plan.
Comprehensive Transportation Plan (2021)	The Comprehensive Transportation Plan is not applicable to the proposed zoning map amendment request.

Historic Preservation Plan (2022)	The Historic Preservation Plan is not applicable to the zoning map amendment request.
Northeast Neighborhood Plan (2021)	The Northeast Neighborhood Plan is not applicable to the zoning map amendment request.
Park, Recreation, and Cultural Resources Master Plan (2015)	The Parks, Recreation, and Cultural Recourses Master Plan is not applicable to the zoning map amendment request.
Public Art Vision Plan (2009)	The Public Art Vision Plan is not applicable to the zoning map amendment request.
Renaissance Plan (2017)	The Renaissance Plan is not applicable to the zoning map amendment request.

There is no detailed Plan Consistency Analysis since the Land Use Map is the only applicable section of the Community Plan.

STAFF RECOMMENDATION

The zoning map amendment request is generally **Consistent** with the relevant policies in the Comprehensive Plan, and **Approval** of the zoning map amendment request is reasonable and in the public interest.

ATTACHMENTS

Attachment A: Neighborhood Meeting Information
Attachment B: Application
Attachment C: Maps
Attachment D: Planning Board Recommendation

EXHIBITS

Exhibit 1: Legal Description
Exhibit 2: Consistency Statement

Douglas Machado
Sarah Machado
2117 Averette Rd
Wake Forest, NC 27587

June 30, 2023

RE: Neighborhood Meeting Notice

Dear Neighboring Property Owner:

Douglas Machado and Sarah Machado are hosting a neighborhood meeting for property owners within close proximity to the site to discuss a rezoning proposal.

Meeting Date:	Wednesday, July 12, 2023
Meeting Time:	6:00pm-6:30pm
Meeting Location:	Gatehouse Tavern, 960 Gateway Commons Cir, Wake Forest, NC 27587
Project Name:	2117 Averette Rd Rezoning
Project Location:	2117 Averette Rd, Wake Forest, NC 27587
Application Type:	Map Amendment (Rezoning)
Size of Project:	2.83 acres
PIN:	1851908235

Project Description: Douglas Anthony Machado and Sarah Renee Machado are proposing to rezone 2.83 acres located at 2117 Averette Rd from Wake County's Residential-30 (R-30) zone to Wake Forest's General Residential 5 (GR5) zone.

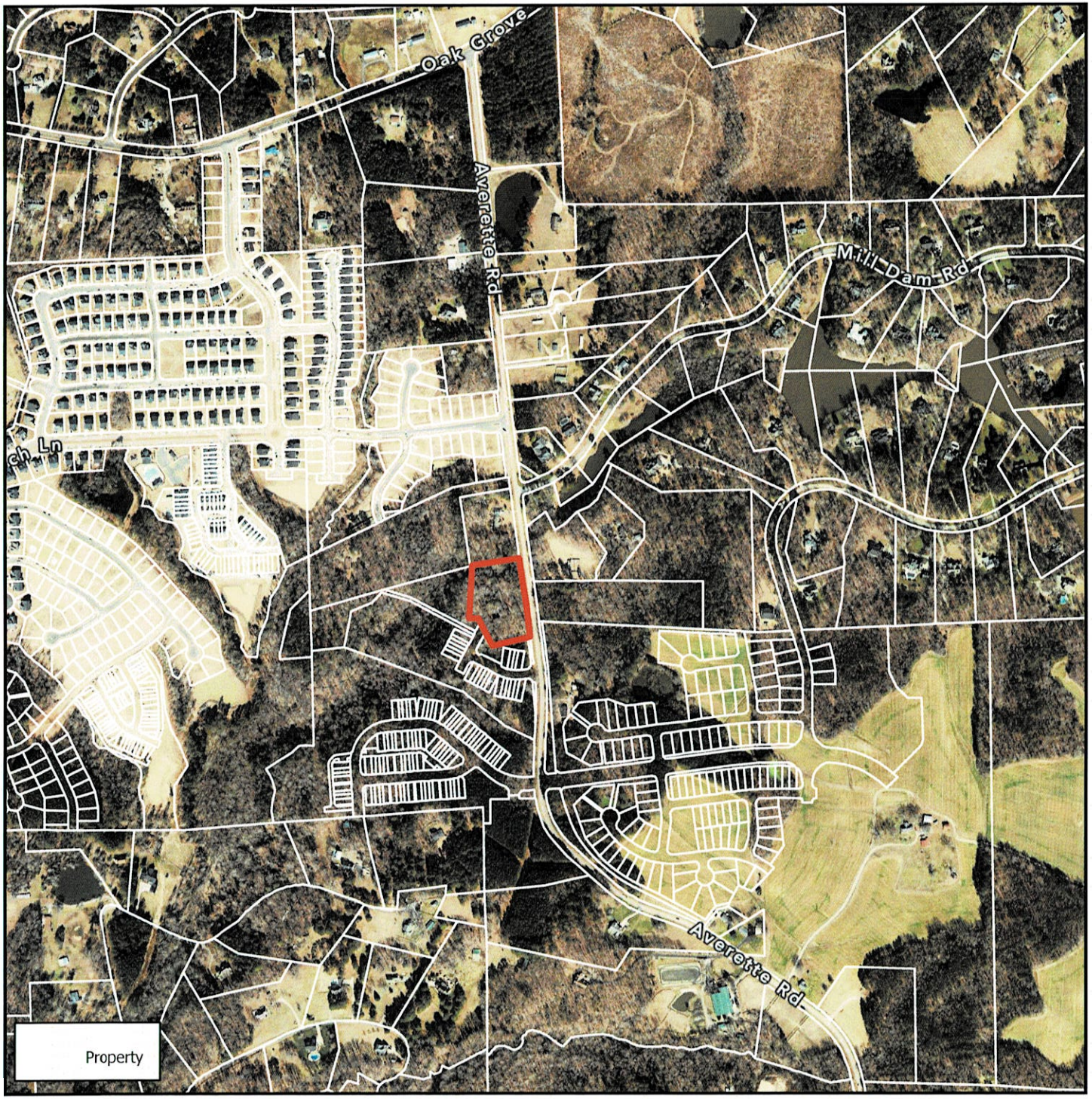
If you have any questions regarding this matter, please feel free to contact me directly at (941) 928-7889 or srmachado37@gmail.com

Sincerely,

Sarah Machado

Enclosures:	subject area map
Cc:	Town of Wake Forest Planning Department

2117 Averette Rd
Rezoning - Subject Area



REID: 0110658
PIN: 1851908235
PIN Extension: 000
Land Value: $88260
Building Value: $249743
Total Value Assessed: $338003
Deed Acres: 2.83
Total Sale Price: $600000
Sale Date: 4/12/2023
Year Built: 1980
Heated Area: 3002
Type and Use: SINGLFAM
Design Style: Conventional
Planning Jurisdiction: WC
Township: Wake Forest
Owner: MACHADO, DOUGLAS ANTHONY
MACHADO, SARAH RENEE
Mailing Address 1: 2117 AVERETTE RD
Mailing Address 2: WAKE FOREST NC
27587-8230
Deed Book: 019307
Deed Page: 01187
Deed Date: 4/12/2023
Land Class: Residential Less Than 10 Acres
Map Name: 1851 04
Billing Class: Individual
Property Description: PROP ARTHUR IVEY &
ANGELA IVEY BM1991 -932
Site Address: 2117 AVERETTE RD
Street Name: AVERETTE RD
Old Parcel Number: 207-00000-0039
Units: 2
Total Structures: 2
Total Units: 2

N

0 400 800 1600 ft

1 inch equals 800 feet

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.*

Douglas Machado
Sarah Machado
2117 Averette Rd
Wake Forest, NC 27587

June 30, 2023

RE: Neighborhood Meeting Notice

To Whom it May Concern:

Per UDO Section 15.3.5, a Neighborhood Meeting Notice letter has been sent to all property owners within 500 feet of subject area 2117 Averette Rd via first class mail postmarked 6/30/23.

If you have any questions regarding this matter, please feel free to contact me directly at (941) 928-7889 or srmachado37@gmail.com

Sincerely,

Sarah Machado

Enclosures:

- Neighborhood Meeting Notice
- Subject Area Map
- iMaps screenshot of subject area and properties within 500 ft of it
- List of property owners within 500 feet of subject area to which the Neighborhood Meeting Notice was mailed

Meeting Minutes for Neighborhood Meeting

Meeting Date:	Wednesday, July 12, 2023
Meeting Time:	6:00pm-6:30pm
Meeting Location:	Gatehouse Tavern, 960 Gateway Commons Cir, Wake Forest, NC 27587
Facilitator:	Sarah Machado
Attendees Present:	Douglas Machado 941-840-3033 Sarah Machado 941-928-7889
Meeting Purpose:	2117 Averette Rd Rezoning
Discussion:	Explained proposed project to rezone 2.83 acres located at 2117 Averette Rd from Wake County's Residential-30 (R-30) zone to Wake Forest's General Residential 5 (GR5) zone.
Conclusion:	No surrounding property owners were present and therefore no concerns or objections were raised.

Property Owners within 500 feet of subject area 2117 Averette Rd per iMaps on 6/30/23

PIN_NUM	OWNER	ADDR1	ADDR2	ADDR3	SITE_ADDRESS	ZIPNUM
1851907998	TRYON WEST HOMEOWNERS ASSOCIATION INC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1133 COPPER BEECH LN	27587
1861001771	MILLRACE HOMEOWNERS ASSOCIATION INC	PO BOX 1914	WAKE FOREST NC 27588-1914		0 AVERETTE RD	27587
1851904622	BYCZKOWSKI, ELIZABETH	2201 AVERETTE RD	WAKE FOREST NC 27587-8232		2201 AVERETTE RD	27587
1861005214	ELL, KAREN HOPE ELL, PETER CHARLES	680 SPRINGLAKE DR	FRANKLIN TN 37064-4747		0 AVERETTE RD	27587
1860092554	LOGAN, JERMAINE D WHITE, PHYLLIS	1701 GOLDEN HONEY DR	WAKE FOREST NC 27587-3754		1701 GOLDEN HONEY DR	
1851904083	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1629 EMORY RIDGE WAY	27587
1851909040	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1604 EMORY RIDGE WAY	27587
1860090927	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		0 AVERETTE RD	27587
1860090741	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		0 AVERETTE RD	27587
1850998800	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1611 EMORY RIDGE WAY	27587
1850997871	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1609 EMORY RIDGE WAY	27587
1850997852	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1607 EMORY RIDGE WAY	27587
1850997833	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1605 EMORY RIDGE WAY	27587
1850997814	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1603 EMORY RIDGE WAY	27587
1850996895	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1601 EMORY RIDGE WAY	27587
1850995985	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	220 LENNOX SPRING DR	27587
1850995997	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	218 LENNOX SPRING DR	27587
1850996909	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	216 LENNOX SPRING DR	27587
1851906011	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	214 LENNOX SPRING DR	27587
1851906045	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	210 LENNOX SPRING DR	27587
1851906023	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	212 LENNOX SPRING DR	27587
1850999766	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1625 EMORY RIDGE WAY	27587
1850999736	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1623 EMORY RIDGE WAY	27587
1850999716	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1621 EMORY RIDGE WAY	27587
1850998796	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1619 EMORY RIDGE WAY	27587
1850998777	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1617 EMORY RIDGE WAY	27587
1850998747	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1615 EMORY RIDGE WAY	27587
1850994665	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1655 SINGING BIRD TRL	27587
1850994684	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1657 SINGING BIRD TRL	27587
1850995614	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1659 SINGING BIRD TRL	27587
1850995661	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1663 SINGING BIRD TRL	27587
1850995680	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1665 SINGING BIRD TRL	27587
1850996508	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1667 SINGING BIRD TRL	27587
1850996517	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1669 SINGING BIRD TRL	27587
1850996535	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1671 SINGING BIRD TRL	27587
1850996563	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1675 SINGING BIRD TRL	27587
1850997500	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1679 SINGING BIRD TRL	27587
1850997428	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1681 SINGING BIRD TRL	27587
1850997437	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1683 SINGING BIRD TRL	27587
1850997455	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1685 SINGING BIRD TRL	27587
1850991525	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1705 SINGING BIRD TRL	27587
1851900221	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		0 SINGING BIRD TRL	27587
1861011026	WYANT, LANDON GLENN WYANT, YIJING TENG	5205 MILL DAM RD	WAKE FOREST NC 27587-6366		5205 MILL DAM RD	27587

1861002502	YOUNG, GILBERT ALAN YOUNG, SHANNON P	2124 AVERETTE RD	WAKE FOREST NC 27587-8229		5509 FOREVER YOUNG DR	27587
1861009515	YOUNG, GILBERT ALAN YOUNG, SHANNON P	2124 AVERETTE RD	WAKE FOREST NC 27587-8229		5533 FOREVER YOUNG DR	27587
1861004672	YOUNG, GILBERT ALAN YOUNG, SHANNON P	2124 AVERETTE RD	WAKE FOREST NC 27587-8229		5521 FOREVER YOUNG DR	27587
1860094853	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1908 AVERETTE RD	27587
1860091519	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		0 AVERETTE RD	
1851908235	**MACHADO, DOUGLAS ANTHONY MACHADO, SARAH RENEE**	**2117 AVERETTE RD**	**WAKE FOREST NC 27587-8230**		**2117 AVERETTE RD**	**27587**
1860093633	NULL, MICHAEL NULL, COURTNEY	1705 GOLDEN HONEY DR	WAKE FOREST NC 27587-3754		1705 GOLDEN HONEY DR	27587
1851902757	MORGAN, ELENA COLON DE MEDINA, EDITH SANCHEZ	716 PRECIPICE WAY	WAKE FOREST NC 27587-2501		716 PRECIPICE WAY	27587
1851907677	BERCIK, FRANK J	504 W HOLDING AVE	WAKE FOREST NC 27587-2845		2133 AVERETTE RD	27587
1850998983	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1616 EMORY RIDGE WAY	27587
1850999912	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1618 EMORY RIDGE WAY	27587
1850999932	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1620 EMORY RIDGE WAY	27587
1850999962	LENNAR CAROLINAS LLC	ROBERT SMART	1100 PERIMETER PARK DR STE 112	MORRISVILLE NC 27560-9119	1622 EMORY RIDGE WAY	27587
1850994645	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1653 SINGING BIRD TRL	27587
1850996581	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1677 SINGING BIRD TRL	27587
1850994615	TRYON INVESTMENT PARTNERS II LLC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		1651 SINGING BIRD TRL	27587
1851905921	TRYON WEST HOMEOWNERS ASSOCIATION INC	8311 BANDFORD WAY STE 7	RALEIGH NC 27615-2761		712 PRECIPICE WAY	27587

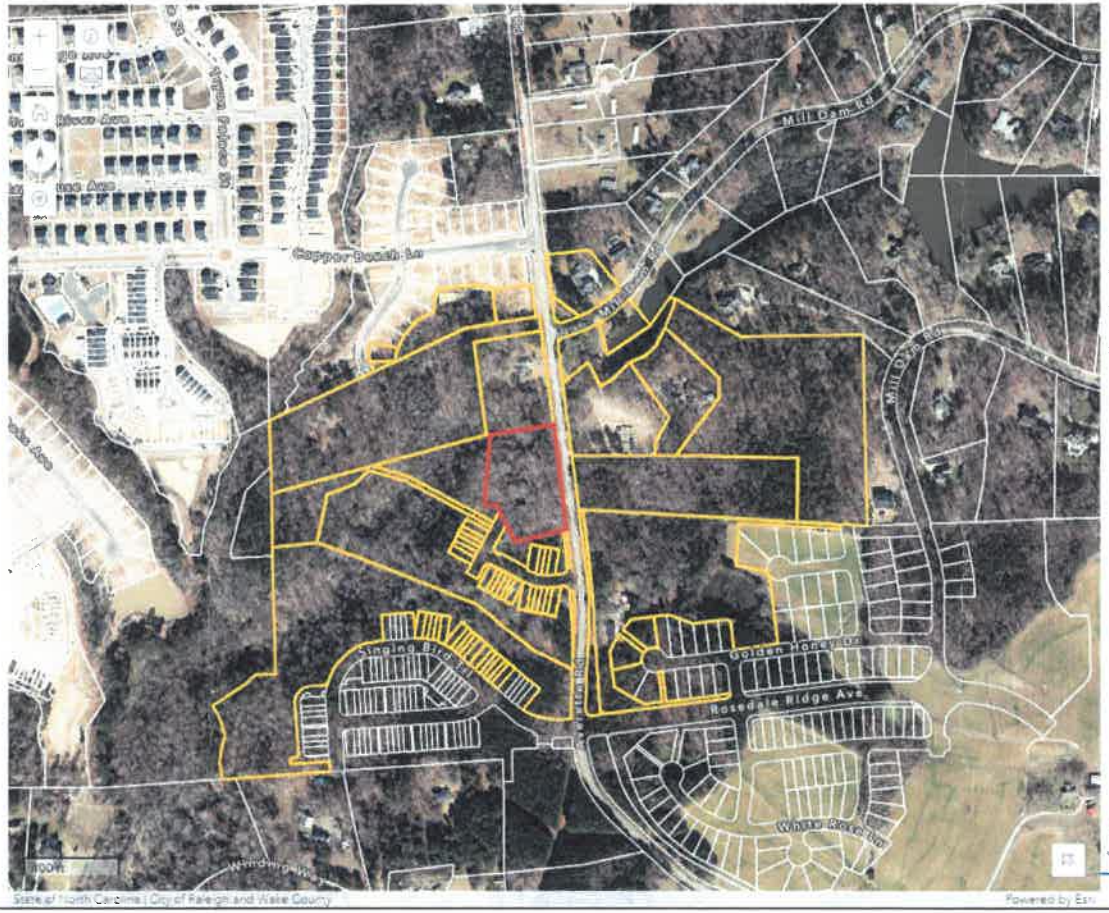
iMAPS

Property Select

Buffer Distance

300 ft

Buffer Selected



Property Search

Selected Properties: 60

Site Address	Owner
1133 COPPER BEECH LN	TRYON WEST HOMEOWNERS ASSOCIATION INC
0 AVERETTE RD	MILLRACE HOMEO ASSOCIATION INC
2201 AVERETTE RD	BYCZKOWSKI, ELIZ
0 AVERETTE RD	ELL, KAREN HOPE PETER CHARLES
1701 GOLDEN HONEY DR	LOGAN, JERMAINE WHITE, PHYLLIS
1629 EMORY RIDGE WAY	TRYON INVESTMEN PARTNERS II LLC
1604 EMORY RIDGE WAY	TRYON INVESTMEN PARTNERS II LLC
0 AVERETTE RD	TRYON INVESTMEN PARTNERS II LLC
0 AVERETTE RD	TRYON INVESTMEN PARTNERS II LLC
1611 EMORY RIDGE WAY	LENNAR CAROLIN
1609 EMORY RIDGE WAY	LENNAR CAROLIN
1607 EMORY RIDGE WAY	LENNAR CAROLIN
1605 EMORY RIDGE WAY	LENNAR CAROLIN
1603 EMORY RIDGE WAY	LENNAR CAROLIN
1601 EMORY RIDGE WAY	LENNAR CAROLIN
220 LENNOX SPRING DR	LENNAR CAROLIN

List

Map Amendment (Rezoning) Application

(Map Amendment (Rezoning) - Planning Board Workflow)

Town of Wake Forest, NC
301 S. Brooks St.
Wake Forest, NC 27587-2932
TEL (919) 435-9510 I FAX (919) 435-9539

Project Overview #1010808

Project Title: 2117 Averette Rd Rezoning
Application Type: Map Amendment (Rezoning)
Workflow: Map Amendment (Rezoning) - Planning Board
Jurisdiction: Town of Wake Forest (Wake County)
State: NC
County: Wake

Checklist - Map Amendment (Rezoning)

A submittal checklist is available to view additional documents which are required to submitted with this application. After answering the application questions, you will be asked to upload the required documents.

VIEW MAP AMENDMENT (REZONING) SUBMITTAL CHECKLIST

Missing items will result in the application being declined and returned to the applicant to resubmit. A revised and complete application including all missing items must be received or the application will be not be deemed complete and routed for review.

Please confirm you have reviewed the associated submitted checklist for this permit and confirm you will submit all documents required on the submittal checklist: Yes

Pre-Application Meeting

Has a pre-application conference been held?: Yes

*Note: This type of project requires a pre-application conference be completed prior to official submittal. If this has not been completed, please return to the home screen and select **Pre-Application Conference** from the application type drop down list in order to schedule your required meeting.*

Pre-Application Conference Date: 03/20/2023
Staff Member Met With: Patrick Reidy
IDT Project Number: Rz-23-05

Address & Basic Site Information

Please Note:
In some cases, a parcel address may not verify. In the event that our system is unable to verify the address you enter, please submit the project as an *Unverified Parcel* and provide zoning and land use information as requested below. For verified addresses, the zoning and land use information will be added to the application automatically (you do not need to provide it below).

Project Address or PIN:
- 2117 Averette Rd (1851908235)
- 2117 B Averette Rd (1851908235)

Tax PIN:
- 1851908235
- 1851908235

Acreage: 2.879
Name of Existing Development/Subdivision (if applicable--for reference only):

For unverified addresses/parcels only, please provide below 1) the current use of the parcel, 2) the zoning district(s) it is in, and 3) any overlay districts that apply. Reference the zoning map and the overlay districts map on the town's website.

Current Use & Zoning (required only if address/parcel is unverified):

*Note: Projects falling outside the limits of the Town or ETJ will be required to submit an annexation petition in conjunction with their project submittal. In this case, please return to the home screen and select **Annexation Petition** from the application type drop down.*

GIS Site Information (Automatically Generated - Not Available for Unverified Addresses)

Parcel Area: GIS Acreage
- 2117 Averette Rd: 2.83
- 2117 B Averette Rd: 2.83

Current Use:

Wake Forest (WF):
Base District:
Planning and Zoning:
In SH1-O Overlay:

In SH2-O Overlay:

In TND Overlay:

In HL-O Overlay:

In National Register of Historic Places:

In Water Supply Watershed Protection Overlay:

In SF Overlay:

In MVCP-O Overlay:

In Flood Hazard Area: Floodplain Zones

- 2117 Averette Rd: AE
- 2117 B Averette Rd: AE

Additional Zoning Information

Currently a Conditional District?: No

Is there an existing Special Use Permit for the Property?: No

Currently a Conditional Use?: No

Related Town of Wake Forest Case Numbers: RZ-23-05

Project Contacts

Please enter all project contacts related to your application.

This is an important step to ensure all members of the applicant team receive email notifications associated with the project which may include comments, requested revisions, scheduled meetings or hearings, and final decisions. This also informs Town staff of the team members assigned role with the project.

Project Contact - Applicant
Douglas and Sarah Machado

2117 Averette Road
Wake Forest, NC 27587
P: (Phone)9419287889
srmachado37@gmail.com

Project Contact - Property Owner
Douglas and Sarah Machado

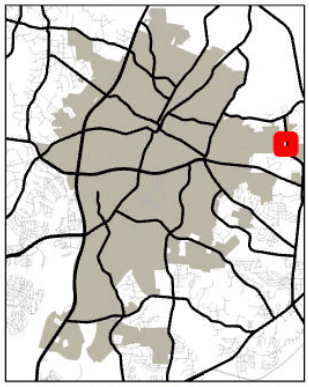
2117 Averette Road
Wake Forest, NC 27587
P: (Phone)9419287889
srmachado37@gmail.com

Map Amendment: Rezoning

Proposed Zoning: GR5, General Residential 5

Description of Request:
Requesting rezoning and annexation in order to apply for city water and sewer

Justification of Consistency with Comprehensive Plan:
Requesting rezoning and annexation in order to apply for city water and sewer



Aerials

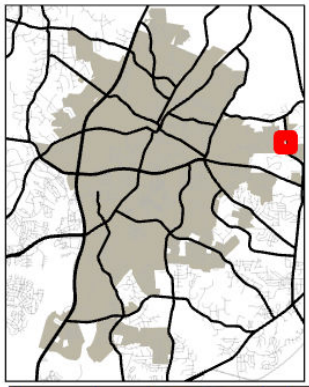
TOWN *of* WAKE FOREST

RZ-23-05
2117 Averette Rd
PIN: 1851908235

8/21/2023

Please note that this map is intended for illustrative purposes only. For specific inquiries regarding zoning boundaries, contact the Town Wake Forest Planning Department at 919-435-9510.

0 500 US Feet

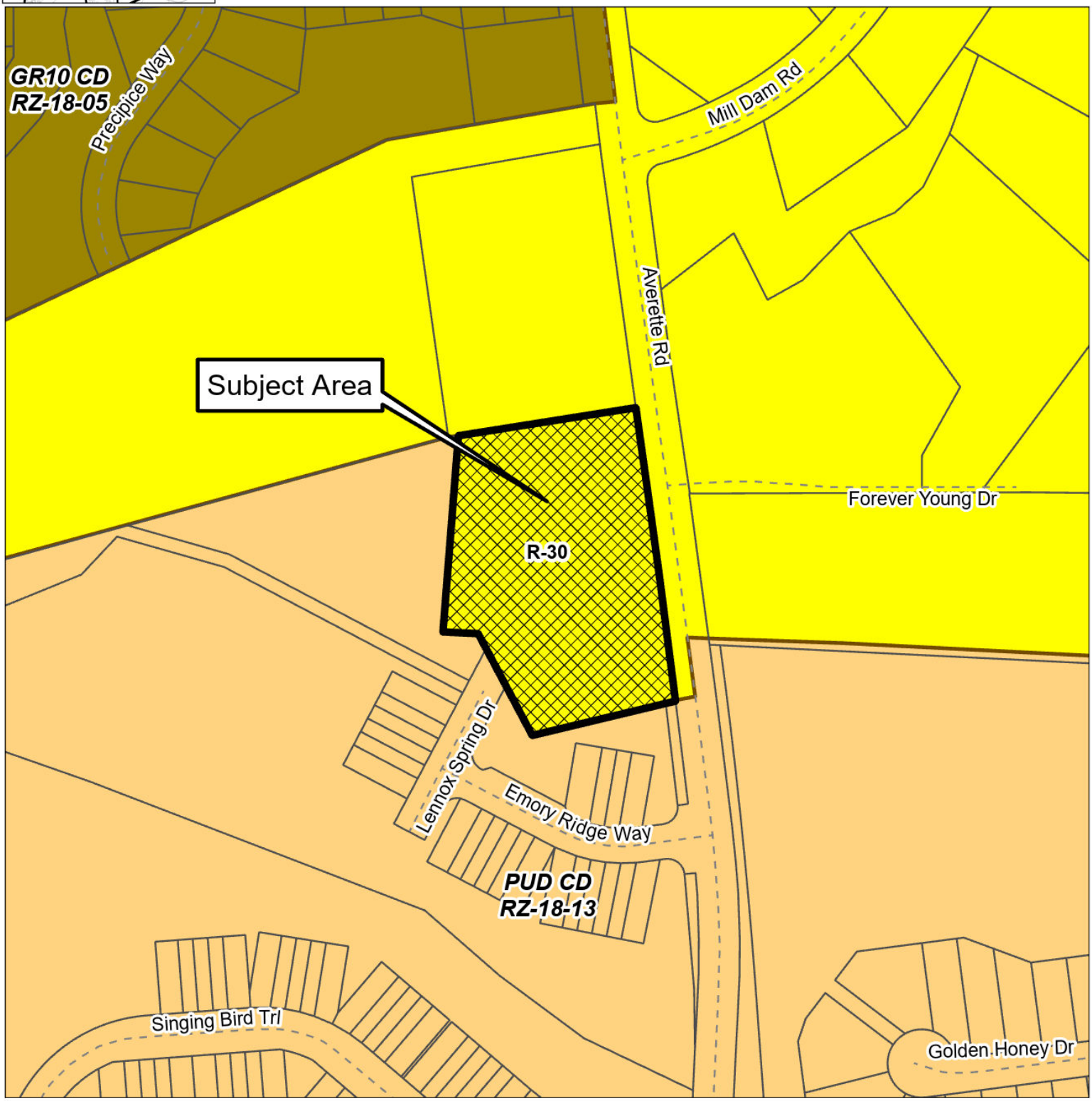


Current Zoning

TOWN of WAKE FOREST

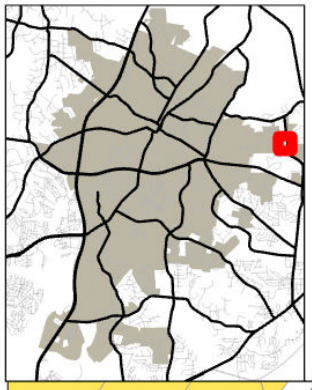
RZ-23-05
2117 Averette Rd
PIN: 1851908235

8/21/2023



Please note that this map is intended for illustrative purposes only. For specific inquiries regarding zoning boundaries, contact the Town Wake Forest Planning Department at 919-435-9510.

0 500 Feet

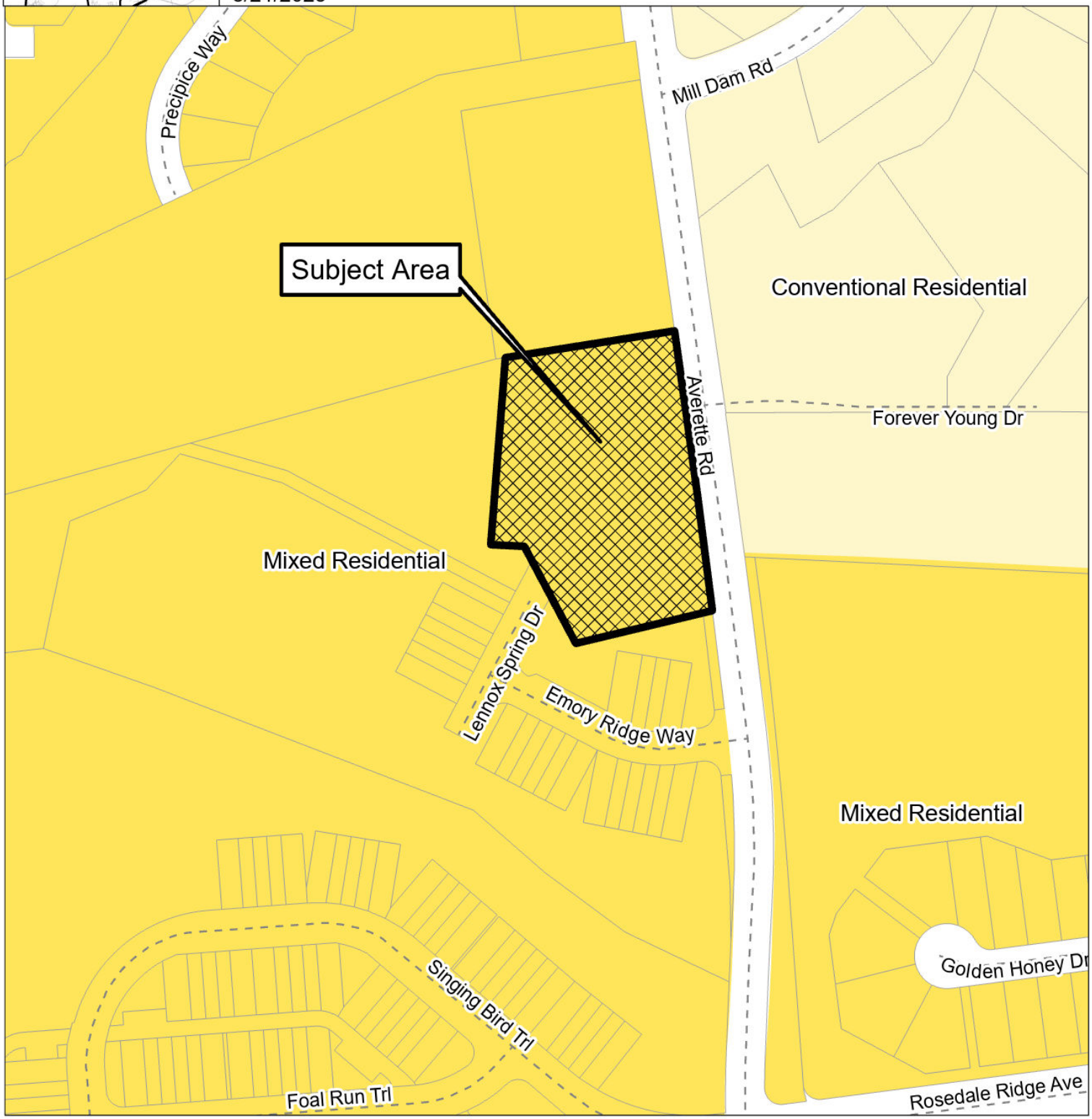


Land Use Plan

TOWN of WAKE FOREST

RZ-23-05
2117 Averette Rd
PIN: 1851908235

8/21/2023



Please note that this map is intended for illustrative purposes only. For specific inquiries regarding zoning boundaries, contact the Town Wake Forest Planning Department at 919-435-9510.

0 500 Feet

TOWN *of*
WAKE FOREST

Report Requirements:

Per NCGS 160D-604, all proposed amendments to the zoning ordinance or zoning map shall have a written report provided from the Planning Board to the Board of Commissioners within 30 days of referral of the amendment to the Planning Board, or the Board of Commissioners may proceed in its consideration of the amendment without the Planning Board report. Furthermore, in no case is the Board of Commissioners bound by the recommendations, if any, of the Planning Board.

Per NCGS 160D-604, the Planning Board shall advise and comment on whether the proposed zoning amendment is consistent with all applicable officially adopted plans, and provide a written recommendation to the Board of Commissioners that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with the officially adopted plans shall not preclude consideration or approval of the proposed amendment by the Board of Commissioners.

GENERAL INFORMATION

Applicant:	Douglas and Sarah Machado
Owner:	Douglas and Sarah Machado
Requested Action:	Rezone 2.822 acres on the Town of Wake Forest Zoning Map from Wake County's Residential-30 (R-30) to General Residential 5 (GR5)
Existing Zoning:	Wake County's Residential-30 (R-30)
Location:	2117 Averette Road
Size:	2.822 acres
Tax PINs:	1851908235
Existing Land Use:	Dwelling – Single-Family

Applicable Officially Adopted Plans:

The request is generally Consistent with the relevant policies in the Comprehensive Plan, and Approval of the zoning map request is reasonable and in the public interest. The request is consistent with the Land Use Map in the Community Plan.

This report reflects the recommendation of the Planning Board, this the 12th day of September 2023.

Introduced by Planning Board member: Michael Hickey

Seconded by Planning Board member: Sheila Bishop

Attest:

Karin Kuropas, Planning Board Chair

Courtney Tanner, Planning Director

SCALICE
land surveying

2117 Averette Road

Schedule A

All that tract or parcel of land situate in the Township of Wake Forest, County of Wake, and State of North Carolina, bounded and described as follows:

Beginning at a 5/8" rebar set in the westerly right of way of Averette Road (60' Wide) having North Carolina State Plane NAD 83 (Epoch 2011) grid coordinates of North 810,054.27 and East 2,160,017.92 (us ft);

1) thence South 76°31'17" West for a distance of 215.43 feet to an ½" iron pipe found;
2) thence North 27°59'07" West for a distance of 168.96 feet to an ½" iron pipe found;
3) thence North 87°13'36" West for a distance of 51.62 feet to a ½" iron pipe found;
4) thence North 04°28'45" East for a distance of 288.63 feet to an angle iron found;
5) thence North 81°04'02" East for a distance of 263.64 feet to an ½" iron pipe found;
6) thence along the westerly right-of-way of Averette Road, South 07°48'48" East for a distance of 138.87 feet to a point;
7) thence continuing along the westerly right-of-way of Averette Road, South 07°38'10" East for a distance of 116.33 feet to a point;
8) thence continuing along the westerly right-of-way of Averette Road, South 07°41'12" East for a distance of 92.61 feet to a 5/8" rebar set;
9) thence continuing along the westerly right-of-way of Averette Road, South 07°05'18" East for a distance of 86.18 feet to the point and place of beginning,

said parcel having an area of 122,928 square feet, 2.822 acres, more or less

Consistency Statement of the Wake Forest Board of Commissioners Pursuant to G.S. 160D-605 Addressing Action on Zoning Map Amendment RZ-23-05: 2117 Averette Road

The Wake Forest Board of Commissioners finds that RZ-23-05 is consistent with the Wake Forest Comprehensive Plan. The Wake Forest Board of Commissioners finds that approval of the rezoning request is reasonable and in the public interest for the following reasons:

1. The rezoning is consistent with the Community Plan land use designation of Mixed residential which specifies that primary uses should include single family dwellings and duplexes. These uses are permitted in the GR-5 zoning district and the property is currently developed with a single family detached dwelling unit.
2. The site will serve as a transitional parcel between the denser development to the south and less dense development to the north.
3. The rezoning ensures new development is similar to the existing character of the area in terms of scale and setbacks.

ORDINANCE 2023-XXX

ORDINANCE OF THE BOARD OF COMMISSIONERS OF THE TOWN OF WAKE FOREST AMENDING THE OFFICIAL ZONING DISTRICT MAP OF THE TOWN OF WAKE FOREST TO CHANGE THE ZONING OF APPROXIMATELY 2.822 ACRES LOCATED AT 2117 AVERETTE ROAD, BEING WAKE COUNTY TAX PIN 1851-90-8235, FROM WAKE COUNTY'S RESIDENTIAL-30 (R-30) TO GENERAL RESIDENTIAL 5 (GR5).

WHEREAS, the application submitted by Douglas and Sarah Machado for the rezoning of land hereinafter described was duly filed with the Planning Department; and

WHEREAS, the Planning Board held a public comment session on September 12, 2023 and the Board of Commissioners held a public hearing on October 17, 2023; and

WHEREAS, mailed notices, property sign postings, and a newspaper notice publication were carried out for the public comment session and public hearing in accordance with to G.S. § 160D-602 and the Unified Development Ordinance; and

WHEREAS, the Planning Board submitted its recommendation to the Board of Commissioners recommending approval of said application that was generally consistent with the Comprehensive Plan and is in the best public interest for the lands hereinafter described, all in accordance with the requirements of the Town of Wake Forest Unified Development Ordinance and the provisions of Chapter 160D, Article 6, of the North Carolina General Statutes;

NOW, THEREFORE, BE IT ORDAINED by the Board of Commissioners of the Town of Wake Forest:

Section 1: The lands that are the subject of the Ordinance are those certain lands described in Exhibit 1 – Legal Description, which is incorporated herein by reference, and said lands are hereafter referred to as the "Rezoned Lands."

Section 2: The parcel identified by the Wake County Tax Parcel Identification Number 1851908235, and described in Exhibit 1, is located within the Town's Jurisdiction.

Section 3: The Town of Wake Forest Unified Development Ordinance, including the Town of Wake Forest North Carolina Official Zoning District Map which is a part of said Ordinance, is hereby amended by changing the zoning classification of the "Rezoned Lands" from Wake County's Residential-30 (R-30) to General Residential 5 (GR5) as shown on Exhibit 1.

Section 4: The Administrator is hereby authorized and directed to cause the said Official Zoning District Map for the Town of Wake Forest, North Carolina, to be physically revised and amended to reflect the zoning changes ordained by this Ordinance.

Section 5: After reviewing all the information presented at the public hearing and the Town's plans, policies, and ordinances, the Wake Forest Board of Commissioners finds the zoning map amendment request reasonable and consistent with the 2022 Community Plan and in the interest of the public and adopted a written consistency statement, which is on file with the Wake Forest Planning Department and attached as Exhibit 2.

Adopted and effective this 17th day of October 2023.

_____
Vivian A. Jones
Mayor

ATTEST:

_____
Theresa Savary
Town Clerk

APPROVED AS TO FORM:

_____
Hassan Kingsberry
Town Attorney

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-222-
Submitted by: Patrick Reidy
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Public Hearing on LEGISLATIVE CASE RZ-21-08, Joyner Property, a rezoning filed by McAdams Company to rezone 124.68 acres located at 1180 and 1200 (portion) Club Villas Dr, being Wake County Tax PINs 1841091336 and 1831895139 (portion) from General Residential 3 Planned Unit Development* (GR3 PUD*); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O) to General Residential 10 Conditional District (GR10-CD); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O). (*While these parcels are labeled as GR3 (PUD), the parcels are not subject to any PUD regulations as the PUD regulations were removed when SU-99-02-01 was approved. Due to the zoning map label, staff will refer to the current zoning as GR3 PUD until such time the official zoning map is amended to remove the PUD text.)

Recommendation:

Item Summary:

ATTACHMENTS
- BOC Agenda Summary RZ-21-08.pdf
- RZ-21-08 Staff Report.pdf
- Attachment A - Neighborhood Meeting Information.pdf
- Attachment B - Application.pdf
- Attachment C - Maps.pdf
- Attachment D - Special Use Permit SU-99-02 Approvals.pdf
- Attachment E - Special Use Permit SU-99-02-01 Approval.pdf
- Attachment F - Plan Consistency Analysis.pdf
- Attachment G - TIA Executive Summary and NCDOT Review Report.pdf
- Exhibit 1 - Legal Description.pdf
- Exhibit 2 - Consistency Statement RZ-21-08.pdf
- Exhibit 3 - Proposed Conditional District Plan.pdf

Agenda Item: Public Hearing on LEGISLATIVE CASE RZ-21-08, Joyner Property, a rezoning filed by McAdams Company to rezone 124.68 acres located at 1180 and 1200 (portion) Club Villas Dr, being Wake County Tax PINs 1841091336 and 1831895139 (portion) from General Residential 3 Planned Unit Development* (GR3 PUD*); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O) to General Residential 10 Conditional District (GR10-CD); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O). (*While these parcels are labeled as GR3 (PUD), the parcels are not subject to any PUD regulations as the PUD regulations were removed when SU-99-02-01 was approved. Due to the zoning map label, staff will refer to the current zoning as GR3 PUD until such time the official zoning map is amended to remove the PUD text.)

Summary: A public comment session was held at the September 12, 2023 Planning Board meeting. The Planning Board voted 4-1 to find the request inconsistent with the Community Plan and recommended denial of the zoning map amendment (rezoning). See the staff report for the additional considerations requested by the Planning Board.

As articulated at the October 3rd work session, staff asked the applicant to consider changes to some of the proposed conditions. Since the applicant has opted not to modify conditions, staff now recommends the Board of Commissioners only accept the following conditions should they vote to approve the project: Conditions 1-18, and 21.

Staff does not recommend accepting the following proposed conditions for the following reasons:

- Condition 19: The Town is not the appropriate agency to receive data from the Phase 2 Environmental Site Assessment since the Town has zero regulatory authority over the matter. To genuinely address concerns raised by those living near the golf course, all data from the Phase 2 Environmental Site Assessment should meet the requirements of statutes for Soil Sample Collection under the Inactive Hazardous Sites Branch (IHSB) regulatory authority and be submitted to the Eastern Unit of the IHSB.

- Condition 20: The developer has been advised on multiple occasions that no form of restricted access (one-way, no right turn, etc.) will be approved for County Club Drive. This condition is disingenuous and provides unrealistic hope of a potential change to those living in the vicinity.

  Additionally, this forces existing residents in the Country Club Downs and Riverstone neighborhoods to use Jenkins Road to access their home which means 1) the Country Club Downs and Riverstone residents will not have an additional local road connectivity option, and 2) the Country Club Downs and Riverstone residents would likely be the ones ignoring the sign and therefore ticketed when traffic violations are enforced.

- Condition 22: The Planning Department has clearly articulated to the applicant that the required cross-section must be met. Like Condition 20, it is disingenuous and provides unrealistic hope of a potential change to those living in the vicinity.

- Condition 23: The current definition of open space in the UDO is “Those areas set aside and protected from **development** which may be left in a generally unimproved state”. The ponds referenced in this condition are part of the PUD’s required open space (SUP-99-02-01). Additionally, the UDO defines development as, “Includes the following human caused activities that require a permit or approval from any agency, including but not limited to (1) Any land disturbing activity which adds to or changes the impervious land cover; (2) excavation, grading, filling, mining, or clearing of land; (3) **draining, damming or dredging of water bodies**; (4) the subdivision of land as defined by NC General Statutes; (5) the construction, alteration, enlargement, or movement to another site of any structure; (7) the demolition of a building; and (8) the initiation or substation change in the use of land or the intensity of use of land”. Therefore, if the ponds are drained, the Town would have to issue a Notice of Violation for failing to comply with the SUP open space requirement.

In addition to the above considerations, should the Board of Commissioners recommend approval, the Board shall include one of the following in their motion:

- State the reasons why the proposed zoning is consistent with the Comprehensive Plan; or
- State the reasons why the proposed zoning is inconsistent with the Comprehensive Plan and in the public interest. Under this option, the Community Plan is automatically amended and the approximate cost to modify the Plan is $1500; and
- Adopt a statement of reasonableness for the proposed rezoning.

Attachments: See Staff Report

Staff Report
Case RZ-21-08: Joyner Property Conditional District

Meeting Date	October 17, 2023
Requested Actions	Consideration of the following items related to the Conditional Zoning Map Amendment request for 1180 and 1200 (portion) Club Villas Dr: 1. Act on Plan Consistency Statement 2. Rezone 124.68 acres on the Town of Wake Forest Zoning Map from General Residential 3 Planned Unit Development* (GR3 PUD*); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O) to General Residential 10 Conditional District (GR10-CD); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O). *While these parcels are labeled as GR3 (PUD), the parcels are not subject to any PUD regulations as the PUD regulations were removed when SU-99-02-01 was approved. Due to the zoning map label, staff will refer to the current zoning as GR3 PUD until such time the official zoning map is amended to remove the PUD text.
Case Manager	Patrick Reidy, Senior Planner – Development Services
Planning Board Recommendation	Recommended denial by a vote of 4-1 of the zoning map amendment request. The Planning made the following considerations for the Board of Commissioners should they vote to approve the rezoning request: • Remove Condition #13 and require the UDO standard to be met • Remove Condition #14 and require the UDO standard to be met • Accept Staff's recommended condition language for Condition #19 • Accept Staff's recommendation for removing Condition #20 • Accept Staff's recommendation for removing Condition #22 See Attachment F for the Planning Board Recommendation and Plan Consistency Analysis. Following the Planning Board meeting, the applicant submitted revised conditions which include: • Revised Condition #13 to reduce the service road's street yard buffer from 30' to 15' for Lots 183-193 and 207-228 and from 30' to 10' for Lots 166-182. • Revised Condition #20 to change that instead of requesting Country Club Drive be made a one-way street, now only making the request to place no right turn signs on the service road and street H. The revision was made to try and find a more reasonable

	solution to the neighbor's concerns about cut-through traffic using Country Club Drive. Attachment B has been updated to reflect these changed conditions.
Items for Board of Commissioners to Consider	As articulated at the October 3rd work session, staff asked the applicant to consider changes to some of the proposed conditions. Since the applicant has opted not to modify conditions, staff now recommends the Board of Commissioners only accept the following conditions should they vote to approve the project: Conditions 1-18, and 21. Staff does not recommend accepting the following proposed conditions for the following reasons: • Condition 19: The Town is not the appropriate agency to receive data from the Phase 2 Environmental Site Assessment since the Town has zero regulatory authority over the matter. To genuinely address concerns raised by those living near the golf course, all data from the Phase 2 Environmental Site Assessment should meet the requirements of statutes for Soil Sample Collection under the Inactive Hazardous Sites Branch (IHSB) regulatory authority and be submitted to the Eastern Unit of the IHSB. • Condition 20: The developer has been advised on multiple occasions that no form of restricted access (one-way, no right turn, etc.) will be approved for County Club Drive. This condition is disingenuous and provides unrealistic hope of a potential change to those living in the vicinity. Additionally, this forces existing residents in the Country Club Downs and Riverstone neighborhoods to use Jenkins Road to access their home which means 1) the Country Club Downs and Riverstone residents will not have an additional local road connectivity option, and 2) the Country Club Downs and Riverstone residents would likely be the ones ignoring the sign and therefore ticketed when traffic violations are enforced. • Condition 22: The Planning Department has clearly articulated to the applicant that the required cross-section must be met. Like Condition 20, it is disingenuous and provides unrealistic hope of a potential change to those living in the vicinity. • Condition 23: The current definition of open space in the UDO is "Those areas set aside and protected from development which may be left in a generally unimproved state". The ponds referenced in this condition are part of the PUD's required open space (SUP-99-02-01). Additionally, the UDO defines development as, "Includes the following human caused activities that require a permit or approval from any agency, including but not limited to (1) Any land disturbing activity which adds to or changes the impervious land cover; (2) excavation, grading, filling, mining, or clearing of land; (3) draining, damming or dredging of water bodies; (4) the subdivision of land as defined by NC General Statutes; (5) the construction, alteration, enlargement, or movement to another site of any structure; (7) the demolition of

	a building; and (8) the initiation or substation change in the use of land or the intensity of use of land". Therefore, if the ponds are drained, the Town would have to issue a Notice of Violation for failing to comply with the SUP open space requirement.

PUBLIC MEETINGS

Neighborhood Meeting	Public Comment Session	Public Hearing
March 30, 2022 *(See Attachment A)*	September 12, 2023	October 17, 2023

CASE INFORMATION

Applicant	McAdams Company C/O Laura Holloman 2905 Meridian Parkway Durham, NC 27713
Developer	Mill Ridge Investments C/O James Adams Jr. 919 S. Main Street Wake Forest, NC 27587
Property Owners	Green Timber Foundation C/O Carroll Joyner 394 Fleming Road Youngsville, NC 27596
Location	Frontage along US-1, in between the intersections of Purnell Road and Jenkins Road
Addresses	1180 and 1200 (portion) Club Villas Dr
Wake County Tax PIN(s)	1841091336 and 1831895139 (portion)
Acreage	124.68 acres

Zoning	Existing:	General Residential 3 Planned Unit Development[1] (GR3 PUD[1]); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O)
	Proposed:	General Residential 10 Conditional District (GR10-CD); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O)
Land Use	Existing:	Vacant with abandoned recreation facilities
	Proposed:	Dwelling – Single Family (176 shown) Dwelling – Townhome (113 shown)
Community Plan (2009)	Growth Strategies:	Sub-urban Zone
	Neighborhood Planning Area:	5
Corporate Limits	This application is in the Town's corporate limits.	

See Attachment B for a copy of the application and Attachment C for Aerial, Zoning, and Community Plan Maps. See pages 28-123 and 270 for descriptions of Town Areas and Sub-urban Zone in the 2009 Community Plan.

[1] While these parcels are labeled as GR3 (PUD), the parcels are not subject to any PUD regulations as the PUD regulations were removed when SU-99-02-01 was approved. Due to the zoning map label, staff will refer to the current zoning as GR3 PUD until such time the official zoning map is amended to remove the PUD text.

SURROUNDING LAND USES AND ZONING

	Land Use	Zoning
North	Single-Family Dwellings (Hawkshead); Undeveloped/Vacant	Wake County's Residential-40W (R-40W)
South	Single-Family Dwellings (Wake Forest Country Club Subdivision, Riverstone, and Clubhouse Villas at Wake Forest Golf Club); Open Space (Riverstone)	General Residential-3 (GR-3) and General Residential 3 Planned Unit Development (GR3 PUD)
East	Townhouses (Fairway Villas at Wake Forest Golf Club); Vacant/Undeveloped; US1 Right-of-Way	General Residential 3 Planned Unit Development (GR3 PUD)
West	Single-Family Dwellings (Country Club Downs and Canonbie)	Conditional Use General Residential 3 (CU GR3) (RZ-88-7-1); Wake County's Residential-40W (R-40W)
The proposed land use is generally **compatible** with surrounding land uses. The proposed zoning is generally **compatible** with surrounding zoning. *See Attachment C for associated maps.*		

ZONING AND SUP CASE HISTORY

On May 18, 1999, the Board of Commissioners granted a Special Use Permit (SUP) (Attachment D) in accordance with the Planned Unit Development (PUD) and Cluster Development regulations. The PUD had a base zoning district of Residential-40 Watershed Protection District (R-40W). The SUP allowed for the Wake Forest Golf Course property to be developed with a limited number of dwelling units. Tract 1 was permitted up to 20 dwelling units and was developed with 20 townhome lots. Tract 1 is commonly referred to as Fairway Villas. Tract 2 was approved for and developed with 10 dwelling units and is often referred to as Clubhouse Villas. Tract 5, located adjacent to Capital Boulevard, is approximately 5.0 acres in size, and was approved for commercial uses. This Tract is vacant and is owned by the Wake Union Baptist Church. The 1999 ordinance required that 40% of the gross acreage (or 41.45 acres) within the PUD remain as open space. The open space could include areas such as conservation-related uses, passive recreation uses, limited active recreation uses, and agricultural uses. The developer exceeded this 40% minimum with the inclusion of the entire golf course and environmental features. This area is outside of the zoning boundary request, but this information is provided for context of the development history of this property.

On January 21, 2004, a perpetual Conservation Easement was granted by the property owner to the State of North Carolina. The easement was granted as part of the State's Ecosystem Enhancement Program and as part of the Horse Creek stream restoration project performed by the North Carolina Department of Environmental and Natural Resources. As required by the state, the easement must remain under single owner ownership and activity allowed within the easement is restricted to recreational and educational uses. This area is outside of the zoning boundary request, but this information is provided for context of the development history of this property.

In 2004, the Town approved construction drawings for Tract 2 to develop a 10-lot subdivision (known as Clubhouse Villas). The golf course and country club closed in November 2007.

On September 1, 2009, an SUP amendment was submitted requesting to increase the developable area of the property by reducing the PUD from 165.5 acres to 40 acres to comply with the minimum requirements for the PUD's cluster development that included Fairway Villas and Clubhouse Villas. Tract 4 was also proposed to be deleted from the PUD. On December 15, 2006, the Board of Commissioners chose not to hold a public hearing or consider the application, as allowed by law.

When the UDO was adopted on July 16, 2013, the base zoning district R-40W was changed to General Residential 3 (GR3) and the Falls Lake Watershed Protection Overlay (FL-WMA) district was added. The PUD designation and associated SU-99-02 restrictions remained in place.

On March 23, 2023, the Board of Commissioners held a public hearing for an amendment to the SUP, SU-99-02-01. During the SUP amendment public hearing, Ben Kuhn, attorney with Ragsdale Liggett and witness for the applicant, noted that the Town's Community Plan discussed the future redevelopment of these parcels and noted it as a potential cluster subdivision. (See March 23, 2023 video clip beginning at 1:49:12 mark.) It is the Town's practice to review applications against Plans in effect based on the application submittal dates. The 2009 Community Plan was in effect when the rezoning application was submitted. The Plan Mr. Kuhn referenced in his presentation is the 2022 Community Plan; and if staff reviewed the current rezoning application against the 2022 Community Plan, we would find it inconsistent with those policies. The applicant requested to remove approximately 125.79± acres from the SUP and PUD. This acreage represented most of the former golf course that was held as open space with the original SUP approval as well as the abandoned clubhouse, pool, and tennis courts. The SUP amendment was approved and reduced the overall size of the original Special Use Permit (PUD) (Attachment E). The PUD and SUP requirements remain in place for the Clubhouse Villas, Fairway Villas, and the 5.01 acres of future Highway Business, along with the newly designated open space.

MASTER PLAN ANALYSIS

Open Space	Required:	10% or 12.47 acres
	Proposed:	40.29% or 50.24 acres
	Summary:	The proposed Master Plan **complies** with the minimum open space percentage requirement in the UDO.
Park Space	Required:	2.5% or 3.12 acres
	Proposed:	5.0% or 6.33 acres
	Summary:	The proposed passive recreation uses are outlined in Attachment B, Condition #15. The proposed Master Plan **complies** with the minimum park space percentage requirement in the UDO.
Active Recreation	Required:	25% of park space or 1.58 acres
	Proposed:	30.04% of park space or 1.90 acres
	Summary:	The proposed active recreation uses are outlined in Attachment B, Condition #16. The proposed Master Plan **complies** with the minimum park space percentage requirement in the UDO.

Public Utilities	Required:	The UDO requires that public water and sewer mains are extended to serve the site.
	Proposed:	This property is served by 8” water lines located along Club Villas Drive and Hogan Drive. It is also served by an 8” sewer line located along Club Villas Drive, Hogan Drive, and adjacent to the streams within the project that will be extended through the project.
	Summary:	The proposed Master Plan **complies** with the public utility requirements in the UDO.
Parking	Required:	Per UDO Chapter 9.4, the parking requirement for dwelling-single family is 2 spaces per unit if parking is provided in an enclosed garage or 352 parking spaces. The parking requirement for Dwelling - Townhome is 1.8 spaces per unit or 204 parking spaces. A total of 556 parking spaces are required. There are no bike parking requirements for Dwelling – Single Family. The bike parking requirement for Dwelling – Townhome is 2 per 40 auto spaces for townhomes and 1 per 30 units for private recreation facilities or 45 bike spaces.
	Proposed:	The applicant is proposing to provide 694 parking spaces through off-street parking spaces and parallel parking spaces. The developer will provide at least 46 bike parking spaces. The final locations will be determined at the time of Construction Plan review.
	Summary:	The proposed Master Plan **complies** with the minimum parking requirements in the UDO.
Roads	Required:	The Comprehensive Transportation Plan requires a US-1 Service Road North of S. Main Street cross section adjacent to US-1. Based on the number of lots proposed, the UDO required a Transportation Impact Analysis (TIA).
	Proposed:	The proposed Master Plan (Exhibit 1, Sheet C0.0) complies with the US-1 service road cross sections for the new service road adjacent to US-1. A TIA was provided for the project (Attachment G). The improvements required to mitigate the impact of the development are: <u>US-1/Club Villas Drive</u> Stripe the existing eastbound approach of Club Villas Drive to provide two egress lanes on the stem that exists between Capital Boulevard and Wake Union Church Road. The developer has also offered rezoning condition #20 that requires developer to request to the Town and NCDOT that no right turn signs be located at the service road and Street H intersections with Country Club Drive to prohibit access to Chilmark Avenue from the proposed development or service road. Staff is not supportive of

		this condition due to potential emergency service response time delays. If the Board of Commissioners were to approve the rezoning request, staff recommends this condition be removed since it does not create a complete street network, could cause delays in emergency response times, and would likely be ignored by motorists who want to turn right on to Country Club Drive. The developer has also offered rezoning condition #22 that allows the Town to potentially waive street improvements on the south side of the existing Club Villas Drive if it would interfere with the preservation of the existing landscaping adjacent to Fairway Villas townhomes. Staff is not supportive of this condition due to altering a required cross-section. If the Board of Commissioners were to approve the rezoning request, staff recommends this condition be removed. The developer has also offered rezoning condition #24 that requires that the developer to construct a channelized left-over at Club Villas Drive and US-1 and a U-turn south of that intersection to facilitate traffic from Club Villas Drive to travel northbound on US-1.
	Summary:	The proposed Master Plan **complies** with the minimum roadway infrastructure requirements in the UDO.

PROPOSED MODIFICATIONS OF BASE GENERAL RESIDENTIAL 10 ZONING DISTRICT STANDARDS

Article 2.2.5.A.2 Max Density	
Required:	10/units per acre max
Proposed:	3/units per acre max
Article 2.2.5.B.1 Minimum Lot Area	
Required:	5,000 SF min
Proposed:	30,000 SF min for lots west of Horse Creek
Article 2.4.3.C Special Highway Overlay Landscaping and Buffering	
Required:	30’ average street bufferyard adjacent to access road
Proposed:	10’ street bufferyard adjacent to access road
Article 2.4.3.D Special Highway Overlay Dimensional Requirements	
Required:	Building Setback: 100 feet from property line abutting major access corridor.
Proposed:	Building Setback: 75 feet from property line abutting major access corridor.
Article 6.5.1.C Block Lengths	

Required: Maximum block lengths shall be 800'. Proposed: Simpson Court may exceed maximum block length requirements.
Article 8.5.3.C Buffer Yard Composition – Type B Buffer Required: Option 1 Minimum depth: 25' Proposed: Option 1 Minimum depth: 25' or 20' as shown on Exhibit 1, Sheet L5.00
See Attachment B for proposed zoning conditions.

COMPREHENSIVE PLAN CONSISTENCY

Community Plan (2009)	The proposed zoning map amendment request is generally inconsistent with the adopted 2009 Community Plan. The four main areas of inconsistency are: • Sub-Urban Zone (page 270): It states that the policy emphasis for Sub-Urban zones is very similar to the General Urban Zone. On Page 269, the Community Plan states that regardless of whether a particular development is of the post-war suburban model or the traditional neighborhood model, the Town wishes to see more well-designed services and places of employment proximate to and well-integrated with nearby residential development. The proposed development is adjacent to US-1 and integrates a portion of the future service road through the development. Staff believes that by not providing any non-residential development, the development is not in keeping with the policy emphasis of the Sub-Urban Zone. • General Policy Recommendation Policy 1 (page 28): Develop complete neighborhoods built around gathering spaces with a mix of housing types, lot sizes, and integrated commercial uses versus monolithic subdivisions. Only single-family dwellings and townhomes are proposed with this development and no commercial uses have been integrated. • Future Neighborhood Policies 3 and 5 (pages 62 and 63): Consider future transit corridors and reinforce these corridors with development mixtures and densities appropriate for transit services and encourage neighborhood serving businesses in neighborhood design. No commercial is being proposed as part of the development even though it is within the US-1 corridor. Also, townhomes are proposed to front on the service road, which is not an appropriate use along a service road. • Small Scale Neighborhood Businesses Policies 1 and 3 (Pages 85 and 86): Encourage small scale, pedestrian-oriented shopping and workplaces in the design of new neighborhoods and that they are designed at a residential scale and character.

	No non-residential development is being proposed within the neighborhood. • Major Street Policies 7 and 10 (Page 133): Provide contrasting streetyards along major streets for change in visual character and employ Special Highway Overlay Zoning to help implement roadway corridor plans particularly with regard to development standards for buildings within sight of the roadway. The SHOD-1 zoning in in place, which requires a 30' buffer from the service road and the applicant is proposing to reduce the planting width to 10' in front of the proposed townhouses. This is an inadequate amount of buffering when a townhouse is facing a service road. • Regional Transportation Policy 2 (Page 206): The Town should continue to anticipate and plan for the transformation of US-1 Capital Boulevard into a limited access freeway and multi-modal transportation corridor. The proposed plan does not provide any non-residential uses along this corridor and proposes townhouses adjacent to the service road. which is not the long term highest and best use of property adjacent to US-1 and a service road. Future residents of Wake Forest should not have a service road out their front door with a reduced streetyard as their only separation from the road.
Comprehensive Transportation Plan (2019)	The proposed zoning map amendment request is generally consistent with the Comprehensive Transportation Plan.
Historic Preservation Plan (2012)	The Historic Preservation Plan is not applicable to the zoning map amendment request.
Northeast Neighborhood Plan (2007)	The Northeast Neighborhood Plan is not applicable to the zoning map amendment request.
Park, Recreation, and Cultural Resources Master Plan (2015)	The Parks, Recreation, and Cultural Resources Master Plan is not applicable to the zoning map amendment request.
Public Art Vision Plan (2009)	The Public Art Vision Plan is not applicable to the zoning map amendment request.
Renaissance Plan (2017)	The Renaissance Plan is not applicable to the zoning map amendment request.

See Attachment F for detailed Plan Consistency Analysis. The Comprehensive Transportation Plan is not included in the Consistency Analysis since cross-sections are the only applicable element of the Plan.

STAFF RECOMMENDATION

The zoning map amendment request is generally **Inconsistent** with the relevant policies in the Comprehensive Plan, and **Denial** of the zoning map amendment request is reasonable and in the public interest.

If the Board of Commissioners were to approve the rezoning request, staff would suggest the following changes to the proposed conditions:

- Condition 19: Staff recommends that this condition be altered to state "At the time of construction drawing submittal, the Developer shall be required to conduct a Phase 2 Environmental Site Assessment for the entire tract. The data from the Phase 2 Environmental Site Assessment shall meet the requirements of statutes for Soil Sample Collection under the Inactive Hazardous Sites Branch (IHSB) regulatory authority and be submitted to the Eastern Unit of the IHSB. A response from the Eastern Unit of the IHSB shall be obtained prior to the Issuance of a grading permit."
- Condition 20 - Staff recommends this condition be removed since it does not create a complete street network, could cause delays in emergency response times, and would likely be ignored by any motorist wishing to turn right on Country Club Drive.
- Condition 22 – Staff recommends that this condition be removed since it alters the required cross-section and could allow sidewalk, street trees, and curb and gutter to not be installed along a street.

ATTACHMENTS

Attachment A:	Neighborhood Meeting Information
Attachment B:	Application
Attachment C:	Maps
Attachment D:	Special Use Permit SU-99-02 Approvals
Attachment E	Special Use Permit SU-99-02-01 Approval
Attachment F:	Planning Board Recommendation and Plan Consistency Analysis
Attachment G:	TIA Executive Summary and NCDOT Review Report

EXHIBITS

Exhibit 1:	Legal Description
Exhibit 2:	Inconsistency Statement
Exhibit 3:	Proposed Conditional District Plan

REZONING AND SPECIAL USE PERMIT AMENDMENT OF CARROLL JOYNER PROPERTY

REPORT OF MEETING WITH ADJACENT PROPERTY OWNERS
ON MARCH 30, 2022

Pursuant to applicable provisions of the Unified Development Ordinance, a meeting was held with respect to a potential amendment to an existing Special Use Permit (SUP) and rezoning with adjacent property owners on Wednesday, March 30, 2022, at 6:00 p.m. This meeting was held virtually through the Zoom platform. All owners of property within the required notification area were invited to attend the meeting. Attached hereto as **Exhibit A** is a copy of the neighborhood meeting notice. A copy of the required mailing list for the meeting invitations is attached hereto as **Exhibit B**. A summary of the items discussed at the meeting is attached hereto as **Exhibit C**. Attached hereto as **Exhibit D** is a list of individuals who attended the meeting.

EXHIBIT A

Nil Ghosh | Associate
112 W Main St | Second Floor
Durham, NC 27701
919-590-0362
nghosh@morningstarlawgroup.com
www.morningstarlawgroup.com

To: Neighboring Property Owner

From: Nil Ghosh

Date: March 11, 2022

Re: Notice of meeting to discuss potential amendment to Special Use Permit and rezoning of parcels located north of Jenkins Road and west of Capital Boulevard containing approximately 157.45 acres and having Wake County Parcel Identification Numbers 1831895139; 1841091336; 1832712652; 1831773725; & 1831772476 (the "Property").

We are counsel for property owners which are considering developing the above-captioned Property as a mixed-use community consisting of traditional single-family detached homes, townhomes, and some opportunities for commercial uses. Pursuant to §15.3.5 of the Town of Wake Forest Unified Development Ordinance, you are receiving this notice because our records indicate you own property within the 500-foot notification area around the Property.

You probably know a portion of the Property previously operated as a golf course. The golf course closed about 15 years ago and its owners now wish to convert the defunct course into a mixed-use community. This project will require (1) an amendment to the existing Special Use Permit (SU-99-02) which designates a portion of the Property as Open Space; and (2) a rezoning. The base zoning for the parcels currently is General Residential 3 (GR3). The developer is considering rezoning the Property to General Residential 10 Conditional District (GR10 CD) and Highway Business Conditional District (HB CD).

Based on feedback from the community and Town staff, we will hold a second neighborhood meeting on Wednesday, March 30, 2022, starting at 6:00 P.M. via Zoom to discuss changes to our original plans. The purpose of the neighborhood meeting is to ensure that nearby property owners are made aware of the proposed project and can inform us of their questions or comments.

Instructions for registering for and joining the meeting are on the backside of this page.

For more information about rezoning, you may want to visit https://www.wakeforestnc.gov/planning/zoning or contact the Wake Forest Planning Department at (919) 435-9515.

How to Participate in the March 30, 2022 Neighborhood Meeting

- To participate by PC, Mac, iPad, iPhone or Android device,
  - Go to https://morningstarlaw.group/03302022mtg to register for the meeting. (*Registration is necessary to have a record of attendance.*)
  - Upon registration, you will receive a confirmation email with instructions on how to access the meeting.
- To participate by phone,
  - Dial one of the following numbers:
    - +1 301 715 8592
    - +1 312 626 6799
    - +1 929 436 2866
    - +1 253 215 8782
    - +1 346 248 7799
    - +1 669 900 6833
  - Enter Webinar ID: 885 0564 5332
  - Enter password: 983688

If you have difficulty connecting or have technical difficulties during the meeting, you can email us at meetings@mstarlaw.com or call 919-590-0366.

You are encouraged to join the meeting via your computer or smartphone so that you will have access to Zoom Webinar's interactive features including Raise Hand and Chat.

During the meeting, participants will be muted by default. Also, participants' video will be off by default, i.e. only the presenters will be visible.

- If you are participating via your computer, iPhone or Android device, you can submit questions/comments by using the Raise Hand and/or Chat features. If you use Raise Hand, a panelist will either unmute you to allow you to speak or will chat with you to solicit your questions/comments.
- If you are participating via telephone, you can submit questions/comments prior to and during the meeting via email at meetings@mstarlaw.com. At the end of the Q&A period of the meeting, all callers will be unmuted to allow for questions/comments.

EXHIBIT B

LIST OF PROPERTY OWNERS TO WHOM NOTICES WERE SENT

599 RALEIGH ROAD LLC
7208 FALLS OF NEUSE RD STE 101
RALEIGH NC 27615-3244

ADAMS FRY DEVELOPMENTS LLC
909 S MAIN ST
WAKE FOREST NC 27587-9277

ALLEN, KENNETH RAY
1325 JENKINS RD
WAKE FOREST NC 27587-9069

ALSTON, VERNELL PIERCE
3665 W RIVER RD
FRANKLINTON NC 27525-8206

AMH 2015-2 BORROWER LLC
AMERICAN HOMES 4 RENT
30601 AGOURA RD STE 200
AGOURA HILLS CA 91301-2148

ANDERSON, DANIEL W
8026 HOGAN DR
WAKE FOREST NC 27587-6661

BAGWELL, CAITLIN ELIZABETH
7811 HOGAN DR
WAKE FOREST NC 27587-6696

BARKER, KENNETH J BARKER, JACQUELINE S
100 TENBRIDGE CT
WAKE FOREST NC 27587-5332

BARKLEY, HUBERT MERRILL III
BARKLEY, MONICA NABORS
7732 KINGS WAY CT
WAKE FOREST NC 27587-6670

BARR, ARNOLD L BARR, CHIORENE L
1306 COUNTRY CLUB DR
WAKE FOREST NC 27587-8771

BEAL, JASON WAYNE KARAGEORGE, NANCY ANNA
8028 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

BEASLEY, DARYL BERNARD
BEASLEY, CUBIE T
7720 KINGS WAY CT
WAKE FOREST NC 27587-6670

BIELIK, EDWARD A PACE, KAYLA N
1310 CLUB VILLAS DR
WAKE FOREST NC 27587-4536

BOGGS, ANDREW KEITH BOGGS, KRISTINA M
8008 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

BONE, MALCOLM BONE, ELIZABETH
132 ARBORVITAE DR
PINE KNOLL SHORES NC 28512-6200

BOWERS, JAMES S BOWERS, DELIA B
1230 COUNTRY CLUB DR
WAKE FOREST NC 27587-9545

BRASWELL, GEORGE WILBUR JR
BRASWELL, MARGARET O
1113 CHILMARK AVE
WAKE FOREST NC 27587-5334

BREWER, KATHRYN C
8040 HOGAN DR
WAKE FOREST NC 27587-6661

BRYLSKI, JAMES J GANGI, JUDITH A
2538 PALMER CT
WAKE FOREST NC 27587-6445

BYRNE, THOMAS J JR BYRNE, MARY COLLINS
280 SWEETWATER HILLS DR
HENDERSONVILLE NC 28791-8005

CALDERON, NILO CALDERON, REBECCA Y
205 MIDDLESTONE CT
WAKE FOREST NC 27587-5331

CARLE, JACQUELINE D
2509 PALMER CT
WAKE FOREST NC 27587-6445

CARLETON, BETH A CARLETON, JOHN M
7822 HOGAN DR
WAKE FOREST NC 27587-6695

CHEGUE, DAVID RAMIREZ, JUDITH
1306 CLUB VILLAS DR
WAKE FOREST NC 27587-4536

CIMA, DAVID A CIMA, CINDY
1104 CHILMARK AVE
WAKE FOREST NC 27587-5358

CLUBHOUSE VILLAS AT WAKE FOREST GOLF CLUB HOA, INC
CLUBHOUSE VILLAS AT WAKE FOREST GOL
PO BOX 79032
CHARLOTTE NC 28271-0030

COLEY, KENNETH S COLEY, KATHLEEN C
8006 HOGAN DR
WAKE FOREST NC 27587-6661

COLLINS, KEVIN D COLLINS, SUSAN M
204 MIDDLESTONE CT
WAKE FOREST NC 27587-5331

COMER, GWENDOLYN ANN
990 KINTAIL CT
WAKE FOREST NC 27587-4918

CONLEY, JOHN T CONLEY, LYNN G
2525 CANONBIE LN
WAKE FOREST NC 27587-8766

CORBETT, MICHAEL P CORBETT, VIRGINIA L
1107 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

CORRIVEAU, NANCY
407 SHANNONFORD CT
WAKE FOREST NC 27587-9005

COSGROVE, DONALD R COSGROVE, DANIELLE L
1101 CHILMARK AVE
WAKE FOREST NC 27587-5334

COWPERTHWAIT, DANIEL P COWPERTHWAIT, SHELLEY M
2516 CANONBIE LN
WAKE FOREST NC 27587-9010

DA COSTA, GISELE CANCISSU
8025 HOGAN DR
WAKE FOREST NC 27587-6662

DANIEL, TIMOTHY T DANIEL, PAMELA H
1218 CHILMARK AVE
WAKE FOREST NC 27587-5335

DAYE, LANISHA
998 TEMPLERIDGE RD
WAKE FOREST NC 27587-9006

DEFORE, JOHN T DEFORE, MARY ANNE
7914 HOGAN DR
WAKE FOREST NC 27587-6659

DIAZIT COMPANY INC
8105 DIAZIT DR
WAKE FOREST NC 27587-6684

DICKENS, KIMBERLY POWERS
7732 FAIRLAKE DR
WAKE FOREST NC 27587-5452

DINGBAUM, THOMAS W DINGBAUM, JUDITH ANNE
2537 PALMER CT
WAKE FOREST NC 27587-6445

DION, KATHRYN ANNE
998 SAINT CATHERINES DR
WAKE FOREST NC 27587-6641

DOBLITZ, MICHELE-ANGELLA EJIMA DOBLITZ, STEFAN
1148 CHILMARK AVE
WAKE FOREST NC 27587-5333

DOMINICK, JOHN M DOMINICK, BETSY S
1105 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

DRIBUS, JOHN ALEXANDER DRIBUS, CAMMIE RENEE
7716 KINGS WAY CT
WAKE FOREST NC 27587-6670

DRY TIMBER LLC
394 FLEMING RD
YOUNGSVILLE NC 27596-9698

DUNN, KENNETH III DUNN, JUDY
983 SAINT CATHERINES DR
WAKE FOREST NC 27587-6642

DURHAM, MICHAEL J DURHAM, CAROL I
2421 CANONBIE LN
WAKE FOREST NC 27587-8765

E HUNT III LLC
WILLIAM P ANDREWS
1121 JENKINS RD
WAKE FOREST NC 27587-9064

EBERLE, JOHN C TRUSTEE EBERLE, SUSAN R TRUSTEE
2521 CANONBIE LN
WAKE FOREST NC 27587-8766

ECKHARDT, SAM E ECKHARDT, ALICIA C
1221 CHILMARK AVE
WAKE FOREST NC 27587-5336

EVALDI, FRANK D EVALDI, KAREN SCHLETT
8004 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

FAIRCHILD, JACQUELYN J FAIRCHILD, MARK
8010 HOGAN DR
WAKE FOREST NC 27587-6661

FAIRLAKE COMMUNITY ASSOCIATION
5300 FALLS OF NEUSE RD
RALEIGH NC 27609-4756

FAIRWAY VILLAS AT WF GOLF CLUB &
PPM
11010 RAVEN RIDGE RD
RALEIGH NC 27614-8837

FAIRWAY VILLAS AT WF GOLF CLUB & TOWNHOMES OWNERS ASSOC INC
PPM
11010 RAVEN RIDGE RD
RALEIGH NC 27614-8837

FERN, RICHARD J FERN, MARY M
998 KINTAIL CT
WAKE FOREST NC 27587-4918

FICHERA, JOHN L FICHERA, WENDY M
1240 COUNTRY CLUB DR
WAKE FOREST NC 27587-9545

FINNEGAN, JOSEPH T FINNEGAN, LESLEY E
1102 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5179

FISHER, C P JR
1430 COUNTRY CLUB DR
WAKE FOREST NC 27587-8773

FISHER, JERRY W FISHER, SARAH H
635 GALASHIELS PL
WAKE FOREST NC 27587-6636

FOSTER, DAVID M FOSTER, CARRIE A
7617 HEURISTIC WAY
WAKE FOREST NC 27587-9000

FOZDAR, MANISH A FOZDAR, RITA M
1109 CHILMARK AVE
WAKE FOREST NC 27587-5334

FREEMAN, JAMES LOUIS JR FREEMAN, JOAN OUTLAND
1336 COUNTRY CLUB DR
WAKE FOREST NC 27587-8771

GADD, CHARLES WEARN JR GADD, SALLY M
8108 HAWKSHEAD RD
WAKE FOREST NC 27587-6679

GADD, DAVID C GADD, STEPHANIE M
2512 CANONBIE LN
WAKE FOREST NC 27587-9010

GAIL M BOWEN REVOCABLE TRUST
7724 FAIRLAKE DR
WAKE FOREST NC 27587-5452

GAYLORD, TRINA RENE GAYLORD, JOHN PATRICK JR
1103 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

GERLITZ, KYLE A TRUSTEE GERLITZ, ANN M TRUSTEE
7909 HOGAN DR
WAKE FOREST NC 27587-6660

GIBBS, LAWRENCE F GIBBS, MITZI KING
2601 WENDLER CT
WAKE FOREST NC 27587-5456

GIBSON, PATRICIA CLIFFORD GIBSON, GARY STEVE
7701 FAIRLAKE DR
WAKE FOREST NC 27587-5453

GIORDANO, GLENN E GIORDANO, JOHNNA D
7736 KINGS WAY CT
WAKE FOREST NC 27587-6670

GOK, KEN Y AYUN, H. LIM
1301 CLUB VILLAS DR
WAKE FOREST NC 27587-4537

GONZALEZ, JOSE L GOMEZ, DENICE E
8014 HOGAN DR
WAKE FOREST NC 27587-6661

GOSSETT, LINDA M
1204 COUNTRY CLUB DR
WAKE FOREST NC 27587-9545

GRADY, DOUGLAS H GRADY, MARTHA S
1106 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5179

GRAFF, JOSEPH N GRAFF, BARBARA A
38725 DELAFIELD RD
OCONOMOWOC WI 53066-9104

GREEN TIMBER FOUNDATION
394 FLEMING RD
YOUNGSVILLE NC 27596-9698

GREENBERG, MICHAEL HOWARD
GREENBERG, JANN HARRIS
8017 HAWKSHEAD RD
WAKE FOREST NC 27587-6681

GREENE, CHEKITA HULBERT
8038 HOGAN DR
WAKE FOREST NC 27587-6661

GRIMMETT, ANDREW O WRIGHT, ANGELA M
1320 COUNTRY CLUB DR
WAKE FOREST NC 27587-8771

GUILMETTE, GEORGE
2405 CANONBIE LN
WAKE FOREST NC 27587-8765

HADDAD, KHALIL A /TR HADDAD, RITA R /TR
8101 HAWKSHEAD RD
WAKE FOREST NC 27587-6680

HAMILTON, EUGENE D HAMILTON, BARBARA A
8030 HOGAN DR
WAKE FOREST NC 27587-6661

HANSON, CATHERINE W
2526 PALMER CT
WAKE FOREST NC 27587-6445

HARGRAVE, GAIL P
2600 WENDLER CT
WAKE FOREST NC 27587-5456

HARGROVE, JILL LYNN MAY, MARK W
409 SHANNONFORD CT
WAKE FOREST NC 27587-9005

HARKLEY, JOSEPH LEE HARKLEY, MARIA J
7910 HOGAN DR
WAKE FOREST NC 27587-6659

HARRIS, JAMES TODD
2608 LORING LAKE DR
WAKE FOREST NC 27587-5454

HARTLEY, EDITH A HARTLEY, TIMOTHY L
1351 COUNTRY CLUB DR
WAKE FOREST NC 27587-8772

HAUSER, THOMAS BRENT HAUSER, LINDA MARGARET
6625 SPRINGIRTH TER
ALEXANDRIA VA 22315-5585

HEATH, CHARLES LARRY HEATH, MARY EDITH
1112 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5179

HENDERSON, KAREN W HENDERSON, TIMOTHY L
1105 CHILMARK AVE
WAKE FOREST NC 27587-5334

HODGES, THOMAS R HODGES, SUSAN C
7728 KINGS WAY CT
WAKE FOREST NC 27587-6670

HOLCOMBE, DANIEL ELDON
984 SAINT CATHERINES DR
WAKE FOREST NC 27587-6641

HOLDER, ADAM G HOLDER, JENNIFER L
990 SAINT CATHERINES DR
WAKE FOREST NC 27587-6641

HOLDING, BETH KELLY HOLDING, STEPHEN VICK SR
2520 CANONBIE LN
WAKE FOREST NC 27587-9010

HORNBUCKLE, CASSANDRA HORNBUCKLE, KEN
7903 HOGAN DR
WAKE FOREST NC 27587-6660

HORNER, WESLEY HORNER, MIKAYLA
7915 HOGAN DR
WAKE FOREST NC 27587-6660

HORTON, ROBIN RANDALL SR HORTON, MARY HOLLAND
1101 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

HOWELL, ALBERTO S HOWELL, DIANNA
1225 CHILMARK AVE
WAKE FOREST NC 27587-5336

JACKSON, DAVID E
2519 PALMER CT
WAKE FOREST NC 27587-6445

JACKSON, WESLEY W JACKSON, MELANIE C
992 W DURNESS CT
WAKE FOREST NC 27587-4919

JAFFEE, IRA W JAFFEE, EVA E
994 TEMPLERIDGE RD
WAKE FOREST NC 27587-9006

JALLORINA, CLAUDE H HABON, LORNA D
1305 CLUB VILLAS DR
WAKE FOREST NC 27587-4537

JAREMA, JOHN BLAINE JAREMA, PAMELA JOANN
1205 CHILMARK AVE
WAKE FOREST NC 27587-5336

JEFFREYS, WILLIAM SR JEFFREYS, KIMBERLY
991 SAINT CATHERINES DR
WAKE FOREST NC 27587-6642

JENKS, J HUBERT JENKS, JUDITH W
2513 MCGOWAN CT
WAKE FOREST NC 27587-6658

JOHNS, JASON JOSEPH
2420 PURNELL RD
WAKE FOREST NC 27587-9461

JONES, JO ANNA FINCH
1415 COUNTRY CLUB DR
WAKE FOREST NC 27587-8774

JORDAN, REBECCA ANN JORDAN, JAMES DOUGLAS
629 TOWNSVILLE LANDING RD
HENDERSON NC 27537-5688

JOYNER, SAMUEL H JOYNER, PATRICIA S
1426 COUNTRY CLUB DR
WAKE FOREST NC 27587-8773

KAISER, PETER LAWRENCE KAISER, SHARON MARIE
8042 HOGAN DR
WAKE FOREST NC 27587-6661

KEARNEY, GLORIA
990 TEMPLERIDGE RD
WAKE FOREST NC 27587-9006

KENNEDY, JANET A
7819 HOGAN DR
WAKE FOREST NC 27587-6696

KING, JOHN C JR KING, NETANIS E
1309 CLUB VILLAS DR
WAKE FOREST NC 27587-4537

KIRCHER, MARY L YOUNG, THOMAS H
1217 CHILMARK AVE
WAKE FOREST NC 27587-5336

KOON, JOEL A KOON, SONJA M
209 MIDDLESTONE CT
WAKE FOREST NC 27587-5331

KUMAR, DHRUVA KUMAR, USHA
8040 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

KUSIBAB, GREGORY G KUSIBAB, KATHRYN A
2552 PALMER CT
WAKE FOREST NC 27587-6445

LAINHART, MICHAEL S LAINHART, SANDRA J
2609 WENDLER CT
WAKE FOREST NC 27587-5456

LAMANDO, ANTHONY J LAMANDO, WRONDA
7621 HEURISTIC WAY
WAKE FOREST NC 27587-9000

LEARY, CHRISTOPHER R LEARY, SHARON L
2601 LORING LAKE DR
WAKE FOREST NC 27587-5455

LEATHERMAN, MARK STEPHEN
1213 COUNTRY CLUB DR
WAKE FOREST NC 27587-8770

LEE, WILLIAM JOHN JR LEE, CARRIE LYNNE
2600 LORING LAKE DR
WAKE FOREST NC 27587-5454

LENNAR CAROLINAS LLC
TROY J GEORGE
1100 PERIMETER PARK DR STE E112
MORRISVILLE NC 27560-0180

LERNER, MICHELLE GOLDBERG
7902 HOGAN DR
WAKE FOREST NC 27587-6659

LESTER, JEFFREY A LESTER, JO ANNE D
1352 COUNTRY CLUB DR
WAKE FOREST NC 27587-8771

LILE, TRAVIS LILE, LYNDSEY
7806 HOGAN DR
WAKE FOREST NC 27587-6695

LOVING, JOHN C LOVING, LENNIS F
1115 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

LUFT FAMILY TRUST
179 BRUSH CRK
BEAUMONT CA 92223-7302

LUKOWIAK, PETER ALOYSIUS
LUKOWIAK, JENNIFER ANNE
2605 WENDLER CT
WAKE FOREST NC 27587-5456

MAIOLO, THOMAS
1106 LANDRUM RD
COLUMBUS NC 28722-6485

MANLEY, THOMAS J MANLEY, ELIZABETH P
8024 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

MARINOS, DEMETRIOS J MARINOS, ANNAMARIA V
2604 LORING LAKE DR
WAKE FOREST NC 27587-5454

MARTIN, TIMOTHY DAVID MARTIN, D'ETTA JOHNSON
7814 HOGAN DR
WAKE FOREST NC 27587-6695

MASSEY, ANDREW LEE II MASSEY, RENE P
7605 SOUTHWICK CT
WAKE FOREST NC 27587-8716

MASSEY, GEORGE DENNIS MASSEY, CHIKAKO S
2513 CANONBIE LN
WAKE FOREST NC 27587-8766

MATTHEWS, KENNETH MARK MATTHEWS, TRACIE R
7700 FAIRLAKE DR
WAKE FOREST NC 27587-5452

MAYO, RICHARD E MAYO, DEIDRE LYNN
7810 HOGAN DR
WAKE FOREST NC 27587-6695

MCANALLY, DAVID R MCANALLY, PATICIA M
987 KINTAIL CT
WAKE FOREST NC 27587-4918

MCGRATH, PAUL MCGRATH, CAROL COCHRAN
1414 COUNTRY CLUB DR
WAKE FOREST NC 27587-8773

MCILWAIN, GARY E MCILWAIN, CAROL A
2144 PETRUCHIO WAY
ROSEVILLE CA 95661-3221

MCVAY, GLEN A. MCVAY, KIMBERLY
2517 CANONBIE LN
WAKE FOREST NC 27587-8766

MEAD, DAVID W MEAD, KAILYN R
121 KEETER CIR
WAKE FOREST NC 27587-6688

MELVIN, ROGER W MELVIN, ELIZABETH T
1427 COUNTRY CLUB DR
WAKE FOREST NC 27587-8774

MEYER, ROGER P MEYER, KATHLEEN F
2417 CANONBIE LN
WAKE FOREST NC 27587-8765

MICCHIA, JOSEPH M JR TRUSTEE MICCHIA, GINA L TRUSTEE
212 MIDDLESTONE CT
WAKE FOREST NC 27587-5331

MILLER, DYANNE
1116 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5179

MILLER, GILBERT BENTON JR MILLER, SHELLEY S
8000 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

MILLER, JAMES
1140 CHILMARK AVE
WAKE FOREST NC 27587-5333

MOFFATTE, IAN M MOFFATTE, MICHELLE L
2527 PALMER CT
WAKE FOREST NC 27587-6445

MONTGOMERY, MARK A MONTGOMERY, CYNTHIA L
101 TENBRIDGE CT
WAKE FOREST NC 27587-5332

MOSELEY, THEDRIC JACKSON MOSELEY, KAREN HARRIS
8100 HAWKSHEAD RD
WAKE FOREST NC 27587-6679

MUKHERJEE, SUBIRENDU MUKHERJEE, WANDA
1208 CHILMARK AVE
WAKE FOREST NC 27587-5335

NACITA, ELIJAH Q NACITA, CHRISTY W
8052 HOGAN DR
WAKE FOREST NC 27587-6661

NANCE, DEBORAH A
1205 COUNTRY CLUB DR
WAKE FOREST NC 27587-8770

NASSIF, CHARLES M
8012 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

NASSIF, CHARLES MARTIN NASSIF, RUTH K
8012 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

NEAL, GARY WAYNE NEAL,
KATHLEEN FRANCES
1144 CHILMARK AVE
WAKE FOREST NC 27587-5333

NEEB, LINDA S
8120 DIAZIT DR
WAKE FOREST NC 27587-6683

NEISES, GAIL ELAINE
1111 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

NEWSOME, JOHNATHAN H
NEWSOME, PEGGY D
983 KINTAIL CT
WAKE FOREST NC 27587-4918

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
1546 MAIL SERVICE CTR
RALEIGH NC 27699-1500

OAKMARK DEVELOPMENT CO LLC
PO BOX 99277
RALEIGH NC 27624-9277

OBRIEN, THOMAS E OBRIEN, MARY A
2503 MCGOWAN CT
WAKE FOREST NC 27587-6658

O'DELL, MARK A O'DELL, BETH M
2509 CANONBIE LN
WAKE FOREST NC 27587-8766

O'NEAL, ELIZABETH A O'NEAL,
KEITH A
8020 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

OSTERGARD, RICHARD A
OSTERGARD, YONG S
8032 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

PACKETT, MITCHELL G PACKETT,
ANNE A
8104 HAWKSHEAD RD
WAKE FOREST NC 27587-6679

PALMERTON, JEFFREY DALE
PALMERTON, ELIZABETH
7802 HOGAN DR
WAKE FOREST NC 27587-6695

PATCHEL, THOMAS H PATCHEL,
JEAN M
8002 HOGAN DR
WAKE FOREST NC 27587-6661

PATE, JANE HARRIS
3511 MEADOWRUN DR
DURHAM NC 27707-6626

PATRICK, HENRY W PATRICK,
BRENDA T
8009 HAWKSHEAD RD
WAKE FOREST NC 27587-6681

PAYNE, DAVIE PAYNE, ANGELA D
994 SAINT CATHERINES DR
WAKE FOREST NC 27587-6641

PENKUNAS, JOSEPH J PENKUNAS,
PATRICIA A
7725 KINGS WAY CT
WAKE FOREST NC 27587-6670

PERRY, MICHAEL K PERRY, LEE B
208 MIDDLESTONE CT
WAKE FOREST NC 27587-5331

PERVEILER, KEVIN J PERVEILER,
MARIA
2605 LORING LAKE DR
WAKE FOREST NC 27587-5455

PETERSON, GREGORY CLARK
TRUSTEE PETERSON, BARBARA
MELVIN TRUSTEE
2420 CANONBIE LN
WAKE FOREST NC 27587-5450

PIMENTEL, JESSE G PIMENTEL,
ROSEMARY
8044 HOGAN DR
WAKE FOREST NC 27587-6661

PLEASANTS FAMILY LLC
3023 DEVONSHIRE DR
RALEIGH NC 27607-6619

PLEASANTS, CHRIS
9142 JACKSON RD
WAKE FOREST NC 27587-7985

PLUEDDEMANN, MICHAEL L
PLUEDDEMANN, NANCY W
8022 HOGAN DR
WAKE FOREST NC 27587-6661

PONSOLLE, DAWN
1329 COUNTRY CLUB DR
WAKE FOREST NC 27587-8772

POOLE, TARA C
994 W DURNESS CT
WAKE FOREST NC 27587-4919

POTTER, MARCUS H III TRUSTEE
POTTER, CATHERINE O TRUSTEE
8048 HOGAN DR
WAKE FOREST NC 27587-6661

POWELL, ANNE H
2505 CANONBIE LN
WAKE FOREST NC 27587-8766

PRATT, JOEL MICHAEL PRATT, LINDA
2409 CANONBIE LN
WAKE FOREST NC 27587-8765

PRUITT, DELORES
1109 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

QUALLS, JEREMY B QUALLS, THOMAS
1100 CHILMARK AVE
WAKE FOREST NC 27587-5358

RAMSARAN, MICHAEL RAMSARAN, CHARMAINE
1303 CLUB VILLAS DR
WAKE FOREST NC 27587-4537

REDMAN, JOHN MICHAEL
1212 COUNTRY CLUB DR
WAKE FOREST NC 27587-9545

REITMANN, ROBERT
1304 CLUB VILLAS DR
WAKE FOREST NC 27587-4536

RETTIG, THOMAS RETTIG, AMY
8021 HAWKSHEAD RD
WAKE FOREST NC 27587-6681

RIDDLE, SHERRY JAYNE RIDDLE, JAMES CARL
7729 KINGS WAY CT
WAKE FOREST NC 27587-6670

RINDONI, CAROL F
1431 COUNTRY CLUB DR
WAKE FOREST NC 27587-8774

RITCHEY, BRIAN C TRUSTEE
RITCHEY, MARY ELLEN TRUSTEE
8033 HOGAN DR
WAKE FOREST NC 27587-6662

ROBERTS, ANGELIKA LESMANA
ROBERTS, JAMES CARTER
986 W DURNESS CT
WAKE FOREST NC 27587-4919

RODRIGUEZ, PATRICK ANTHONY
RODRIGUEZ, BRENDA KAYLANEY
1231 COUNTRY CLUB DR
WAKE FOREST NC 27587-8770

ROGGE, BEVERLY J TRUSTEE GAIL E AND BEVERLY J ROGGE TRUST
1117 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

ROSE, MELINDA FLETCHER TRUSTEE
THE MELINDA FLETCHER ROSE REVOCABLE TRUST
7704 FAIRLAKE DR
WAKE FOREST NC 27587-5452

ROUSSEAU, CHERYLL E
1110 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5179

RUDA, EMILY
1104 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5179

RUPRICH, MARK A RUPRICH, KAREN M
7708 FAIRLAKE DR
WAKE FOREST NC 27587-5452

RUPSKY, MARK J RUPSKY, PENNY L
1311 CLUB VILLAS DR
WAKE FOREST NC 27587-4537

RUSSELL, RENO RUSSELL, LAKEYA
1209 CHILMARK AVE
WAKE FOREST NC 27587-5336

RYAN, BARBARA A
2609 LORING LAKE DR
WAKE FOREST NC 27587-5455

SAMUEL, NEELAM JEWELL, JEFFREY
1116 CHILMARK AVE
WAKE FOREST NC 27587-5333

SAPP, ANDREW J SAPP, JO ANN
7801 HOGAN DR
WAKE FOREST NC 27587-6696

SCHRIER, MARK E SCHRIER, TARA EILEEN
7733 KINGS WAY CT
WAKE FOREST NC 27587-6670

SEAMSTER, IRA SEAMSTER, DENISE
994 KINTAIL CT
WAKE FOREST NC 27587-4918

SFR JV-1 2020-1 BORROWER LLC
TRICON AMERICAN HOMES LLC
1508 BROOKHOLLOW DR
SANTA ANA CA 92705-5426

SIMS, YVONNE M
1307 CLUB VILLAS DR
WAKE FOREST NC 27587-4537

SLIWINSKI, NICOLAS SILWINSKI, CARISSA
8034 HOGAN DR
WAKE FOREST NC 27587-6661

SMITH, KYLE CHRISTOPHER SMITH, CAROLINE ROSE
995 SAINT CATHERINES DR
WAKE FOREST NC 27587-6642

SMITH, MARY ELIZABETH K
120 KEETER CIR
WAKE FOREST NC 27587-6687

SMITH, RICHARD C SMITH, CYNTHIA M
7605 HEURISTIC WAY
WAKE FOREST NC 27587-9000

SNOW, WILLIAM T SNOW, AMY M
1200 CHILMARK AVE
WAKE FOREST NC 27587-5335

SOTELO, NASHELY G SANCHEZ, BRYAN VALLEJO
3302 COMSTOCK RD
RALEIGH NC 27604-3464

SOWA, AUDREY
405 SHANNONFORD CT
WAKE FOREST NC 27587-9005

SPEAS, EDWIN M III SPEAS, POLLY ANNA
7612 LITERARY LN
WAKE FOREST NC 27587-9053

SPRUILL, LORENZA DALLAS III SPRUILL, KAREN
2506 PALMER CT
WAKE FOREST NC 27587-6445

STAFFORDSHIRE HOMEOWNERS ASSOC INC
SENTRY MGMT INC
2180 W SR 434 STE 5000
LONGWOOD FL 32779-5042

STALLINGS, RICHARD N STALLINGS, ROBIN A
7620 HEURISTIC WAY
WAKE FOREST NC 27587-9000

STEVENSON, PETER STEVENSON, CATHI A
1108 CHILMARK AVE
WAKE FOREST NC 27587-5358

STYLES, JACK B STYLES, JUANITA L
2524 CANONBIE LN
WAKE FOREST NC 27587-9010

SUCHER, AARON SUCHER, SOU
7724 KINGS WAY CT
WAKE FOREST NC 27587-6670

SUTHERLAND PTNR LLC
818 S WHITE ST
WAKE FOREST NC 27587-2961

SWINDELL, KEVIN J SWINDELL, BERNADINE F
1213 CHILMARK AVE
WAKE FOREST NC 27587-5336

THARPE, JOHN W JR STRONG, PATRICIA MITCHELL
8025 HAWKSHEAD RD
WAKE FOREST NC 27587-6681

TOLLENS, MARY
991 W DURNESS CT
WAKE FOREST NC 27587-4919

TORRENCE, TARA MAPLES
7625 HEURISTIC WAY
WAKE FOREST NC 27587-9000

TOWN OF WAKE FOREST
PLANNING DEPT
301 S BROOKS ST
WAKE FOREST NC 27587-2932

TURNER, LEO R JR
8001 HAWKSHEAD RD
WAKE FOREST NC 27587-6681

UPTON, KEVIN C UPTON, MITZI M
1358 COUNTRY CLUB DR
WAKE FOREST NC 27587-8771

VAN, ORDEN JOHN E VAN, ORDEN AMARILIS
8036 HAWKSHEAD RD
WAKE FOREST NC 27587-9420

VARNEDOE, WILLIAM S VARNEDOE, WANDA C
2412 CANONBIE LN
WAKE FOREST NC 27587-5450

VELASQUEZ, NOEMY VELASQUEZ, WERNER ROLANDO
999 W DURNESS CT
WAKE FOREST NC 27587-4919

VIGARI, VINCENT F GALLOWAY, KAY C
7608 HEURISTIC WAY
WAKE FOREST NC 27587-9000

VOLLMER, CHARLES B VOLLMER, STELLA
1118 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5179

VUKOVICH, FRED M VUKOVICH, NADINE M
8033 HAWKSHEAD RD
WAKE FOREST NC 27587-6681

WADFORD, NYLE F WADFORD, TERESA H
8019 HOGAN DR
WAKE FOREST NC 27587-6662

WAKE UNION BAPTIST CHURCH
13345 WAKE UNION CHURCH RD
WAKE FOREST NC 27587-7451

WAKE UNION BAPTIST CHURCH
EARL PLEASANT TRUSTEES
13345 WAKE UNION CHURCH RD
WAKE FOREST NC 27587-7451

WALLACE, MARK FRANKLIN
WALLACE, NICOLE J
7906 HOGAN DR
WAKE FOREST NC 27587-6659

WALSH, DANIEL F WALSH, MICHELLE R
1204 CHILMARK AVE
WAKE FOREST NC 27587-5335

WARE, VALERIE T WARE, ARCHIE L
7807 HOGAN DR
WAKE FOREST NC 27587-6696

WEBER, KEITH A WEBER, CATHERINE J
1136 CHILMARK AVE
WAKE FOREST NC 27587-5333

WENNINGER, STEPHAN FRIEDRICH
WENNINGER, SARAH LESLIE
2501 CANONBIE LN
WAKE FOREST NC 27587-8766

WILLIAMS, TRAMPAS
1113 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5180

WU, THUAN WU, MINH LUU
7818 HOGAN DR
WAKE FOREST NC 27587-6695

YAMASA CO LTD
PO BOX 4090
SCOTTSDALE AZ 85261-4090

YARMOLIK, TATSIANA YARMOLIK, ANDREI
995 W DURNESS CT
WAKE FOREST NC 27587-4919

YAROSH, DANIEL YAROSH, LORI
7815 HOGAN DR
WAKE FOREST NC 27587-6696

YATES, SANDRA J YATES, BURL E
8005 HAWKSHEAD RD
WAKE FOREST NC 27587-6681

ZELVIS, MICHELE HOFFMAN
1120 FAIRWAY VILLAS DR
WAKE FOREST NC 27587-5179

ZENESKI, ANDREW JOSEPH SR
ZENESKI, ANNE BRUMMITT
1214 CHILMARK AVE
WAKE FOREST NC 27587-5335

ZHAO, BAIRU
12310 ANGEL FALLS RD
RALEIGH NC 27614-7619

Owner	Mail Address	City State Zip
599 RALEIGH ROAD LLC	7208 FALLS OF NEUSE RD STE 101	RALEIGH NC 27615-3244
ADAMS FRY DEVELOPMENTS LLC	909 S MAIN ST	WAKE FOREST NC 27587-9277
ALLEN, KENNETH RAY	1325 JENKINS RD	WAKE FOREST NC 27587-9069
ALSTON, VERNELL PIERCE	3665 W RIVER RD	FRANKLINTON NC 27525-8206
AMH 2015-2 BORROWER LLC %AMERICAN HOMES 4 RENT	30601 AGOURA RD STE 200	AGOURA HILLS CA 91301-2148
ANDERSON, DANIEL W	8026 HOGAN DR	WAKE FOREST NC 27587-6661
BAGWELL, CAITLIN ELIZABETH	7811 HOGAN DR	WAKE FOREST NC 27587-6696
BARKER, KENNETH J BARKER, JACQUELINE S	100 TENBRIDGE CT	WAKE FOREST NC 27587-5332
BARKLEY, HUBERT MERRILL III BARKLEY, MONICA NABORS	7732 KINGS WAY CT	WAKE FOREST NC 27587-6670
BARR, ARNOLD L BARR, CHIORENE L	1306 COUNTRY CLUB DR	WAKE FOREST NC 27587-8771
BEAL, JASON WAYNE KARAGEORGE, NANCY ANNA	8028 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
BEASLEY, DARYL BERNARD BEASLEY, CUBIE T	7720 KINGS WAY CT	WAKE FOREST NC 27587-6670
BIELIK, EDWARD A PACE, KAYLA N	1310 CLUB VILLAS DR	WAKE FOREST NC 27587-4536
BOGGS, ANDREW KEITH BOGGS, KRISTINA M	8008 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
BONE, MALCOLM BONE, ELIZABETH	132 ARBORVITAE DR	PINE KNOLL SHORES NC 28512-6200
BOWERS, JAMES S BOWERS, DELIA B	1230 COUNTRY CLUB DR	WAKE FOREST NC 27587-9545
BRASWELL, GEORGE WILBUR JR BRASWELL, MARGARET O	1113 CHILMARK AVE	WAKE FOREST NC 27587-5334
BREWER, KATHRYN C	8040 HOGAN DR	WAKE FOREST NC 27587-6661
BRYLSKI, JAMES J GANGI, JUDITH A	2538 PALMER CT	WAKE FOREST NC 27587-6445
BYRNE, THOMAS J JR BYRNE, MARY COLLINS	280 SWEETWATER HILLS DR	HENDERSONVILLE NC 28791-8005
CALDERON, NILO CALDERON, REBECCA Y	205 MIDDLESTONE CT	WAKE FOREST NC 27587-5331
CARLE, JACQUELINE D	2509 PALMER CT	WAKE FOREST NC 27587-6445
CARLETON, BETH A CARLETON, JOHN M	7822 HOGAN DR	WAKE FOREST NC 27587-6695
CHEGUE, DAVID RAMIREZ, JUDITH	1306 CLUB VILLAS DR	WAKE FOREST NC 27587-4536
CIMA, DAVID A CIMA, CINDY	1104 CHILMARK AVE	WAKE FOREST NC 27587-5358
CLUBHOUSE VILLAS AT WAKE FOREST GOLF CLUB HOA, INC	PO BOX 79032	CHARLOTTE NC 28271-0030
COLEY, KENNETH S COLEY, KATHLEEN C	8006 HOGAN DR	WAKE FOREST NC 27587-6661
COLLINS, KEVIN D COLLINS, SUSAN M	204 MIDDLESTONE CT	WAKE FOREST NC 27587-5331
COMER, GWENDOLYN ANN	990 KINTAIL CT	WAKE FOREST NC 27587-4918

CONLEY, JOHN T CONLEY, LYNN G	2525 CANONBIE LN	WAKE FOREST NC 27587-8766
CORBETT, MICHAEL P CORBETT, VIRGINIA L	1107 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
CORRIVEAU, NANCY	407 SHANNONFORD CT	WAKE FOREST NC 27587-9005
COSGROVE, DONALD R COSGROVE, DANIELLE L	1101 CHILMARK AVE	WAKE FOREST NC 27587-5334
COWPERTHWAIT, DANIEL P COWPERTHWAIT, SHELLEY M	2516 CANONBIE LN	WAKE FOREST NC 27587-9010
DA COSTA, GISELE CANCISSU	8025 HOGAN DR	WAKE FOREST NC 27587-6662
DANIEL, TIMOTHY T DANIEL, PAMELA H	1218 CHILMARK AVE	WAKE FOREST NC 27587-5335
DAYE, LANISHA	998 TEMPLERIDGE RD	WAKE FOREST NC 27587-9006
DEFORE, JOHN T DEFORE, MARY ANNE	7914 HOGAN DR	WAKE FOREST NC 27587-6659
DIAZIT COMPANY INC	8105 DIAZIT DR	WAKE FOREST NC 27587-6684
DICKENS, KIMBERLY POWERS	7732 FAIRLAKE DR	WAKE FOREST NC 27587-5452
DINGBAUM, THOMAS W DINGBAUM, JUDITH ANNE	2537 PALMER CT	WAKE FOREST NC 27587-6445
DION, KATHRYN ANNE	998 SAINT CATHERINES DR	WAKE FOREST NC 27587-6641
DOBLITZ, MICHELE-ANGELLA EJIMA DOBLITZ, STEFAN	1148 CHILMARK AVE	WAKE FOREST NC 27587-5333
DOMINICK, JOHN M DOMINICK, BETSY S	1105 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
DRIBUS, JOHN ALEXANDER DRIBUS, CAMMIE RENEE	7716 KINGS WAY CT	WAKE FOREST NC 27587-6670
DRY TIMBER LLC	394 FLEMING RD	YOUNGSVILLE NC 27596-9698
DUNN, KENNETH III DUNN, JUDY	983 SAINT CATHERINES DR	WAKE FOREST NC 27587-6642
DURHAM, MICHAEL J DURHAM, CAROL I	2421 CANONBIE LN	WAKE FOREST NC 27587-8765
E HUNT III LLC %WILLIAM P ANDREWS	1121 JENKINS RD	WAKE FOREST NC 27587-9064
EBERLE, JOHN C TRUSTEE EBERLE, SUSAN R TRUSTEE	2521 CANONBIE LN	WAKE FOREST NC 27587-8766
ECKHARDT, SAM E ECKHARDT, ALICIA C	1221 CHILMARK AVE	WAKE FOREST NC 27587-5336
EVALDI, FRANK D EVALDI, KAREN SCHLETT	8004 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
FAIRCHILD, JACQUELYN J FAIRCHILD, MARK	8010 HOGAN DR	WAKE FOREST NC 27587-6661
FAIRLAKE COMMUNITY ASSOCIATION	5300 FALLS OF NEUSE RD	RALEIGH NC 27609-4756
FAIRWAY VILLAS AT WF GOLF CLUB & PPM	11010 RAVEN RIDGE RD	RALEIGH NC 27614-8837
FAIRWAY VILLAS AT WF GOLF CLUB & TOWNHOMES OWNERS ASSOC INC PPM	11010 RAVEN RIDGE RD	RALEIGH NC 27614-8837
FERN, RICHARD J FERN, MARY M	998 KINTAIL CT	WAKE FOREST NC 27587-4918
FICHERA, JOHN L FICHERA, WENDY M	1240 COUNTRY CLUB DR	WAKE FOREST NC 27587-9545
FINNEGAN, JOSEPH T FINNEGAN, LESLEY E	1102 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5179

FISHER, C P JR	1430 COUNTRY CLUB DR	WAKE FOREST NC 27587-8773
FISHER, JERRY W FISHER, SARAH H	635 GALASHIELS PL	WAKE FOREST NC 27587-6636
FOSTER, DAVID M FOSTER, CARRIE A	7617 HEURISTIC WAY	WAKE FOREST NC 27587-9000
FOZDAR, MANISH A FOZDAR, RITA M	1109 CHILMARK AVE	WAKE FOREST NC 27587-5334
FREEMAN, JAMES LOUIS JR FREEMAN, JOAN OUTLAND	1336 COUNTRY CLUB DR	WAKE FOREST NC 27587-8771
GADD, CHARLES WEARN JR GADD, SALLY M	8108 HAWKSHEAD RD	WAKE FOREST NC 27587-6679
GADD, DAVID C GADD, STEPHANIE M	2512 CANONBIE LN	WAKE FOREST NC 27587-9010
GAIL M BOWEN REVOCABLE TRUST	7724 FAIRLAKE DR	WAKE FOREST NC 27587-5452
GAYLORD, TRINA RENE GAYLORD, JOHN PATRICK JR	1103 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
GERLITZ, KYLE A TRUSTEE GERLITZ, ANN M TRUSTEE	7909 HOGAN DR	WAKE FOREST NC 27587-6660
GIBBS, LAWRENCE F GIBBS, MITZI KING	2601 WENDLER CT	WAKE FOREST NC 27587-5456
GIBSON, PATRICIA CLIFFORD GIBSON, GARY STEVE	7701 FAIRLAKE DR	WAKE FOREST NC 27587-5453
GIORDANO, GLENN E GIORDANO, JOHNNA D	7736 KINGS WAY CT	WAKE FOREST NC 27587-6670
GOK, KEN Y AYUN, H. LIM	1301 CLUB VILLAS DR	WAKE FOREST NC 27587-4537
GONZALEZ, JOSE L GOMEZ, DENICE E	8014 HOGAN DR	WAKE FOREST NC 27587-6661
GOSSETT, LINDA M	1204 COUNTRY CLUB DR	WAKE FOREST NC 27587-9545
GRADY, DOUGLAS H GRADY, MARTHA S	1106 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5179
GRAFF, JOSEPH N GRAFF, BARBARA A	38725 DELAFIELD RD	OCONOMOWOC WI 53066-9104
GREEN TIMBER FOUNDATION	394 FLEMING RD	YOUNGSVILLE NC 27596-9698
GREENBERG, MICHAEL HOWARD GREENBERG, JANN HARRIS	8017 HAWKSHEAD RD	WAKE FOREST NC 27587-6681
GREENE, CHEKITA HULBERT	8038 HOGAN DR	WAKE FOREST NC 27587-6661
GRIMMETT, ANDREW O WRIGHT, ANGELA M	1320 COUNTRY CLUB DR	WAKE FOREST NC 27587-8771
GUILMETTE, GEORGE	2405 CANONBIE LN	WAKE FOREST NC 27587-8765
HADDAD, KHALIL A /TR HADDAD, RITA R /TR	8101 HAWKSHEAD RD	WAKE FOREST NC 27587-6680
HAMILTON, EUGENE D HAMILTON, BARBARA A	8030 HOGAN DR	WAKE FOREST NC 27587-6661
HANSON, CATHERINE W	2526 PALMER CT	WAKE FOREST NC 27587-6445
HARGRAVE, GAIL P	2600 WENDLER CT	WAKE FOREST NC 27587-5456
HARGROVE, JILL LYNN MAY, MARK W	409 SHANNONFORD CT	WAKE FOREST NC 27587-9005
HARKLEY, JOSEPH LEE HARKLEY, MARIA J	7910 HOGAN DR	WAKE FOREST NC 27587-6659
HARRIS, JAMES TODD	2608 LORING LAKE DR	WAKE FOREST NC 27587-5454

HARTLEY, EDITH A HARTLEY, TIMOTHY L	1351 COUNTRY CLUB DR	WAKE FOREST NC 27587-8772
HAUSER, THOMAS BRENT HAUSER, LINDA MARGARET	6625 SPRINGIRTH TER	ALEXANDRIA VA 22315-5585
HEATH, CHARLES LARRY HEATH, MARY EDITH	1112 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5179
HENDERSON, KAREN W HENDERSON, TIMOTHY L	1105 CHILMARK AVE	WAKE FOREST NC 27587-5334
HODGES, THOMAS R HODGES, SUSAN C	7728 KINGS WAY CT	WAKE FOREST NC 27587-6670
HOLCOMBE, DANIEL ELDON	984 SAINT CATHERINES DR	WAKE FOREST NC 27587-6641
HOLDER, ADAM G HOLDER, JENNIFER L	990 SAINT CATHERINES DR	WAKE FOREST NC 27587-6641
HOLDING, BETH KELLY HOLDING, STEPHEN VICK SR	2520 CANONBIE LN	WAKE FOREST NC 27587-9010
HORNBUCKLE, CASSANDRA HORNBUCKLE, KEN	7903 HOGAN DR	WAKE FOREST NC 27587-6660
HORNER, WESLEY HORNER, MIKAYLA	7915 HOGAN DR	WAKE FOREST NC 27587-6660
HORTON, ROBIN RANDALL SR HORTON, MARY HOLLAND	1101 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
HOWELL, ALBERTO S HOWELL, DIANNA	1225 CHILMARK AVE	WAKE FOREST NC 27587-5336
JACKSON, DAVID E	2519 PALMER CT	WAKE FOREST NC 27587-6445
JACKSON, WESLEY W JACKSON, MELANIE C	992 W DURNESS CT	WAKE FOREST NC 27587-4919
JAFFEE, IRA W JAFFEE, EVA E	994 TEMPLERIDGE RD	WAKE FOREST NC 27587-9006
JALLORINA, CLAUDE H HABON, LORNA D	1305 CLUB VILLAS DR	WAKE FOREST NC 27587-4537
JAREMA, JOHN BLAINE JAREMA, PAMELA JOANN	1205 CHILMARK AVE	WAKE FOREST NC 27587-5336
JEFFREYS, WILLIAM SR JEFFREYS, KIMBERLY	991 SAINT CATHERINES DR	WAKE FOREST NC 27587-6642
JENKS, J HUBERT JENKS, JUDITH W	2513 MCGOWAN CT	WAKE FOREST NC 27587-6658
JOHNS, JASON JOSEPH	2420 PURNELL RD	WAKE FOREST NC 27587-9461
JONES, JO ANNA FINCH	1415 COUNTRY CLUB DR	WAKE FOREST NC 27587-8774
JORDAN, REBECCA ANN JORDAN, JAMES DOUGLAS	629 TOWNSVILLE LANDING RD	HENDERSON NC 27537-5688
JOYNER, SAMUEL H JOYNER, PATRICIA S	1426 COUNTRY CLUB DR	WAKE FOREST NC 27587-8773
KAISER, PETER LAWRENCE KAISER, SHARON MARIE	8042 HOGAN DR	WAKE FOREST NC 27587-6661
KEARNEY, GLORIA	990 TEMPLERIDGE RD	WAKE FOREST NC 27587-9006
KENNEDY, JANET A	7819 HOGAN DR	WAKE FOREST NC 27587-6696
KING, JOHN C JR KING, NETANIS E	1309 CLUB VILLAS DR	WAKE FOREST NC 27587-4537
KIRCHER, MARY L YOUNG, THOMAS H	1217 CHILMARK AVE	WAKE FOREST NC 27587-5336
KOON, JOEL A KOON, SONJA M	209 MIDDLESTONE CT	WAKE FOREST NC 27587-5331
KUMAR, DHRUVA KUMAR, USHA	8040 HAWKSHEAD RD	WAKE FOREST NC 27587-9420

KUSIBAB, GREGORY G KUSIBAB, KATHRYN A	2552 PALMER CT	WAKE FOREST NC 27587-6445
LAINHART, MICHAEL S LAINHART, SANDRA J	2609 WENDLER CT	WAKE FOREST NC 27587-5456
LAMANDO, ANTHONY J LAMANDO, WRONDA	7621 HEURISTIC WAY	WAKE FOREST NC 27587-9000
LEARY, CHRISTOPHER R LEARY, SHARON L	2601 LORING LAKE DR	WAKE FOREST NC 27587-5455
LEATHERMAN, MARK STEPHEN	1213 COUNTRY CLUB DR	WAKE FOREST NC 27587-8770
LEE, WILLIAM JOHN JR LEE, CARRIE LYNNE	2600 LORING LAKE DR	WAKE FOREST NC 27587-5454
LENNAR CAROLINAS LLC %TROY J GEORGE	1100 PERIMETER PARK DR STE E112	MORRISVILLE NC 27560-0180
LERNER, MICHELLE GOLDBERG	7902 HOGAN DR	WAKE FOREST NC 27587-6659
LESTER, JEFFREY A LESTER, JO ANNE D	1352 COUNTRY CLUB DR	WAKE FOREST NC 27587-8771
LILE, TRAVIS LILE, LYNDSEY	7806 HOGAN DR	WAKE FOREST NC 27587-6695
LOVING, JOHN C LOVING, LENNIS F	1115 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
LUFT FAMILY TRUST	179 BRUSH CRK	BEAUMONT CA 92223-7302
LUKOWIAK, PETER ALOYSIUS LUKOWIAK, JENNIFER ANNE	2605 WENDLER CT	WAKE FOREST NC 27587-5456
MAIOLO, THOMAS	1106 LANDRUM RD	COLUMBUS NC 28722-6485
MANLEY, THOMAS J MANLEY, ELIZABETH P	8024 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
MARINOS, DEMETRIOS J MARINOS, ANNAMARIA V	2604 LORING LAKE DR	WAKE FOREST NC 27587-5454
MARTIN, TIMOTHY DAVID MARTIN, D'ETTA JOHNSON	7814 HOGAN DR	WAKE FOREST NC 27587-6695
MASSEY, ANDREW LEE II MASSEY, RENE P	7605 SOUTHWICK CT	WAKE FOREST NC 27587-8716
MASSEY, GEORGE DENNIS MASSEY, CHIKAKO S	2513 CANONBIE LN	WAKE FOREST NC 27587-8766
MATTHEWS, KENNETH MARK MATTHEWS, TRACIE R	7700 FAIRLAKE DR	WAKE FOREST NC 27587-5452
MAYO, RICHARD E MAYO, DEIDRE LYNN	7810 HOGAN DR	WAKE FOREST NC 27587-6695
MCANALLY, DAVID R MCANALLY, PATICIA M	987 KINTAIL CT	WAKE FOREST NC 27587-4918
MCGRATH, PAUL MCGRATH, CAROL COCHRAN	1414 COUNTRY CLUB DR	WAKE FOREST NC 27587-8773
MCILWAIN, GARY E MCILWAIN, CAROL A	2144 PETRUCHIO WAY	ROSEVILLE CA 95661-3221
MCVAY, GLEN A. MCVAY, KIMBERLY	2517 CANONBIE LN	WAKE FOREST NC 27587-8766
MEAD, DAVID W MEAD, KAILYN R	121 KEETER CIR	WAKE FOREST NC 27587-6688
MELVIN, ROGER W MELVIN, ELIZABETH T	1427 COUNTRY CLUB DR	WAKE FOREST NC 27587-8774
MEYER, ROGER P MEYER, KATHLEEN F	2417 CANONBIE LN	WAKE FOREST NC 27587-8765
MICCHIA, JOSEPH M JR TRUSTEE MICCHIA, GINA L TRUSTEE	212 MIDDLESTONE CT	WAKE FOREST NC 27587-5331
MILLER, DYANNE	1116 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5179

MILLER, GILBERT BENTON JR MILLER, SHELLEY S	8000 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
MILLER, JAMES	1140 CHILMARK AVE	WAKE FOREST NC 27587-5333
MOFFATTE, IAN M MOFFATTE, MICHELLE L	2527 PALMER CT	WAKE FOREST NC 27587-6445
MONTGOMERY, MARK A MONTGOMERY, CYNTHIA L	101 TENBRIDGE CT	WAKE FOREST NC 27587-5332
MOSELEY, THEDRIC JACKSON MOSELEY, KAREN HARRIS	8100 HAWKSHEAD RD	WAKE FOREST NC 27587-6679
MUKHERJEE, SUBIRENDU MUKHERJEE, WANDA	1208 CHILMARK AVE	WAKE FOREST NC 27587-5335
NACITA, ELIJAH Q NACITA, CHRISTY W	8052 HOGAN DR	WAKE FOREST NC 27587-6661
NANCE, DEBORAH A	1205 COUNTRY CLUB DR	WAKE FOREST NC 27587-8770
NASSIF, CHARLES M	8012 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
NASSIF, CHARLES MARTIN NASSIF, RUTH K	8012 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
NEAL, GARY WAYNE NEAL, KATHLEEN FRANCES	1144 CHILMARK AVE	WAKE FOREST NC 27587-5333
NEEB, LINDA S	8120 DIAZIT DR	WAKE FOREST NC 27587-6683
NEISES, GAIL ELAINE	1111 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
NEWSOME, JOHNATHAN H NEWSOME, PEGGY D	983 KINTAIL CT	WAKE FOREST NC 27587-4918
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	1546 MAIL SERVICE CTR	RALEIGH NC 27699-1500
OAKMARK DEVELOPMENT CO LLC	PO BOX 99277	RALEIGH NC 27624-9277
OBRIEN, THOMAS E OBRIEN, MARY A	2503 MCGOWAN CT	WAKE FOREST NC 27587-6658
O'DELL, MARK A O'DELL, BETH M	2509 CANONBIE LN	WAKE FOREST NC 27587-8766
O'NEAL, ELIZABETH A O'NEAL, KEITH A	8020 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
OSTERGARD, RICHARD A OSTERGARD, YONG S	8032 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
PACKETT, MITCHELL G PACKETT, ANNE A	8104 HAWKSHEAD RD	WAKE FOREST NC 27587-6679
PALMERTON, JEFFREY DALE PALMERTON, ELIZABETH	7802 HOGAN DR	WAKE FOREST NC 27587-6695
PATCHEL, THOMAS H PATCHEL, JEAN M	8002 HOGAN DR	WAKE FOREST NC 27587-6661
PATE, JANE HARRIS	3511 MEADOWRUN DR	DURHAM NC 27707-6626
PATRICK, HENRY W PATRICK, BRENDA T	8009 HAWKSHEAD RD	WAKE FOREST NC 27587-6681
PAYNE, DAVIE PAYNE, ANGELA D	994 SAINT CATHERINES DR	WAKE FOREST NC 27587-6641
PENKUNAS, JOSEPH J PENKUNAS, PATRICIA A	7725 KINGS WAY CT	WAKE FOREST NC 27587-6670
PERRY, MICHAEL K PERRY, LEE B	208 MIDDLESTONE CT	WAKE FOREST NC 27587-5331
PERVEILER, KEVIN J PERVEILER, MARIA	2605 LORING LAKE DR	WAKE FOREST NC 27587-5455
PETERSON, GREGORY CLARK TRUSTEE PETERSON, BARBARA MELVIN TRUSTEE	2420 CANONBIE LN	WAKE FOREST NC 27587-5450

PIMENTEL, JESSE G PIMENTEL, ROSEMARY	8044 HOGAN DR	WAKE FOREST NC 27587-6661
PLEASANTS FAMILY LLC	3023 DEVONSHIRE DR	RALEIGH NC 27607-6619
PLEASANTS, CHRIS	9142 JACKSON RD	WAKE FOREST NC 27587-7985
PLUEDDEMANN, MICHAEL L PLUEDDEMANN, NANCY W	8022 HOGAN DR	WAKE FOREST NC 27587-6661
PONSOLLE, DAWN	1329 COUNTRY CLUB DR	WAKE FOREST NC 27587-8772
POOLE, TARA C	994 W DURNESS CT	WAKE FOREST NC 27587-4919
POTTER, MARCUS H III TRUSTEE POTTER, CATHERINE O TRUSTEE	8048 HOGAN DR	WAKE FOREST NC 27587-6661
POWELL, ANNE H	2505 CANONBIE LN	WAKE FOREST NC 27587-8766
PRATT, JOEL MICHAEL PRATT, LINDA	2409 CANONBIE LN	WAKE FOREST NC 27587-8765
PRUITT, DELORES	1109 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
QUALLS, JEREMY B QUALLS, THOMAS	1100 CHILMARK AVE	WAKE FOREST NC 27587-5358
RAMSARAN, MICHAEL RAMSARAN, CHARMAINE	1303 CLUB VILLAS DR	WAKE FOREST NC 27587-4537
REDMAN, JOHN MICHAEL	1212 COUNTRY CLUB DR	WAKE FOREST NC 27587-9545
REITMANN, ROBERT	1304 CLUB VILLAS DR	WAKE FOREST NC 27587-4536
RETTIG, THOMAS RETTIG, AMY	8021 HAWKSHEAD RD	WAKE FOREST NC 27587-6681
RIDDLE, SHERRY JAYNE RIDDLE, JAMES CARL	7729 KINGS WAY CT	WAKE FOREST NC 27587-6670
RINDONI, CAROL F	1431 COUNTRY CLUB DR	WAKE FOREST NC 27587-8774
RITCHEY, BRIAN C TRUSTEE RITCHEY, MARY ELLEN TRUSTEE	8033 HOGAN DR	WAKE FOREST NC 27587-6662
ROBERTS, ANGELIKA LESMANA ROBERTS, JAMES CARTER	986 W DURNESS CT	WAKE FOREST NC 27587-4919
RODRIGUEZ, PATRICK ANTHONY RODRIGUEZ, BRENDA KAYLANEY	1231 COUNTRY CLUB DR	WAKE FOREST NC 27587-8770
ROGGE, BEVERLY J TRUSTEE GAIL E AND BEVERLY J ROGGE TRUST	1117 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
ROSE, MELINDA FLETCHER TRUSTEE THE MELINDA FLETCHER ROSE REVOCABLE TRUST	7704 FAIRLAKE DR	WAKE FOREST NC 27587-5452
ROUSSEAU, CHERYLL E	1110 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5179
RUDA, EMILY	1104 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5179
RUPRICH, MARK A RUPRICH, KAREN M	7708 FAIRLAKE DR	WAKE FOREST NC 27587-5452
RUPSKY, MARK J RUPSKY, PENNY L	1311 CLUB VILLAS DR	WAKE FOREST NC 27587-4537
RUSSELL, RENO RUSSELL, LAKEYA	1209 CHILMARK AVE	WAKE FOREST NC 27587-5336
RYAN, BARBARA A	2609 LORING LAKE DR	WAKE FOREST NC 27587-5455
SAMUEL, NEELAM JEWELL, JEFFREY	1116 CHILMARK AVE	WAKE FOREST NC 27587-5333
SAPP, ANDREW J SAPP, JO ANN	7801 HOGAN DR	WAKE FOREST NC 27587-6696

SCHRIER, MARK E SCHRIER, TARA EILEEN	7733 KINGS WAY CT	WAKE FOREST NC 27587-6670
SEAMSTER, IRA SEAMSTER, DENISE	994 KINTAIL CT	WAKE FOREST NC 27587-4918
SFR JV-1 2020-1 BORROWER LLC TRICON AMERICAN HOMES LLC	1508 BROOKHOLLOW DR	SANTA ANA CA 92705-5426
SIMS, YVONNE M	1307 CLUB VILLAS DR	WAKE FOREST NC 27587-4537
SLIWINSKI, NICOLAS SILWINSKI, CARISSA	8034 HOGAN DR	WAKE FOREST NC 27587-6661
SMITH, KYLE CHRISTOPHER SMITH, CAROLINE ROSE	995 SAINT CATHERINES DR	WAKE FOREST NC 27587-6642
SMITH, MARY ELIZABETH K	120 KEETER CIR	WAKE FOREST NC 27587-6687
SMITH, RICHARD C SMITH, CYNTHIA M	7605 HEURISTIC WAY	WAKE FOREST NC 27587-9000
SNOW, WILLIAM T SNOW, AMY M	1200 CHILMARK AVE	WAKE FOREST NC 27587-5335
SOTELO, NASHELY G SANCHEZ, BRYAN VALLEJO	3302 COMSTOCK RD	RALEIGH NC 27604-3464
SOWA, AUDREY	405 SHANNONFORD CT	WAKE FOREST NC 27587-9005
SPEAS, EDWIN M III SPEAS, POLLY ANNA	7612 LITERARY LN	WAKE FOREST NC 27587-9053
SPRUILL, LORENZA DALLAS III SPRUILL, KAREN	2506 PALMER CT	WAKE FOREST NC 27587-6445
STAFFORDSHIRE HOMEOWNERS ASSOC INC SENTRY MGMT INC	2180 W SR 434 STE 5000	LONGWOOD FL 32779-5042
STALLINGS, RICHARD N STALLINGS, ROBIN A	7620 HEURISTIC WAY	WAKE FOREST NC 27587-9000
STEVENSON, PETER STEVENSON, CATHI A	1108 CHILMARK AVE	WAKE FOREST NC 27587-5358
STYLES, JACK B STYLES, JUANITA L	2524 CANONBIE LN	WAKE FOREST NC 27587-9010
SUCHER, AARON SUCHER, SOU	7724 KINGS WAY CT	WAKE FOREST NC 27587-6670
SUTHERLAND PTNR LLC	818 S WHITE ST	WAKE FOREST NC 27587-2961
SWINDELL, KEVIN J SWINDELL, BERNADINE F	1213 CHILMARK AVE	WAKE FOREST NC 27587-5336
THARPE, JOHN W JR STRONG, PATRICIA MITCHELL	8025 HAWKSHEAD RD	WAKE FOREST NC 27587-6681
TOLLENS, MARY	991 W DURNESS CT	WAKE FOREST NC 27587-4919
TORRENCE, TARA MAPLES	7625 HEURISTIC WAY	WAKE FOREST NC 27587-9000
TOWN OF WAKE FOREST %PLANNING DEPT	301 S BROOKS ST	WAKE FOREST NC 27587-2932
TURNER, LEO R JR	8001 HAWKSHEAD RD	WAKE FOREST NC 27587-6681
UPTON, KEVIN C UPTON, MITZI M	1358 COUNTRY CLUB DR	WAKE FOREST NC 27587-8771
VAN, ORDEN JOHN E VAN, ORDEN AMARILIS	8036 HAWKSHEAD RD	WAKE FOREST NC 27587-9420
VARNEDOE, WILLIAM S VARNEDOE, WANDA C	2412 CANONBIE LN	WAKE FOREST NC 27587-5450
VELASQUEZ, NOEMY VELASQUEZ, WERNER ROLANDO	999 W DURNESS CT	WAKE FOREST NC 27587-4919
VIGARI, VINCENT F GALLOWAY, KAY C	7608 HEURISTIC WAY	WAKE FOREST NC 27587-9000

VOLLMER, CHARLES B VOLLMER, STELLA	1118 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5179
VUKOVICH, FRED M VUKOVICH, NADINE M	8033 HAWKSHEAD RD	WAKE FOREST NC 27587-6681
WADFORD, NYLE F WADFORD, TERESA H	8019 HOGAN DR	WAKE FOREST NC 27587-6662
WAKE UNION BAPTIST CHURCH	13345 WAKE UNION CHURCH RD	WAKE FOREST NC 27587-7451
WAKE UNION BAPTIST CHURCH %EARL PLEASANT TRUSTEES	13345 WAKE UNION CHURCH RD	WAKE FOREST NC 27587-7451
WALLACE, MARK FRANKLIN WALLACE, NICOLE J	7906 HOGAN DR	WAKE FOREST NC 27587-6659
WALSH, DANIEL F WALSH, MICHELLE R	1204 CHILMARK AVE	WAKE FOREST NC 27587-5335
WARE, VALERIE T WARE, ARCHIE L	7807 HOGAN DR	WAKE FOREST NC 27587-6696
WEBER, KEITH A WEBER, CATHERINE J	1136 CHILMARK AVE	WAKE FOREST NC 27587-5333
WENNINGER, STEPHAN FRIEDRICH WENNINGER, SARAH LESLIE	2501 CANONBIE LN	WAKE FOREST NC 27587-8766
WILLIAMS, TRAMPAS	1113 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5180
WU, THUAN WU, MINH LUU	7818 HOGAN DR	WAKE FOREST NC 27587-6695
YAMASA CO LTD	PO BOX 4090	SCOTTSDALE AZ 85261-4090
YARMOLIK, TATSIANA YARMOLIK, ANDREI	995 W DURNESS CT	WAKE FOREST NC 27587-4919
YAROSH, DANIEL YAROSH, LORI	7815 HOGAN DR	WAKE FOREST NC 27587-6696
YATES, SANDRA J YATES, BURL E	8005 HAWKSHEAD RD	WAKE FOREST NC 27587-6681
ZELVIS, MICHELE HOFFMAN	1120 FAIRWAY VILLAS DR	WAKE FOREST NC 27587-5179
ZENESKI, ANDREW JOSEPH SR ZENESKI, ANNE BRUMMITT	1214 CHILMARK AVE	WAKE FOREST NC 27587-5335
ZHAO, BAIRU	12310 ANGEL FALLS RD	RALEIGH NC 27614-7619

PREPARED BY: Nec Ghosh
PRINTED NAME

SIGNATURE

SWORN AND SUBSCRIBED BEFORE ME ON THIS THE 4th DAY OF APRIL 2022

Robin Edwards
NOTARY PUBLIC

MY COMMISSION EXPIRES: 2/10/2027

ROBIN EDWARDS
My Commission Expires
NOTARY PUBLIC
February 10, 2027
WAKE COUNTY, NC

EXHIBIT C

SUMMARY OF DISCUSSION ITEMS

On Wednesday, March 30, 2022, at 6:00 p.m., the applicant held a neighborhood meeting for a proposed project on the former Wake Forest Golf Club Property. This was the second of two community wide meetings held by the applicant regarding this project. A number of additional meetings with members of surrounding neighborhoods also were held. A summary of the questions asked and answered is offered below.

What methodology did you use to determine who was within 500 ft of the planned development? Parcel 0164255 (the island) is not fully shown on your map so did you measure 500 ft from it? Was the Fairlake HOA notified? We do not like the short notice provided. It appears calculated to minimize neighborhood participation. The island parcel inadvertently was included on the original application and was not used to calculate the notification area for the previous meeting. For the latest meeting, we notified the property owner of record, according to Wake County Tax Records, for properties within 500-ft of the parcels with PIN#s 1831895139; 1841091336; 1832712652; 1831773725; & 1831772476.
What is planned for the 4 acre island of land between Hawkshead and Country Club Downs (Parcel 0164255)? Nothing is planned for that parcel. It is not part of the project.
Joyner now has another LLC Green Timber (Feb 2021) and it is now a 50% owner (Jan 2022) What is the relationship between Dry and Green Timber? Our understanding is that Mr. Joyner is involved with both entities and that they current ownership structure is for both estate and tax planning purposes.
Are you aware of the Town's comment that the Riverstone open space (2 lots) should not be included in the plan? (REID: 0237544; 0230586.) Will they be removed from the next plan submitted? Those parcels no longer will be included in the application.
Once the community is built, who will own the open space? If this project is built out, there will be one or more HOA entities which will own the private open space after the community is built. The project also contemplates dedicated/donating 19-acres of land to the Town for a public park and as part of the Town's greenway system.
What is your understanding of the restrictive covenants for the area west of Horse Creek? Do you plan to respect those covenants? While we cannot speak to their validity, the plan has been revised in a manner which we believe complies with the spirit of those covenants.

How many parks are planned for the neighborhood? At least 25% of the park space must be active. What are your plans for active open space?

There are 4 neighborhood parks planned as amenities for the proposed community. We have planned about 5.32 acres in this project for neighborhood parks. We do not yet have a design for the active amenities, but the UDO does require a certain percentage to be active. We will be meeting that requirement and possibly exceeding it. Those active areas can include any number of amenities, but that has not yet been determined. There also is a set aside of 19 acres for a public park and the planned greenway, which ultimately will be a public amenity. We do not yet have plans for how the open spaces will be programmed.

How are you addressing the UDO requirement to for all residences to be within ¼ mile of a park?

We believe the proposed layout complies with this UDO requirement.

Are there no trees in your parks? How will shade be provided?

All areas that are classified as meeting the neighborhood park requirement will meet UDO requirements which require trees within the park areas.

How is your "proposed" park area along Horse Creek Accessible to the Town residents? Where is the parking? What waivers are required to create park structures like paths and picnic tables etc.? Have you applied for them? To whom? Contact information? How is this park to be connected to the TOWN since there is no access to Purnell or Jenkins?

We are proposing to dedicate approximately 19 acres of land to the Town of Wake Forest for use as a park and as part of the Town's planned Greenway system. The Town is proposing a greenway trail along Horse Creek where it traverses our property and beyond. Access, parking, structures, connectivity and all those things about both the park and the greenway trail probably will not be determined until sometime in the future when the Town designs those features.

Were you aware that the property was zoned R40W when the SUP was approved? Did you have any indication from the city or the planners that you did not need to take that zoning into consideration?

We were aware of the previous zoning, but we had no involvement in the original SUP or zoning. The current zoning is GR-3, PUD; we also had no involvement in that change either. The Town did not tell us we needed to take into consideration the previous R40W zoning district that was changed over 20 years ago.

According to your calculations on your application, there will be fewer than 3 houses per acre. That is consistent with GR3. Why do you want to rezone to GR10?

We plan to offer housing types like townhomes and lot sizes that are not available in the GR-3 zoning. Nevertheless, our proposed zoning limits our density to no more than 3 units per acre.

Are you willing to take 3 water quality samples on Horse Creek if your plan is approved? Before during and after at both edges of the property and in the middle?

We will conduct all testing as required by local, state, and national agencies. We do not know whether this specific test will be required.

If the proposed construction takes place, it could potentially alter the water quality in adjacent neighborhoods that rely on well water. Is the developer willing to pay for public water access to these houses? It is no good to say we will test your well water once after construction since this could happen years later and then where will the developer be?

Our development will use water provided by the City of Raleigh Water Department which draws its water from Falls Lake, Lake Benson and Lake Wheeler. We do not know of any nexus between this project's public drinking water supply and the adjacent lots' well water. We have seen no information which suggests that underground reservoirs are impacted by municipal utility systems. In fact, it is our understanding that adding more wells, for example, would have a greater impact on existing well water supply than bringing in municipal utilities.

Have you gotten permission to build a road across the ponds? What are the issues? Who is the DEWQ POC you are dealing with? We want to see the drawings of the bridge.

No, we do not have permission to cross the stream at this time. We have not yet sought it, but we do think the crossing is likely to be a culvert rather than a bridge.

What are the calculations that show the area drained by this Storm Control Ponds and that it will hold that flow? UDO states 2 year flood requirement but this seems too lenient for an actual watershed area as well as flood prone zone.

Design of the stormwater control measures will be completed during the construction drawings preparation following rezoning and site plan approval. For High-Density developments as proposed for the Joyner Parcel, stormwater control measures (SCMs) will be designed such that the post-development runoff will be controlled to be equal or less than the pre-development runoff for the 1 year, 24 hour and the 10-year, 24 hour storms. In addition, the SCMs will have to be designed to meet maximum nutrient (i.e., nitrogen and phosphorous) loading rates.

Has any study of the environmental impacts of the proposed development been conducted-especially the impact of such a radical change in the density of the proposed housing units? (E.g. wetlands survey, environmental impact study, etc.) If yes, by whom and can the residents get a copy? If no, will such a study be conducted?

Wetland and streams have been delineated and the next step will be to get Corps concurrence. As design progresses during the construction drawings phase, impact maps will be prepared that detail the proposed impacts to wetlands, streams, and stream buffer. An environmental impact study is not required and will not be conducted.

Has there been any thought as to the availability of water with the growing number of residences in Wake Forest? The 2008 drought drove water supply down drastically. What would happen if another drought occurred?

Drinking water supply for the Town of Wake Forest is served by the City of Raleigh. Per recent information obtained from the City of Raleigh, the City's long term drinking water position is very strong. The City's current average daily water demand is around 52 million gallons/day (MGD), which almost is exactly what it was in 2007. This means that 15 years after the last major drought, the City is using approximately the same amount of water, despite adding 10,000 to 11,000 new residents per year to their service area. The reason behind this strong position is water conservation measures, which have extended the City's current water resource portfolio by probably 20 to 25 years. Additionally, in a bold move that literally required an Act of Congress, the City was able to reallocate 4.1 billion gallons of water in Falls Lake. As a result, the City was able to add water storage without actually constructing a new reservoir, which is an incredibly expensive and long process. In short, based on conservative projected water use scenarios, the City's current resources would provide sufficient water supply through 2047 or so. Using more realistic water use projections, water use would trend significantly lower, which extend water supply well beyond the City's traditional planning boundary.

Is the Horse Creek floodplain area sufficiently large to protect the proposed residences in the event of flooding such as occurred in 1996 with Hurricane Fran? How much regrading will be required in the vicinity of the horse Creek Corridor and floodplain? How will regrading affect the ecological balance of the corridor both in the short and long term? What kind of storm water control measures will there be to protect the corridor? The applicant is not the authority which determines the floodplain area. FEMA puts out Flood Rate Insurance Maps; the Army Corp also has some involvement in these types of determinations; and there probably are other governmental entities involved. Whatever the case, we are going to have to follow all local, state, and federal regulations in designing this project with reference to Horse Creek and the flood plain.
What is the amount of impervious surface area in the developed areas---not in relation to the whole property? I cannot answer this question because that is not how impervious is calculated for new development. Impervious surface is looked at wholistically. The Town's UDO specifically states that I*mpervious surface/built-upon area calculations are made based on the total acreage of built-upon area within a proposed development, divided by the total acreage of the lot area.* We are proposing to build this under the high impervious development option, so the maximum impervious coverage, per the UDO, cannot exceed 70%.
Will peripheral lots and houses be developed consistent with the abutting communities per UDO? This means ¾ acre lots and compatible housing sizes and design. The section west of Horse Creek has been revised to be consistent with the previous agreement put in pace for new development in that section of the property. The minimum lot size there is 30,000 sf.
We want to see scale drawings all the dwelling type units you plan to build with a properly scaled human next to it. Square Footage for Each type. Representative floor plan and price ranges for each house type. Toll Brothers has a contract option on the Property. They are designing new product line for this site and do not have elevations at this time. Regardless, their average sales price nationwide in 2020 was $816,500.00. Locally, the data through October of 2021 suggests that Toll has sold about 226 homes in the Triangle with an average sales price of $667,961. Toll's average sales price locally is about 50% higher than other national builders in this market. They have positioned themselves as a luxury builder, and that is what they plan to build within this community.
Do you have covenants prepared? Can we see them? No, we do not have covenants prepared. That step does not come until much later in the process.
Are you going to delete the TOWN homes along Capital BLVD as the Town Planning department recommended? We are leaning towards a fully residential project, but Town staff have been adamant about commercial along Capital. There has been a vacant commercial property right next to this project for some time which still has not been pursued. So, we have our doubts about the viability of even more commercial.
Have you rearranged houses that are in the Capital Blvd access RD overlay? What is the current total proposed housing count? Do you have a master plan we can see? When can we see it? The section along Capital has been revised on account of the service road NCDOT is requiring in this area.

Why have you not consistently met the Wake Forest 100 ft set back from creeks and ponds in you planning? Does your new plan address that? When can we see it? The project will be required to meet the UDO standards. Town staff will be reviewing these plans to ensure compliance with those standards. So, if we have shown development in an area where a riparian buffer is required, the Town will make us move it. That having been said, we believe the layout shown is compliant with required riparian buffers.
with the new housing in the northwest, what is the buffer The buffer against Country Club Downs in the revised drawing is the same as it was in the previous drawing; 20 feet. The buffer along Hawkshead has been revised. It varies from a width of about 150 feet to 120 feet.
Will existing homeowners be grandfathered into any amenities memberships? This is something we can ask the builder about.
How will the units west of Horse Creek be accessed and how will Hogan drive be expanded? Those lots are proposed to be accessed via existing Simpson Court which stubs to the property. We have not yet been told that Hogan Drive will need to be improved or expanded as a result of this project.

EXHIBIT D

NEIGHBORHOOD MEETING ATTENDEES

APPLICANT TEAM		
Name	**Email**	**Organization**
Laura Holloman	holloman@mcadamsco.com	McAdams
Nil Ghosh	nghosh@morningstarlawgroup.com	Morningstar Law Group
Mike Sanchez	sanchez@mcadamsco.com	McAdams
ATTENDEES		
Name	**Email**	**Address**
Carol Pelosi	cwpelosi@aol.com	1255 South Main Street
Mary Horton	beth.horton88@yahoo.com	1101 Fairway Villas Dr
Patrick Rodriguez	patriklos@netscape.net	1231 Country Club Dr
Mary Kircher	mkircher@nc.rr.com	-
David Michaels	dmichaels659@gmail.com	-
Travis Lile	tjl0809@gmail.com	7806 Hogan Dr
TARA SCHRIER	tara.schrier@systemsnhand.com	7733 KINGS WAY COURT
Karen Schlett-Evaldi	Kschlett@nc.rr.com	-
Mark Ruprich	mkruprich@icloud.com	-
Tom Anhut	tjanhut@anhutprop.com	610 Presidents Walk Lane
Richard Ostergard	richard.ostergard@gmail.com	-
Lynn Joyner	lynn.joyner@duke.edu	-
Subir Mukherjee	Keepitopen27587@gmail.com	-
Kathryn Mellon-Kusibab	Kmellonkusibab@msn.com	2552 Palmer Court
John DeFore	jd41117@msn.com	7914 Hogan Drive
Eugene Hamilton	mylincolnls@hotmail.com	8030 Hogan Drive
Gina Micchia	Micchiag@gmail.com	-
John Iapalucci	yappi2020@gmail.com	2514 McGowan Court
Elizabeth Manley	epmanley@aol.com	8024 Hawkshead Rd
Mikayla	Mikaylahorner@gmail.com	Hogan Dr
Lee Perry	leebperry12@gmail.com	208 Middlestone Court
Maria Harkley	Mgarcia02909@yahoo.com	7910 Hogan Drive
Ruth Nassif	uncann69@aol.com	8012 Hawkshead Rd
Keith Weber	snoops.coleus-01@icloud.com	-
Carissa Sliwinski	carissasliwinski@hotmail.com	8034 Hogan Drive
Delia Bowers	deebowers5@gmail.com	1230 Country Club Drive
George MASSEY	Gdennismassey0618@gmail.com	2513 Canonbie Lane
Michael Durham	m14durham@gmail.com	2421 CANONBIE LN
Ann Van Orden	vanordenbookkeeping@gmail.com	8036 Hawkshead Road
Jo Anne Lester	jozillabone@gmail.com	1352 Country Club Dr
Timothy Sexton	timothyrsexton@gmail.com	400 E CEDAR AVE
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Mary Defore	apple27803@aol.com	7914 Hogan Drive
Nyle Wadford	dixieblitz@hotmail.com	8019 Hogan Dr.
Jean	Jeanpatchel@gmail.com	-

Angie Wright	Awright25@nc.rr.com	-
Kevin Upton	kupto@aol.com	1358 country club drive
CALL-IN PARTICIPANTS		
1-919-949-1947		
1-919-427-2572		
1-516-522-1740		
1-919-614-2645		
1-919-302-2651		

Conditional District Rezoning Application

(Conditional District Rezoning Workflow)

Town of Wake Forest, NC
301 S. Brooks St.
Wake Forest, NC 27587-2932
TEL (919) 435-9510 | FAX (919) 435-9539

Project Overview #620129

Project Title: Joyner Property Conditional District Rezoning
Application Type: Conditional District Rezoning
Workflow: Conditional District Rezoning
Jurisdiction: Town of Wake Forest (Wake County)
State: NC
County: Wake

Submittal Requirements

A submittal checklist is available to view additional documents which are required to submitted with this application. After answering the application questions, you will be asked to upload the required documents.

VIEW CONDITIONAL DISTRICT REZONING SUBMITTAL CHECKLIST

Missing items will result in the application being declined and returned to the applicant to resubmit. A revised and complete application including all missing items must be received or the application will be not be deemed complete and routed for review.

Please confirm you have reviewed the associated submitted checklist for this permit and confirm you will submit all documents required on the submittal checklist: Yes

Pre-Application Meeting

Has a pre-application conference been held?: Yes

*Note: This type of project requires a pre-application conference be completed prior to official submittal. If this has not been completed, please return to the home screen and select **Pre-Application Conference** from the application type drop down list in order to schedule your required meeting.*

Pre-Application Conference Date:
Staff Member Met With: Patrick Reidy
IDT Project Number: RZ-21-08

Address & Basic Site Information

Please Note:
In some cases, a parcel address may not verify. In the event that our system is unable to verify the address you enter, please submit the project as an *Unverified Parcel* and provide zoning and land use information as requested below. For verified addresses, the zoning and land use information will be added to the application automatically (you do not need to provide it below).

Project Address or PIN: 1200 CLUB VILLAS DR (1831895139)
Tax PIN: 1831895139

Acreage: 149.66

Name of Existing Development/Subdivision (if applicable--for reference only): Joyner Property Conditional Rezoning

For unverified addresses/parcels only, please provide below 1) the current use of the parcel, 2) the zoning district(s) it is in, and 3) any overlay districts that apply. Reference the zoning map and the overlay districts map on the town's website.

Current Use & Zoning (required only if address/parcel is unverified):

*Note: Projects falling outside the limits of the Town or ETJ will be required to submit an annexation petition in conjunction with their project submittal. In this case, please return to the home screen and select **Annexation Petition** from the application type drop down.*

GIS Site Information (Automatically Generated - Not Available for Unverified Addresses)

Parcel Area: GIS Acreage

- 1200 CLUB VILLAS DR: 147.1

Current Use:

Wake Forest (WF):

Planning and Zoning:

Base District: Zoning

- 1200 CLUB VILLAS DR: CU GR3

In SH1-O Overlay:

In SH2-O Overlay:

In Water Supply Watershed Protection Overlay:

In TND Overlay:

In SF Overlay:

In HL-O Overlay:

In MVCP-O Overlay:

In National Register of Historic Places:

In Flood Hazard Area:

Additional Zoning Information

Currently a Conditional District?: Yes

Currently a Conditional Use?: Yes

Is there an existing Special Use Permit for the Property?: Yes

Related Town of Wake Forest Case Numbers: SU-99-02; RZ-96-12

Project Contacts

Please enter all project contacts related to your application.

This is an important step to ensure all members of the applicant team receive email notifications associated with the project which may include comments, requested revisions, scheduled meetings or hearings, and final decisions. This also informs Town staff of the team members assigned role with the project.

Project Contact - Applicant
Laura Holloman
McAdams Company
2905 Meridian Parkway
Durham, NC 27713
P:919-361-5000
holloman@mcadamsco.com

Project Contact - Property Owner
Carroll Joyner
Green Timber Foundation
394 Fleming Road
Youngsville, NC 27596
P:(919) 556-5418

Project Contact - Developer
James Adams Jr
Mill Ridge Investments
919 S. Main Street
Wake Forest, NC 27587
P:919-556-5418

Project Contact - Engineer
Mike Sanchez
McAdams Company
2905 Meridian Parkway
Durham, NC 27713
P:919-815-4368
sanchez@mcadamsco.com

Project Contact - Traffic Engineer

Project Contact - Attorney

Brittany Chase
Exult Engineering
P.O. BOX 99277
Raleigh, NC 27624
P:984-500-5428
brittany@exultengineering.com

Nil Ghosh
Morningstar Law Group
112 W. Main St
Durham, NC 27701
P:919-590-0362
nghosh@morningstarlawgroup.com

Transportation Impact Analysis

As per Section 6.11.1 of the UDO is the project required to provide a Traffic Impact Analysis (TIA)?: Yes

Was the TIA reviewed in a separate permit prior to this application?: No

Project Number:

For projects requiring a TIA, a separate TIA application must be submitted in conjunction with this application. Please review the TIA submittal checklist and submit a ***Transportation Impact Analysis Review*** application in IDT.

If the request is to a Conditional District (CD), this application should be accompanied by a master plan that includes land use, existing conditions, buildings, lots, etc. per Chapter 15 of the UDO. In addition, please provide a narrative of the proposed use and list any proposed conditions.

Proposed Conditional Zoning District: GR10-CD, General Residential 10

Proposed Land Use:
Residential Subdivision; town park.

Proposed Number of Lots: 336

Number of Buildings: 0

Number of Single-Family Lots: 208

Number of Townhome Lots: 128

Number of Multi-Family Units: 0

Number of Stories: 2

Square Footage of All Buildings (non-residential): 0

Plan Information - Conditional Rezoning

Description of Request:
A residential subdivision consisting of 208 single-family lots and 128 townhome lots, for a total of 336 lots.

Initial Proposed Conditions Offered by Applicant:
1. ALL DEVELOPMENT WILL COMPLY WILL ALL REQUIREMENTS OF THE TOWN OF WAKE FOREST UNIFIED DEVELOPMENT ORDINANCE (UD0) UNLESS EXPRESSLY STATED AS AN EXCEPTION, AND WILL COMPLY WITH APPROVED MASTER PLAN AS SUBMITTED WITH THIS REZONING

APPLICATION.

2. THE DEVELOPMENT SHALL HAVE A MAXIMUM DENSITY OF 3 UNITS PER ACRE.

3. VINYL SIDING SHALL NOT BE PERMITTED; HOWEVER, VINYL WINDOWS, DECORATIVE ELEMENTS, AND TRIM ARE PERMITTED.

4. ANY EXTERIOR WALL OF A UNIT VISIBLE FROM A STREET SHALL CONTAIN AT LEAST THREE DECORATIVE ELEMENTS SUCH AS, BUT NOT LIMITED TO, THE FOLLOWING ELEMENTS:

a. WINDOWS;

b. BAY WINDOW;

c. RECESSED WINDOW;

d. DECORATIVE WINDOW;

e. TRIM AROUND WINDOWS;

f. SIDE PORCH;

g. TWO OR MORE BUILDING MATERIALS;

h. DECORATIVE BRICK OR STONE;

i. DECORATIVE TRIM;

j. DECORATIVE SHAKE;

k. DECORATIVE GABLE;

l. DECORATIVE CORNICE;

m. PORTICO;

n. DORMER.

5. A VARIED COLOR PALETTE SHALL BE UTILIZED ON BUILDINGS THROUGHOUT THE DEVELOPMENT TO INCLUDE A MINIMUM OF THREE COLOR FAMILIES FOR SIDING AND SHALL INCLUDE VARIED TRIM, SHUTTER, AND ACCENT COLORS COMPLIMENTING THE SIDING COLOR.

6. DEVELOPED OPEN SPACE AND PARK SPACE MAY CONTAIN, BUT NOT LIMITED TO, THE FOLLOWING ELEMENTS: WALKING TRAILS; SWIMMING POOL; CLUBHOUSE; BUTTERFLY GARDENS; FITNESS CENTER; DOG PARK; COMMUNITY GARDEN; HAMMOCK LOUNGE; FIREPITS. THE PARK SPACES PROVIDED IN THE DEVELOPMENT SHALL BE A MINIMUM OF 2,000 SQUARE FEET AND A MINIMUM OF FOUR (4) PARKS SHALL BE PROVIDED THROUGHOUT THE DEVELOPMENT (SECTION 7.5.1).

7. TRADITIONAL BUILDING SETBACKS AS OUTLINED IN TABLE 2.2.5. C. SHALL NOT BE APPLICABLE TO BUILDINGS SHOWN WITHIN THIS DEVELOPMENT. YARD REQUIREMENTS SHALL BE REQUIRED PER THE SITE DATA TABLE.

8. THE BUILDINGS ERECTED WITHIN THIS DEVELOPMENT SHALL NOT BE SUBJECT TO TRADITIONAL YARD REQUIREMENTS AND SHALL ONLY BE SUBJECT TO A BUILDING SEPARATION REQUIREMENT OF SIX FEET (SECTION 4.4.3). YARD REQUIREMENTS SHALL BE REQUIRED PER THE SITE DATA TABLE.

9. ALTERNATIVE STREET SECTION DESIGN SEE TYPICAL SECTION C0.00 (SECTION 6.7.2).

Justification of Consistency with Comprehensive Plan: The Growth Strategies Map identifies the subject property as part of the Sub-Urban Zone, which falsely states that land within this designation does not have access to utilities. However, as previously stated, the project area does have access to public utilities at this time.

The following policies are applicable to our request:

Principles for Neighborhood Planning Areas:

- Principle 4: Design the streets (layout and width primarily) according to their intended use.

Principle 5: Rather than building large, single-use subdivisions, build full-service neighborhoods, with residentially services close at hand. Vary the types and price-points of housing to encourage social and economic diversity in each planning area.

The associated Conditional Use Rezoning master plan proposes a variety of housing types on the subject property: traditional front-loaded single-family lots, alley-loaded single-family lots, as well as townhomes. All these differing housing types equates to multiple price points within the community, something the Towns Community Plan is striving to create.

Policies for Future Neighborhoods:

Policy FN-1: To minimize sprawl and land consumption, and to promote a walkable community, most new neighborhoods should be compact in form.

Policy FN-2: New neighborhood streets should be no wider than necessary to serve their intended purpose.

Policy FN-7: As new neighborhoods are developed, a mixture of housing types, sizes, and prices shall be encouraged within the bounds of each neighborhood planning area.

Policy FN-9: New neighborhoods should be connected to other neighborhoods, shopping, and work areas within the neighborhood planning area.

Policy FN-10: Street designs in new neighborhoods should give equal priority to the pedestrian and the automobile.

The proposed residential development will be required to provide sidewalks on both sides of internal streets throughout the development. Additionally, a public greenway will be constructed along Horse Creek, consistent with the Towns Park and Recreation plan and will result in a walkable community, which both local and regional residents alike can enjoy. Streets will be designed to be no wider than necessary to serve the intended local traffic. As mentioned elsewhere, the proposed development will feature a mixture of housing types and sizes which will result in varying price points offered within the community. Street design is also focused on safe and efficient street networks, and avoids long straight-ways whenever possible, which minimizes high vehicular speeds.

Policies for Parks, Open Space, and Recreation:

Policy PR-1: The Town, in cooperation with private sector

interests, should continue to develop a system of open space greenways and walking trails to connect residential areas with, especially, schools and park facilities. The use of (1) natural corridors such as streams and floodplains, and (2) man-made corridors such as utility and transportation rights-of-way and easements, should be emphasized.

Policy PR-2: Mini parks should continue to be supported in existing and proposed neighborhoods to meet the needs of small children and the elderly, an to encourage social interaction and mutual support among area families. Arrangements for some maintenance of new mini parks by volunteers should be preferred.

As previously mentioned, there will be a public greenway built along Horse Creek that will allow the connection of neighborhoods and set a precedent for a regional greenway to be established as adjacent properties develop. A public park will also be developed on-site and will result in an environment where residents, young and old, can gather to enjoy the outdoors and natural open spaces.

Policies for Community Character:

Policy CC-5: Large Trees, ponds, creeks, or other natural features of the landscape should be saved when locating new streets, buildings, parking lots, etc.

As shown on the Special Use Permit Master Plan, Horse Creek will be maintained in its natural state and will be incorporated into overall open space for the Town, as it is planned to be a Town Park. Additionally, there are two existing ponds on-site that are also included within the developments open space, neither of which will be drained.

Policies for Street Trees:

Policy ST-5: The planting or preservation of street trees of appropriate size and species should continue to be required as part of the upfront costs of all new development, in accordance with the Towns Street tree planting master plan.

As shown on the Conditional Rezoning Master Plan, street trees are proposed throughout the proposed development.

Therefore, on balance, the proposed plan is consistent with officially adopted plans and policies of the Town.

PROPOSED JOYNER PROPERTY ZONING CONDITIONS (DATED 10/5/23)

1. SUBDIVISION MASTER PLAN (SD-21-10) IS A CONDITION OF THE REZONING REQUEST. AMENDMENTS OF THE MASTER PLAN SHALL REQUIRE A REZONING AMENDMENT UNLESS THE ADMINISTRATOR FINDS THE MODIFICATION TO BE MINOR AND IN KEEPING WITH THE SPIRIT AND INTENT OF THE ADOPTED SUBDIVISION MASTER PLAN.

2. THE DEVELOPMENT SHALL HAVE A MAXIMUM DENSITY OF 3 UNITS PER ACRE.

3. VINYL SIDING SHALL NOT BE PERMITTED; HOWEVER, VINYL WINDOWS, DECORATIVE ELEMENTS, AND TRIM ARE PERMITTED.

4. THE FOLLOWING SHALL APPLY TO ALL SINGLE-FAMILY DETACHED AND TOWNHOMES (EXCEPT FOR LOTS 157-182; 201-206), ANY EXTERIOR WALL OF A UNIT VISIBLE FROM A STREET SHALL CONTAIN AT LEAST THREE DECORATIVE ELEMENTS SUCH AS, BUT NOT LIMITED TO, THE FOLLOWING ELEMENTS:
    a. BAY WINDOW;
    b. RECESSED WINDOW;
    c. DECORATIVE WINDOW;
    d. SIDE PORCH;
    e. TWO OR MORE BUILDING MATERIALS;
    f. DECORATIVE BRICK OR STONE;
    g. DECORATIVE TRIM;
    h. DECORATIVE SHAKE;
    i. DECORATIVE GABLE;
    j. DECORATIVE CORNICE;
    k. PORTICO;
    l. DORMER.

5. TOWNHOMES IN THE AREA NUMBERED 157-182; 201-206 WITHIN THE MASTER PLAN SHALL BE SUBJECT TO THE FOLLOWING ARCHITECTURAL CONDITIONS:
    a. END UNITS SHALL BE AT LEAST 34’ WIDE. INTERIOR UNITS SHALL BE AT LEAST 28’ WIDE.
    b. EACH UNIT SHALL HAVE AT LEAST A 2-CAR GARAGE.
    c. EACH UNIT SHALL BE ACCESSED OFF A REAR ALLEY.
    d. NO UNIT SHALL EXCEED TWO FULL STORIES IN HEIGHT.
    e. EACH UNIT SHALL CONTAIN A MINIMUM OF 1,600 SQUARE FEET OF LIVABLE SPACE. THE ACTUAL NUMBER OF UNITS AND LOCATION WILL BE FINALIZED DURING THE CONSTRUCTION DRAWING PROCESS.
    f. ANY EXTERIOR WALL FRONTING A STREET SHALL CONTAIN AT LEAST 3 DECORATIVE ELEMENTS SUCH AS, BUT NOT LIMITED TO, THE FOLLOWING:
        1. BAY, RECESSED, OR DECORATIVE WINDOW.
        2. 3.5” MINIMUM TRIM AROUND WINDOWS.
        3. SHUTTERS.
        4. BALCONY.

5. PORCH, COVERED STOOP, OR PORTICO. ALL WILL BE A MINIMUM OF 5’ IN DEPTH.
6. DECORATIVE TRIM.
7. BRICK OR STONE COVERING THE FIRST FLOOR (TO INCLUDE EXPOSED FOUNDATION), PATTERNED FINISH (SCALES, WAINSCOTTING, ETC.) FOR SECOND FLOOR AND WALLS NOT FACING THE STREET.
8. ROOF ELEMENT (DORMER, TURNED GABLE, CUPOLA). ROOF SHALL NOT VISUALLY REPRESENT ONE LONG SINGLE GABLE.

g. EXTERIOR WALL MATERIALS SHALL BE SOLELY OR A COMBINATION OF; WOOD CLAPBOARD; CEMENTITIOUS FIBER BOARD SIDING; SHINGLE/SHAKE; OR BOARD AND BATTEN; BRICK; AND CULTURED OR NATURAL STONE.
h. VINYL SIDING WILL NOT BE ALLOWED. VINYL WINDOWS, DECORATIVE ELEMENTS, TRIM, AND SOFFITS SHALL BE PERMITTED.
i. EACH BUILDING SHALL INCLUDE A MINIMUM OF PREDOMINANT COLORS/(EXCLUDING TRIM COLORS). NO TWO ADJACENT UNITS SHALL HAVE THE SAME PREDOMINANT COLORS. FRONT DOORS SHALL BE AN ACCENT COLOR DIFFERENT THAN THE PREDOMINANT UNIT COLOR. IN ADDITION, FRONT DOORS SHALL HAVE EITHER A TRANSOM OVER THE DOOR, A SIDELIGHT OR A GLASS DOOR INSERT.
j. ALL FRONT ENTRANCES SHALL BE RAISED FROM THE FINISHED GRADE (AT THE RIGHT-OF-WAY LINE) A MINIMUM OF TWELVE INCHES AND ANY EXPOSED FOUNDATION ON THE FRONT OF THE UNITS SHALL BE BRICK OR STONE.
k. ROOF MATERIALS SHALL BE COMPRISED OF ASPHALT SHINGLES. STANDING SEAM METAL ROOFS SHALL BE PERMITED ON PORCH ROOFS OR COVERED FRONT ENTRY ONLY.
l. FRONT EAVES SHALL PROJECT AT LEAST 2 INCHES FROM THE WALL OF THE STRUCTURE, SIDE EAVES SHALL PROJECT A MINIMUM OF 8 INCHES FROM THE WALL OF THE STRUCTURE. EAVES WILL BE ALLOWED TO ENCROACH INTO SETBACKS AS ALLOWED IN THE UDO.

6. A VARIED COLOR PALETTE SHALL BE UTILIZED ON BUILDINGS THROUGHOUT THE DEVELOPMENT TO INCLUDE A MINIMUM OF THREE COLOR FAMILIES FOR SIDING AND SHALL INCLUDE VARIED TRIM, SHUTTER, AND ACCENT COLORS COMPLIMENTING THE SIDING COLOR.

7. TRADITIONAL BUILDING SETBACKS AS OUTLINED IN TABLE 2.2.5. C. SHALL NOT BE APPLICABLE TO BUILDINGS SHOWN WITHIN THIS DEVELOPMENT. YARD REQUIREMENTS SHALL BE REQUIRED PER THE SITE DATA TABLE. SETBACKS AS SHOWN IN THE SITE DATA TABLE ARE AS FOLLOWS:

TRADITIONAL SINGLE FAMILY DWELLING (MIN):	REAR LOADED SINGLE FAMILY DWELLING (MIN):	REAR LOADED TOWNHOME DWELLING (MIN):
FRONT: 20’	FRONT: 5’	FRONT: 10’
SIDE: 5’	SIDE: 5’	SIDE: 5’
CORNER: 8’	CORNER: 8’	CORNER: 8’
REAR: 25’	REAR: 5’	REAR: 25’

8. FOR SINGLE FAMILY AND TOWNHOME DWELLINGS, AT LEAST 15% OF AREA OF EACH FAÇADE THAT FACES A STREET LOT LINE MUST BE WINDOWS OR MAIN ENTRANCE DOORS, AS MEASURED FROM THE FINISHED FLOOR ELEVATION TO THE EAVE.

9. ROOF MATERIALS: RESIDENTIAL ROOFS SHALL BE CLAD IN WOOD SHINGLES, STANDING SEAM METAL (PORCH ROOF OR COVERED ENTRY ONLY), TERNE, SLATE, ASPHALT SHINGLES, OR SYNTHETIC MATERIALS SIMILAR AND/OR SUPERIOR IN APPEARANCE AND DURABILITY, THE PRIMARY MATERIALS USED FOR ROOFS SHOULD REFLECT THE CONTEXT OF THE SURROUNDING AREA OR NEIGHBORHOOD.

10. ALL RESIDENTIAL LOTS WEST OF HORSE CREEK SHALL HAVE A MINIMUM LOT SIZE OF 30,000 SQUARE FEET.

11. IN ACCORDANCE WITH RESTRICTIVE CONVENANTS RECORDED IN WAKE COUNTY REGISTRY AT BOOK 4662, PAGE 0366, ADJCENT TO WAKE COUNTY PINS: 1832706809 AND 1832707851 A 160' BUFFER ZONE SHALL BE ESTABLISHED; ADJACENT TO WAKE COUNTY PINS: 1832709714 AND 1832800697 A 120' BUFFER ZONE SHALL BE ESTABLISHED.

12. AS NECESSARY TO MINMIZE ENVRONMENTAL IMPACTS AND MAXIMIZE DEVELOPABLE AREA, "SIMPSON COURT" MAY EXCEED MAXIMUM BLOCK LENGTH REQUIREMENTS (SECTION 6.5.1.C).

13. DUE TO PRESCRIBED ALIGNMENT OF THE PROPOSED SERVICE ROAD, THE REQUIRED STREET BUFFERYARD SHALL BE REDUCED FROM 30' TO 15' ALONG LOTS 183 TO 193 AND ALONG LOTS 207 TO 228. (SECTION 2.4.3.C.) AND FROM 30' TO 10' ALONG LOTS 166 TO 182.

14. THE BUILDING SETBACK SHALL BE REDUCED FROM 100' TO 75' FROM THE PROPERTY LINE ABUTTING THE MAJOR ACCESS CORRIDOR (US-1 ROW) (SECTION 2.4.3. D.).

15. DEVELOPED PASSIVE PARK SPACES SHALL CONTAIN A MINIMUM OF 3 OF THE FOLLOWING ELEMENTS, BUT NOT LIMITED TO: WALKING TRAILS; BUTTERFLY/POLLINATOR GARDENS; CUT FLOWER GARDENS; COMMUNITY GARDEN; DOG PARK; HAMMOCK LOUNGE; FIREPITS; CORNHOLE. THE PARK SPACES PROVIDED IN THE DEVELOPMENT SHALL BE A MINIMUM OF 2,000 SQUARE FEET.

16. DEVELOPED ACTIVE PARK SPACES SHALL CONTAIN A MINIMUM OF 3 OF THE FOLLOWING ELEMENTS, BUT NOT LIMITED TO: CLUBHOUSE; SWIMMING POOL; FITNESS CENTER; PLAYGROUND; VOLLEYBALL COURT; TENNIS/PICKLEBALL COURT. THE PARK SPACES PROVIDED IN THE DEVELOPMENT SHALL BE A MINIMUM OF 2,000 SQUARE FEET.

17. PARK #1 AS SHOWN WITHIN THE MASTER PLAN, SHALL BE CONSTRUCTED BY THE DEVELOPER AND THEN CONVEYED BY NON-WARRANTY THE FAIRWAY VILLAS AT WAKE FOREST GOLF CLUB AND CLUBHOUSE VILLAS AT WAKE FOREST GOLF CLUB TOWNHOMES OWNERS ASSOCIATION, INC. THIS PARK SHALL NOT BE LESS THAN 90,000 SQUARE FEET IN SIZE. A MINIMUM OF THREE

DECORATIVE BENCHES WILL BE INSTALLED IN THE PARK. A BERM AT LEAST 4' IN HEIGHT AND LANDSCAPED WITH A TOWN OF WAKE FOREST UDO TYPE A LANDSCAPE BUFFER (USING OPTION #2) SHALL BE INSTALLED ADJACENT TO THE PROPOSED SERVICE ROAD DEPICTED WITHIN THE MASTER PLAN THAT BORDER SAID PARK. PIN OAKS AND MAGNOLIAS SHALL BE PROHIBITIED FROM THE BUFFER. SHRUBS ARE TO BE EVERGREENS AND NON-FLOWERING. SECTION 7.5.5.A. SHALL BE PROVIDED EXCEPT FOR TRASH AND RECYCLING BINS IN SECTION 7.5.5.A.3.

18. THERE WILL BE NO NEW DEVELOPMENT SOUTH OF THE THREE EXISTING PONDS, WITH THE POSSIBLE EXCEPTION OF ANY UTILITY IMPROVEMENTS REQUIRED BY CITY OF RALEIGH PUBLIC UTILTIES DEPARTMENT. THE LAND WILL REMAIN IN ITS CURRENT STATE AS A COMMUNITY OPEN SPACE. THE LAND SHALL BE DEEDED PRIOR TO FIRST PLAT APPROVAL, TO THE TOWN, COUNTY, STATE, NON-PROFIT ORGANIZATION (UNAFFILIATED WITH THE DEVELOPER) OR HOA.

19. PRIOR TO ISSUANCE OF A GRADING PERMIT, THE DEVELOPER SHALL BE REQUIRED TO CONDUCT A PHASE 2 ENVIRONMENTAL SITE ASSESSMENT FOR THE ENTIRE TRACT. THE DATA FROM THE PHASE 2 ENVIRONMENTAL SITE ASSESSMENT SHALL BE SUBMITTED TO THE TOWN FOR REVIEW WITH INITIAL SUBMITTAL OF CONSTRUCTION DRAWINGS TO THE TOWN.

20. AT THE TIME OF INITIAL CONSTRUCTION DRAWING APPROVAL, THE DEVELOPER SHALL BE REQUIRED TO REQUEST THAT THE TOWN OF WAKE FOREST AND NCDOT APPROVE THE ADDITION OF "NO RIGHT TURN" SIGNS ALONG THE SOUTHBOUND SERVICE ROAD AT THE INTERSECTION WITH COUNTRY CLUB DRIVE AND ALONG SOUTHBOUND STREET "H" AT THE INTERSECTION WITH COUNTRY CLUB DRIVE. THIS CONDITION SHALL BE SATISFIED UPON THE MAKING OF THE REQUEST REGARDLESS OF WHETHER SUCH REQUEST IS GRANTED.

21. A 20' TYPE B PERIMETER BUFFER SHALL BE PROVIDED AND SHALL BE PLANTED IN ACCORDANCE WITH LANDSCAPE DETAILS ONLY AS ALLOWED ON SHEET LS 5.00 WITHIN THE MASTER PLAN.

22. IN ORDER TO NOT INTERFERE WITH THE EXISTING BERM AND LANDSCAPING BETWEEN CLUB VILLAS DRIVE AND THE EXISTING TOWNHOMES; THE SIDEWALK, CURB, AND/OR UPGRADES MAY BE WAIVED ON THE SOUTH SIDE OF CLUB VILLAS DRIVE. THE DETERMINATION OF REQUIREMENTS SHALL BE MADE BY THE TOWN OF WAKE FOREST PLANNING DEPARTMENT AT TIME OF CONSTRUCTION PLANS.

23. IF ANY OF THE EXISTING PONDS ADJACENT TO LOTS 45-62 ARE DRAINED AND ARE NOT RE-ESTABLISHED, THE ADJACENT PROPOSED LOTS TO THE NORTH WILL BE ALLOWED TO REMAIN AS SHOWN ON THE MASTER PLAN. IF THE EXISTING PONDS ARE NOT DRAINED, THE ADJACENT PROPOSED LOTS TO THE NORTH WILL EITHER BE ELIMINATED OR REVISED TO ENSURE THAT THE REQUIRED 100-FOOT BUFFER IS NOT ON ANY OF THE SINGLE-FAMILY DETACHED LOTS.

24. TO FACILITATE THIS DEVELOPMENT'S TRAFFIC TO TRAVEL NORTHBOUND ON CAPITAL BOULEVARD AND SUBJECT TO NCDOT APPROVAL AND ADEQUATE EXISTING RIGHT-OF-WAY, THE DEVELOPER SHALL DESIGN CONSTRUCTION PLANS THAT CREATE A NORTHBOUND U-TURN

SOUTH OF CLUB VILLAS DRIVE AND A CHANNELIZED LEFTOVER ONTO CLUB VILLAS DRIVE FROM CAPITAL BOULEVARD. THE CONSTRUCTION PLANS SHALL BE SUBMITTED TO NCDOT WHEN ON-SITE CONSTRUCTION PLANS ARE SUBMITTED TO THE TOWN FOR INITIAL REVIEW. CONSTRUCTION OF THESE IMPROVEMENTS SHALL BE STARTED WITHIN 90 DAYS OF NCDOT APPROVAL AND COMPLETED WITHIN ONE YEAR OF NCDOT APPROVAL OF THE CONSTRUCTION PLANS.

RESPECTFULLY SUBMITTED BY,

TOWN OF WAKE FOREST

AGENT AUTHORIZATION FORM:

Application #: SU-99-02-01 Submittal Date: 4/5/22

Green Timber Foundation is the owner of the property for which the attached application is being submitted:

- ☐ General Use Rezoning or Conditional District Rezoning
- ☐ Site Master Plan
- ☐ Subdivision Master Plan
- ☐ Construction Drawings
- ☐ Variance
- ☐ Major Architectural Review
- ☒ Special Use Permit Amendment

The property is located at: 1200 Club Villas Drive

The agent for this project is: Morningstar Law Group

☐ I am the owner of the property and will be acting as my own agent.

Name: Laura Holloman, McAdams
Nil Ghosh, Morningstar Law Group

Address: McAdams: 621 Hillsborough Street, Suite 500, Raleigh, NC 27603
Morningstar Law Group: 700 W Main Street, Second Floor, Durham, NC 27701

Telephone Number: Laura Holloman: (919) 610-7377
Nil Ghosh: (919) 590-0362 Fax: N/A

Email Address: Laura Holloman: holloman@mcadamsco.com
Nil Ghosh: nghosh@morningstarlawgroup.com

Signature(s) of Owner(s):

Print or type name(s):

Attach additional sheets if there are additional owners.

***Owner of record as shown on the latest equalized assessment rolls of Wake County. (An option to purchase does not constitute ownership). If ownership has been recently transferred, a copy of the deed must accompany this authorization.**

Last update: August 2018

TOWN OF WAKE FOREST

AGENT AUTHORIZATION FORM:

Application #: SU-99-02-01 Submittal Date: 4/5/22

Dry Timber LLC is the owner of the property for which the attached application is being submitted:

- ☐ General Use Rezoning or Conditional District Rezoning
- ☐ Site Master Plan
- ☐ Subdivision Master Plan
- ☐ Construction Drawings
- ☐ Variance
- ☐ Major Architectural Review
- ☒ Special Use Permit Amendment

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Nil Ghosh: (919) 590-0362 Fax: N/A

Email Address: Laura Holloman: holloman@mcadamsco.com
Nil Ghosh: nghosh@morningstarlawgroup.com

Signature(s) of Owner(s):

Print or type name(s):

Attach additional sheets if there are additional owners.

***Owner of record as shown on the latest equalized assessment rolls of Wake County. (An option to purchase does not constitute ownership). If ownership has been recently transferred, a copy of the deed must accompany this authorization.**

Last update: August 2018

TOWN OF WAKE FOREST

AGENT AUTHORIZATION FORM:

Application #: RZ-21-08 Submittal Date: 4/5/22

Green Timber Foundation is the owner of the property for which the attached application is being submitted:

- [x] General Use Rezoning or Conditional District Rezoning
- [ ] Site Master Plan
- [ ] Subdivision Master Plan
- [ ] Construction Drawings
- [ ] Variance
- [ ] Major Architectural Review

The property is located at: 1200 Club Villas Drive

The agent for this project is: Morningstar Law Group

☐ I am the owner of the property and will be acting as my own agent.

Name: Laura Holloman, McAdams
Nil Ghosh, Morningstar Law Group

Address: McAdams: 621 Hillsborough Street, Suite 500, Raleigh, NC 27603
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Telephone Number: Laura Holloman: (919) 610-7377
Nil Ghosh: (919) 590-0362 Fax: N/A

Email Address: Laura Holloman: holloman@mcadamsco.com
Nil Ghosh: nghosh@morningstarlawgroup.com

Signature(s) of Owner(s):

Print or type name(s):

Attach additional sheets if there are additional owners.

***Owner of record as shown on the latest equalized assessment rolls of Wake County. (An option to purchase does not constitute ownership). If ownership has been recently transferred, a copy of the deed must accompany this authorization.**

Last update: August 2018

TOWN OF WAKE FOREST

AGENT AUTHORIZATION FORM:

Application #: RZ-21-08 Submittal Date: 4/5/22

Dry Timber LLC is the owner of the property for which the attached application is being submitted:

- [x] General Use Rezoning or Conditional District Rezoning
- [ ] Site Master Plan
- [ ] Subdivision Master Plan
- [ ] Construction Drawings
- [ ] Variance
- [ ] Major Architectural Review

The property is located at: 1200 Club Villas Drive

The agent for this project is: Morningstar Law Group

☐ I am the owner of the property and will be acting as my own agent.

Name: Laura Holloman, McAdams
Nil Ghosh, Morningstar Law Group

Address: McAdams: 621 Hillsborough Street, Suite 500, Raleigh, NC 27603
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Telephone Number: Laura Holloman: (919) 610-7377
Nil Ghosh: (919) 590-0362

Fax: N/A

Email Address: Laura Holloman: holloman@mcadamsco.com
Nil Ghosh: nghosh@morningstarlawgroup.com

Signature(s) of Owner(s):

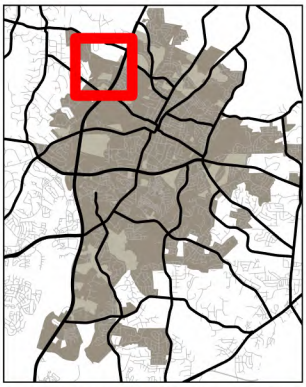
E. Carroll Joyner

Print or type name(s):

Attach additional sheets if there are additional owners.

***Owner of record as shown on the latest equalized assessment rolls of Wake County. (An option to purchase does not constitute ownership). If ownership has been recently transferred, a copy of the deed must accompany this authorization.**

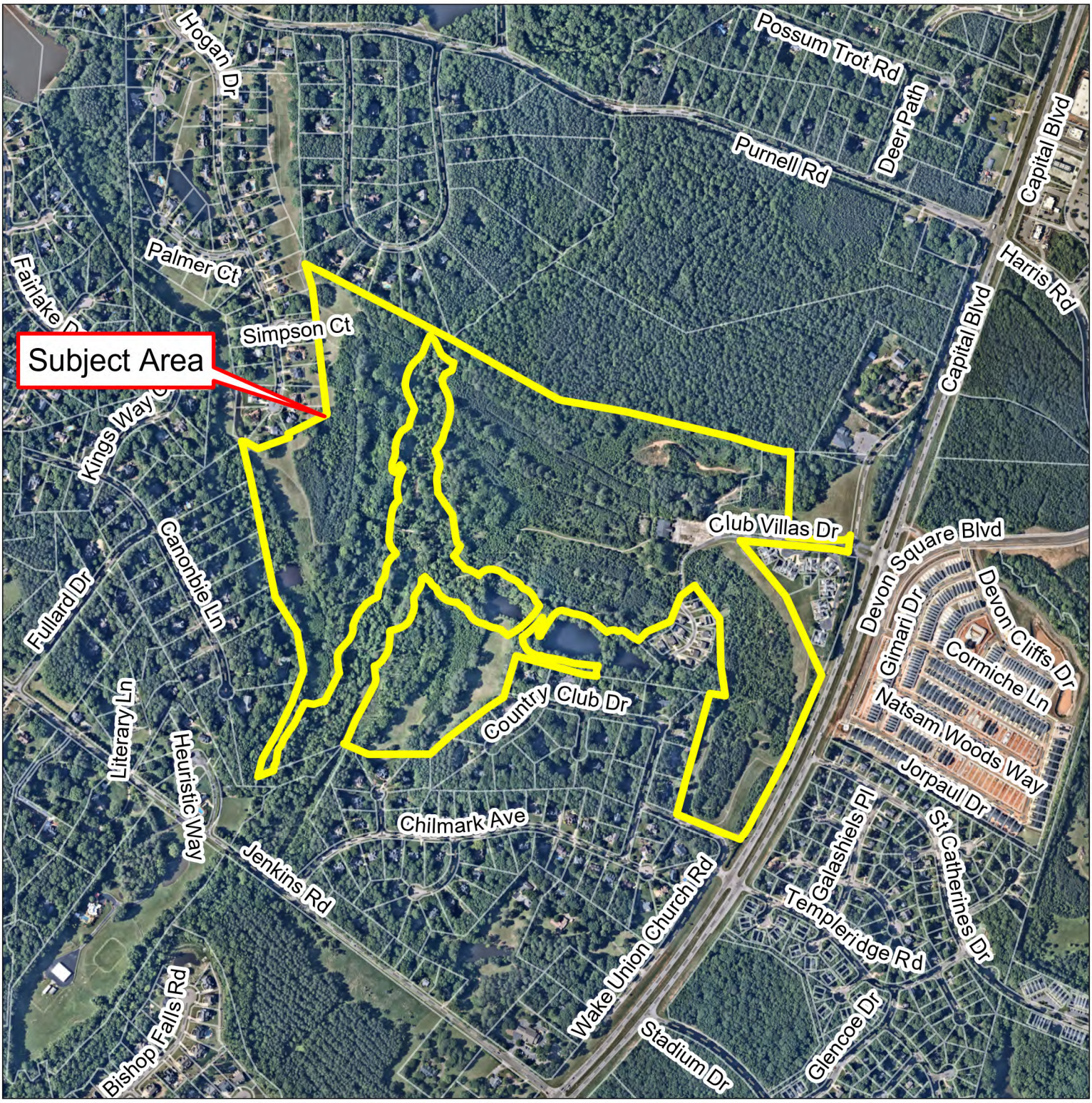
Last update: August 2018



TOWN of WAKE FOREST

RZ-21-08
Joyner Property Conditional District Rezoning
PIN: 1831895139 (Portion) & 1841091336

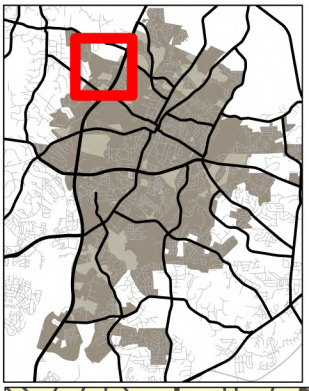
8/28/2023



Please note that this map is intended for illustrative purposes only.
For specific inquiries regarding zoning boundaries, contact the
Town Wake Forest Planning Department at 919-435-9510.

0 500 1,000 1,500 2,000 Feet

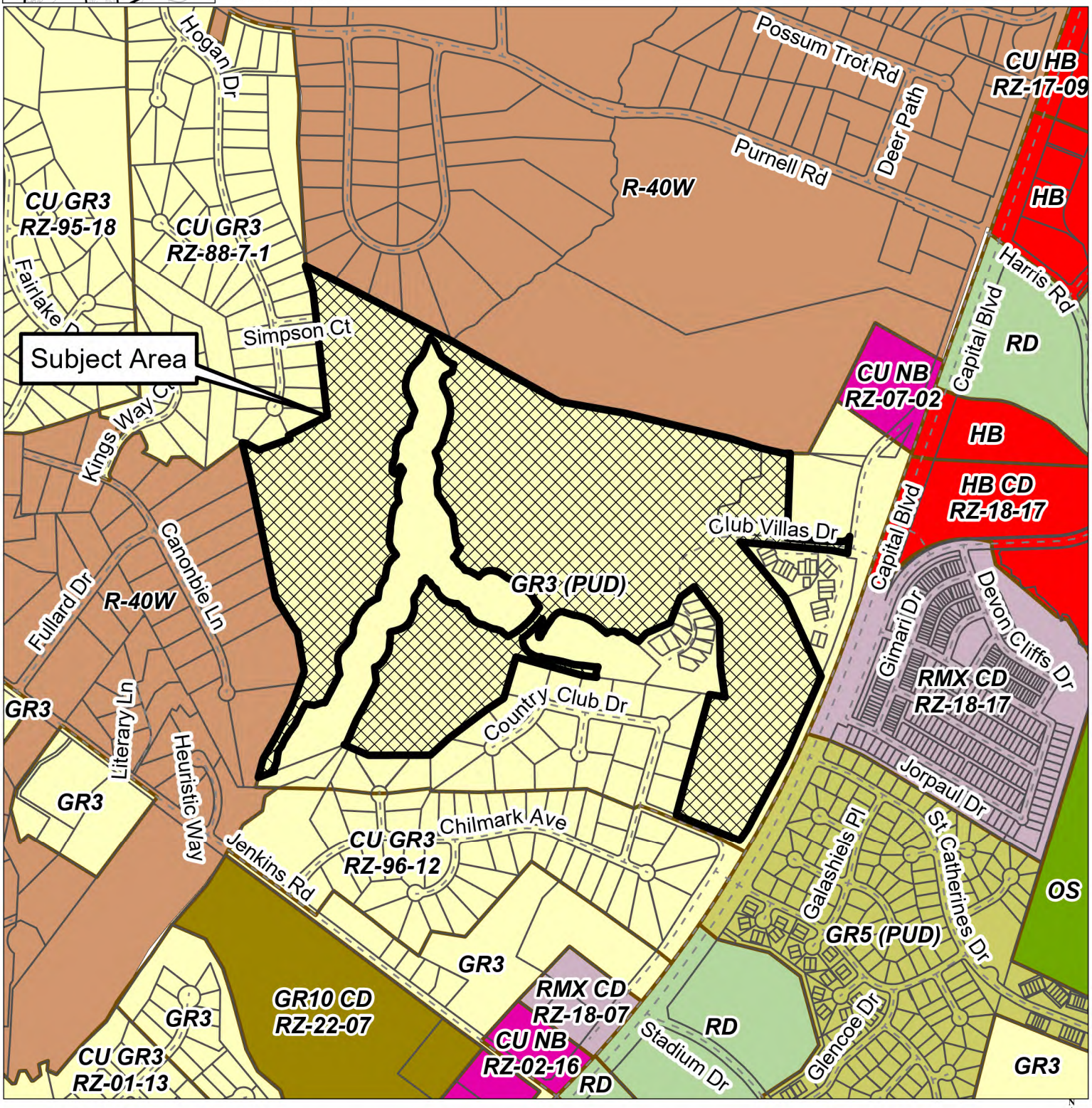
N W E



TOWN of WAKE FOREST

RZ-21-08
Joyner Property Conditional District Rezoning
PIN: 1831895139 (Portion) & 1841091336

8/28/2023



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Town Wake Forest Planning Department at 919-435-9510.

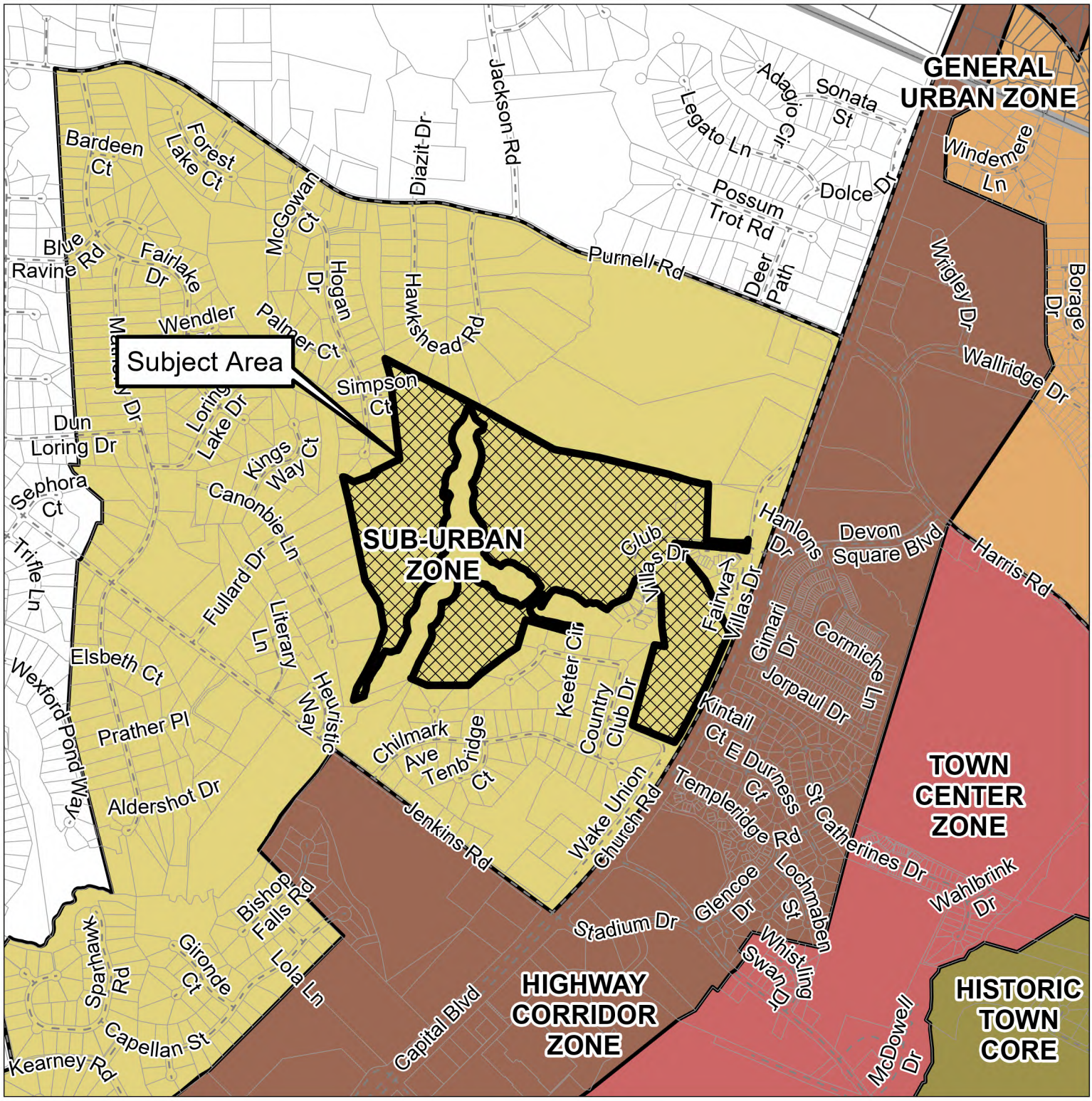
0 500 1,000 1,500 2,000 Feet

Community Plan Zones

TOWN of WAKE FOREST

RZ-21-08
Joyner Property Conditional District Rezoning
PIN: 1831895139 (Portion) & 1841091336

8/28/2023



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For specific inquiries regarding zoning boundaries, contact the
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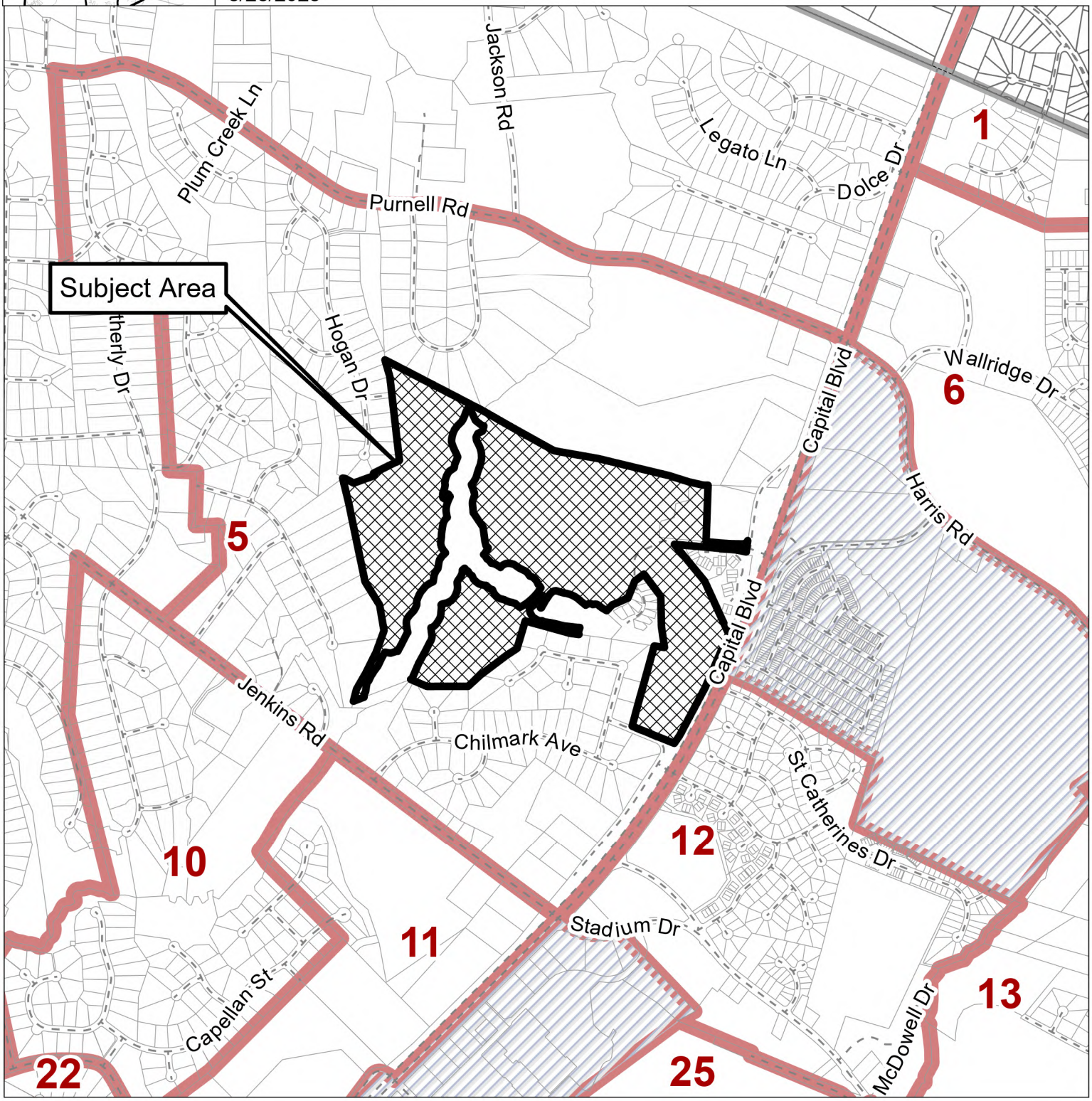
0 0.4 0.8 Miles

Neighborhood Planning Areas

TOWN of WAKE FOREST

RZ-21-08
Joyner Property Conditional District Rezoning
PIN: 1831895139 (Portion) & 1841091336

8/28/2023



Please note that this map is intended for illustrative purposes only. For specific inquiries regarding zoning boundaries, contact the Town Wake Forest Planning Department at 919-435-9510.

0 0.25 0.5 0.75 Miles

N W

Town of Wake Forest

401 ELM AVENUE WAKE FOREST, N. C. 27587-2932
PHONE 919/554-6100 FAX 919/554-6195

SPECIAL USE PERMIT

Special Use Permit No.: SU-99-02

Date Issued: May 18, 1999

Petitioner: Oakmark Development Co., LLC
P.O. Box 99277
Raleigh, NC 27624

Property Location: 13239 Capital Boulevard

Tax PIN: 1831.08-89-2193

Property Size: 165.79 acres

Land Use: Planned Unit Development (30 dwelling units)

The Wake Forest Board of Commissioners considered your request on May 18, 1999 for a special use permit for a planned unit development.

The Wake Forest Board of Commissioners voted to approve your request for a Planned Unit Development (30 dwelling units) on the Wake Forest Golf Club property, being tracts 1, 2 and 4, based on the development master plan and the following findings of fact:

Finding 1: **The proposed use or development is located, designed and proposed to be operated as not to be detrimental to the public health, safety and general welfare,** in that the site, upon annexation, will be zoned R-40W, Residential-40 Watershed Protection District which allows planned unit developments; the proposed use involves the annexation of the entire Golf Club property affording the provision of municipal services; and, the proposed locations of dwelling units allow traffic to be routed directly to US-1, a major thoroughfare, thereby maintaining low traffic volume in any given residential area.

Finding 2: **The proposed use is appropriately located with respect to transportation facilities, water supply, fire and police protection, waste disposal and similar facilities,** in that site has frontage and access to a major thoroughfare (Capital Boulevard /US-1); and, the site will be located in the town limits and municipal services will be provided; and, municipal water and sewer service is available on-site and will sufficiently service the proposed use.

Finding 3: **The proposed use will not substantially injure the value of adjoining or abutting property,** in that buffering and screening as required by Town Ordinances will be provided; the club owner will have approval of architectural design to insure quality and uniformity to the WF Golf Club thereby preserving the quality and beauty of the area; each residential area will be landscaped so as to provide beauty and protection of surrounding property values; and, the townhomes will be priced between $150,000 and $200,000.

Finding 4: **The proposed use will not cause undue traffic congestion or create a traffic hazard,** in that the proposed use will generate 176 vehicle trips per day, which can be accomodated by US-1 and adjoining streets without effecting the level of service; and, the proposed dwelling units will be clustered in different locations on the golf course allowing traffic to be routed through two separate locations, with the bulk of traffic directly accessing US-1, thereby maintaining low traffic volumes in any given residential area.

Finding 5: **The proposed use will not create undue noise, dust, and gasses,** in that the proposed use is a residential use to which noise, dust and gasses are not normally associated; and, all vehicle access areas will be paved thus alleviating potential dust problems.

Finding 6: **The proposed use if developed according to the plan submitted and approved, will be in harmony with the area in which it is located,** in that the proposed use is comprised of single-family, attached dwellings priced in a range consistent with the surrounding residential areas.

Finding 7: **The proposed use or development conforms with the general plans for the physical development of the town,** in that the proposed use and Master Plan presents no conflicts with the general plans for the physical development of the Town, including the Land Use Management Plan, Land Development Plan, and the Official Zoning Map.

Finding 8: **The proposed use or development meets all other rules and regulations within the zoning ordinance and all existing Town policies,** in that the proposed plan submitted with the special-use permit application complies with the requirements of the R-40W, Residential-40 Watershed Protection District and the requirements for planned unit developments.

The special use permit is hereby issued subject to the following conditions:

1. Within sixty (60) days of the date of issuance of the special use permit and approval of the master plan, a petition of annexation for the entire Wake Forest Golf Club property shall be filed with the Town of Wake Forest. The effective date of the annexation ordinance shall be the effective date of the special use permit.

2. In accordance with Article V. Section 23.B.3 of the Wake Forest Zoning Ordinance, the property shall be zoned R-40W, Residential-40 Watershed Protection District upon the effective date of the annexation ordinance.

3. The entire acreage of the Wake Forest Golf Club shall be subject to the provisions and conditions of the special use permit and master plan as approved including, but not limited to, calculations of density, open space, and impervious surface area.

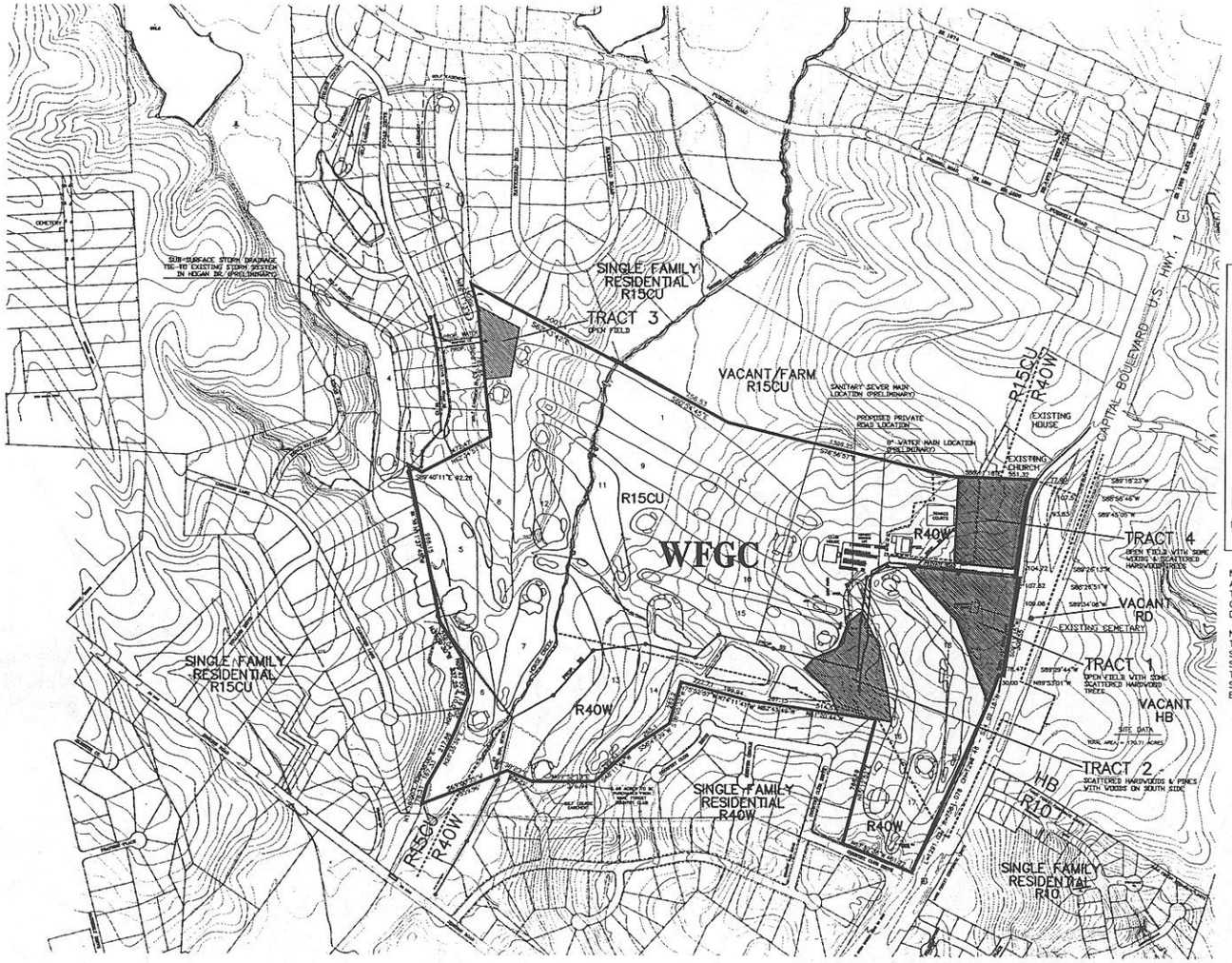
4. The commercial area shall require rezoning.

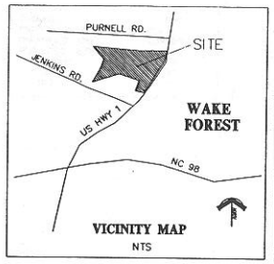
5. The facades of the townhomes shall be constructed with brick and hardi-plank.

6. The homeowner association of the development shall be responsible for the maintanance of the cemetery located on tract #1. Plans for the improvement of the cemetery shall be reviewed by the DAR and the Town of Wake Forest. The cemetery shall not be moved and the existing stone wall shall be kept in its historic condition with repairs as necessary.

Mayor

May 18, 1999
Date





SITE DATA

TRACT	PROPOSED USE	AREA
TRACT #1	20 TOWNHOMES	+/- 5.55 AC.
TRACT #2	10 TOWNHOMES	+/- 4.45 AC.
TRACT #3	6 0 LOT LINE HOMES	+/- 1.70 AC.
TRACT #4	COMMERCIAL	+/- 5.01 AC.
WFGC	GOLF COURSE	+/-149.08 AC.
TOTAL		+/-165.79 AC.

PROPOSED DWELLING UNITS:
2 STORY, 3 BEDROOM, 1650 SF TO 2500 SF

PROPOSED OPEN SPACE (GOLF COURSE): 147.05 AC.
(87% OF THE ENTIRE WFGC PUD)

PROPOSED COMMON AREA (RESIDENTIAL):
TRACT #1: 2.6 AC. (SHARED ACCESS DRIVES
TRACT #2: 2.5 AC. & AREAS OUTSIDE OF
TRACT #3: 0.7 AC. INDIVIDUAL D.U. LOTS)

EXISTING IMPERVIOUS SURFACE AREA: +/-2.0 AC.
(ENTIRE WAKE FOREST GOLF CLUB PUD)

PROPOSED IMPERVIOUS SURFACE AREA: +/-6.0 AC.
(3.6 % OF ENTIRE WFGC PUD)

NOTE: EXISTING VEGETATION AND NATURAL AREAS AS SHOWN ON THE MASTER PLAN WILL BE PROTECTED TO THE GREATEST EXTENT POSSIBLE AND MINIMAL CLEARING OF LAND SHALL BE UNDERTAKEN DURING DEVELOPMENT.

NOTE: STORM DRAINAGE FOR TRACTS 1, 2 AND THE EASTERN PART OF TRACT 3 SHALL BE VIA SURFACE RUNOFF TO EXISTING DRAINAGE WAYS. STORM DRAINAGE FOR THE WESTERN PART OF TRACT 3 AND TRACT 4 SHALL BE VIA SUB-SURFACE STRUCTURES TO EXISTING STORM SYSTEMS OR EXISTING DRAINAGE WAYS.

OWNER
WAKE FOREST GOLF AND COUNTRY CLUB, INC.
12239 CAPITAL BOULEVARD
WAKE FOREST, NORTH CAROLINA 27587
556-1709

DEVELOPER
OAKMARK DEVELOPMENT COMPANY, LLC
P. O. BOX 99277
RALEIGH, NORTH CAROLINA 27624
846-9981

NOTE:
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CLINE DAVIS
ARCHITECTS PA

414 West Jones St.
Raleigh, NC 27603

919/833-6413
919/836-1280 FAX
CDA@INTERPATH.COM

WAKE FOREST GOLF CLUB

Town of Wake Forest
North Carolina

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 755 PAUL R. MEDER
4/22/99

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Project #9P014

Date 01.22.99

Revisions 04.22.99

Drawn By PRM

Checked By

Content
MASTER LAND USE PLAN

Sheet *1*

TOWN *of*
WAKE FOREST

301 S. Brooks Street
Wake Forest, NC 27587
t 919.435.9400

www.wakeforestnc.gov

SPECIAL USE PERMIT AMENDMENT ORDER OF APPROVAL

Special Use Permit Case #: SU-99-02-01

Date Issued: May 4, 2023

Applicant: McAdams Company
C/O Laura Holloman
2905 Meridian Parkway
Durham, NC 27713

Owner: Green Timber Foundation
C/O Carroll Joyner
394 Fleming Road
Youngsville, NC 27596

Property Location: 1180 and 1200 Club Villas Drive

Tax PINs: 1841091336 and 1831895139 (portion)

Property Size: Property Acreage for PINs - 165± acres
Area removed from original SUP acreage - 125± acres
Revised SUP acreage - 40± acres

Development Name: Joyner Property

Zoning: General Residential 3 Planned Unit Development (GR3 PUD) Falls Lake Watershed Protection Overlay (FL-WMA); Special Highway Overlay (SH1-O)

The Wake Forest Board of Commissioners conducted a public hearing on **March 21, 2023** to consider **Case No. SU-99-02-01**; a request to amend the existing Special Use Permit SU-99-02 to reduce the acreage from 165.79 acres to 40.0 acres. **The Wake Forest Board of Commissioners voted 3-2 to approve your request.**

Based on the evidence presented during the public hearing, the Wake Forest Board of Commissioners made the following FINDINGS OF FACT:

Finding 1: **The proposed special use conforms to the character of the neighborhood, considering the location, type, and height of the buildings or structures and**

the type and extent of landscaping on the site.

The SUP amendment removes the former golf course and the abandoned clubhouse, pool, and tennis courts from the previously approved plan which reduced the open space provided to the minimum required. No additional housing units, commercial space or the like are granted by approving this amendment, and the Clubhouse Villas and Fairway Villas neighborhoods are to remain as currently developed. The 5± acre vacant tract, identified in the PUD as commercial, also remains as part of the SUP. No additional entitlements are granted as part of this amendment request; therefore the request conforms to the character of the neighborhood, considering the location, type, and height of building and structures and the landscaping on site.

Finding 2: **The proposed use will not cause undue traffic congestion or create a traffic hazard.**

No additional uses (e.g., housing units, commercial space, etc.) are approved as part of this amendment. Therefore, the amendment does not cause undue traffic congestion or create a traffic hazard.

Finding 3: **Adequate utilities (water, sewer, drainage, electric, etc.) are available for the proposed use.**

The existing development is served by public water, sewer, and other utilities, and no additional uses (e.g., housing units or commercial space) are part of this amendment. Therefore, adequate utilities are in place.

Finding 4: **The proposed use shall not be noxious or offensive by reason of vibration, noise, odor, dust, smoke or gas.**

There are no noxious or offensive uses by reason of vibration, noise, odor, dust, smoke, or gas within the SUP amendment area since no additional uses are included in this amendment.

Finding 5: **The establishment of the proposed use shall not impede orderly development and improvement of surrounding property.**

There are no new uses included as part of the amendment request; therefore, the orderly development and improvement of the surrounding area is not impeded.

Finding 6: **The establishment, maintenance or operation of the proposed use shall not be detrimental to or endanger the public health, safety or general welfare.**

The SUP amendment removes a former golf course as well as the club house, pool and tennis courts that are currently in disrepair from the SUP. There is no new proposed use; therefore, this SUP amendment is not detrimental to and does not endanger the public health, safety, or general welfare.

Finding 7: **The application will not substantially injure the value of adjoining or abutting property.**

No new uses are proposed as part of the amendment request; therefore, it does not

substantially injury the value of adjoining or abutting property.

Finding 8: **The proposed use is consistent with the officially adopted plans and policies of the town.**

No new uses proposed as part of this request. Therefore, the amendment is consistent with adopted plans and policies of the town.

Vivian Jones, Mayor

5-5-2023
Date

NOTE: If you are dissatisfied with the decision of this Board, an appeal may be taken to the Superior Court of Wake County within thirty (30) days after the date of this order.

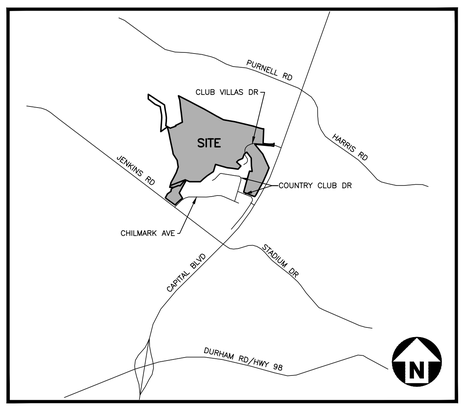
JOYNER PROPERTY

CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

SPECIAL USE PERMIT AMENDMENT
MASTER LAND USE PLAN

PROJECT NUMBER: 202011075
DATE: FEBRUARY 27, 2023

TOWN OF WAKE FOREST
PROJECT #SU-99-02-01



VICINITY MAP
N.T.S.

SHEET INDEX

C-1	EXISTING CONDITIONS
C-2	PROPOSED CONDITIONS
C-3	TRACT #1 ILLUSTRATIVE PLAN
C-4	TRACT #2 ILLUSTRATIVE PLAN
C-5	TRACT #4 ILLUSTRATIVE PLAN

APPROVAL BY THE
WAKE FOREST BOARD
OF COMMISSIONERS

DATE _____

AMENDMENT TO PORTION OF EXISTING SPECIAL USE PERMIT IS SOUGHT PURSUANT TO NCGS 160D-705(C). MODIFICATIONS SHALL APPLY ONLY TO THE PROPERTIES INDICATED HEREIN.

McADAMS
The John R. McAdams Company, Inc.
2905 Meridian Parkway
Durham, NC 27713

phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

www.mcadamsco.com

CONTACT

LAURA HOLLOMAN
holloman@mcadamsco.com
PHONE: 919. 361. 5000

PROPERTY OWNER

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

NORTH CAROLINA PROFESSIONAL SEAL 22286 ENGINEER MICHAEL J.E. SANCHEZ
PRELIMINARY NOT FOR CONSTRUCTION

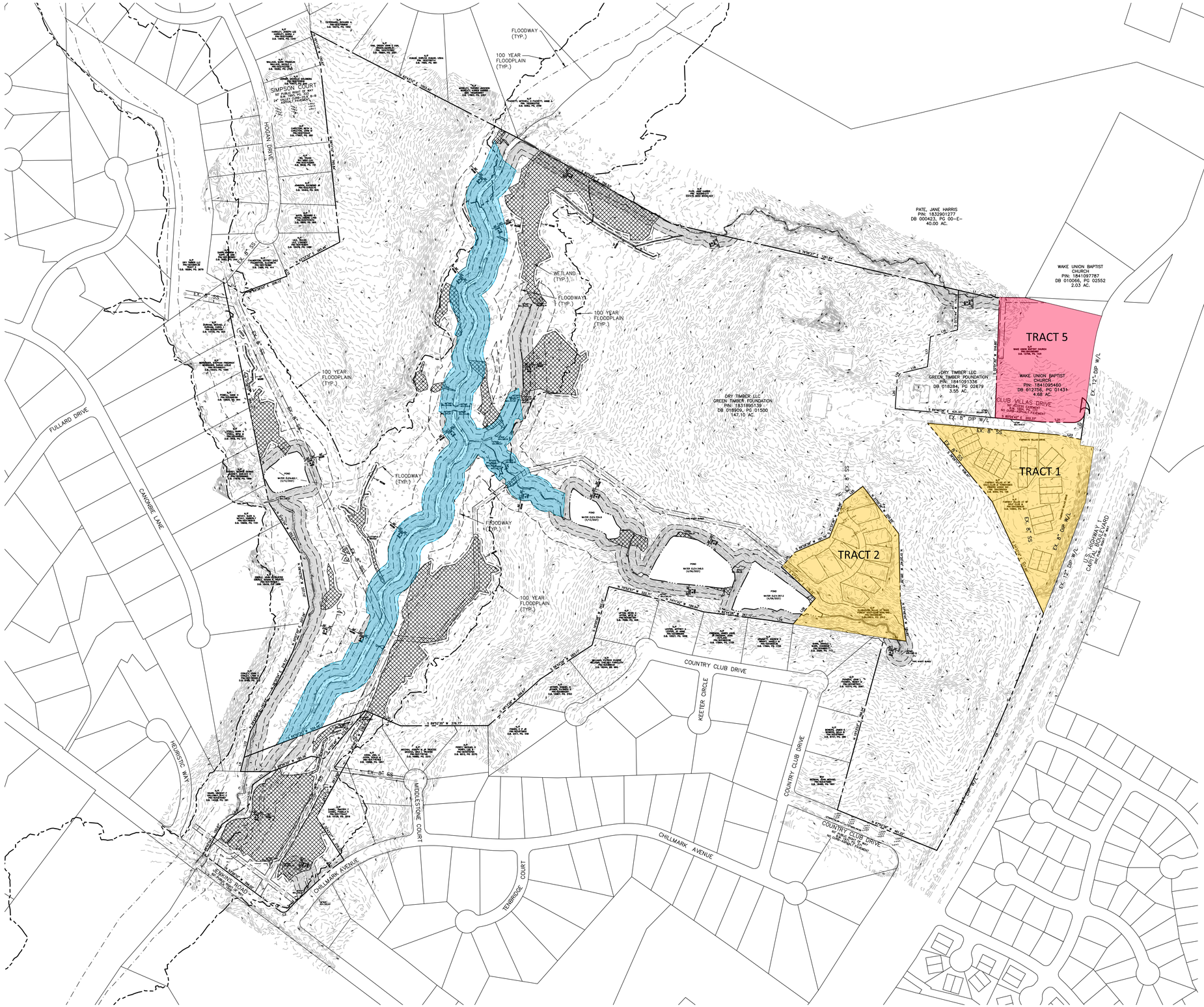
REVISIONS

NO.	DATE	
1	04. 05. 2022	PER TOWN COMMENTS
2	12. 08. 2022	PER TOWN COMMENTS
3	02. 27. 2023	PER TOWN COMMENTS

SPECIAL USE PERMIT FOR:

JOYNER PROPERTY
WAKE FOREST, NORTH CAROLINA
PROJECT NUMBER: 2021110197

M:\Projects\TOL\2021110197\04-Production\Planning and LA\SUP\Current Drawings\202011075-CS1.dwg, 2/27/2023 4:27:14 PM, Brandon Bidlat



APPROVED SITE DATA

TRACT	PROPOSED USE	AREA
TRACT #1	20 TOWNHOMES	+/- 5.55 AC
TRACT #2	10 TOWNHOMES	+/- 4.45 AC
TRACT #5	COMMERCIAL	+/- 5.01 AC
TOTAL		+/- 15.01 AC

PROPOSED DWELLING UNITS
2 STORY, 3 BEDROOM, 1650 SF TO 2500 SF

PROPOSED OPEN SPACE:
TRACT #1 2.6 AC
TRACT #2 2.5 AC

EXISTING IMPERVIOUS SURFACE AREA : +/- 2.0 AC
(ENTIRE WAKE FOREST GOLF CLUB PUD)

PROPOSED IMPERVIOUS SURFACE AREA : +/- 6.0 AC
(3.6% OF ENTIRE WAKE FOREST GOLF CLUB PUD)

LEGEND

EXISTING VACANT COMMERCIAL
5.01 AC

EXISTING RESIDENTIAL
10 AC

EXISTING CONSERVATION EASEMENT
10.35 AC PER WAKE COUNTY REGISTER OF DEEDS
BM2003, PG 02044

GENERAL NOTES:

1. ALL TOPOGRAPHIC INFORMATION TAKEN FROM WAKE COUNTY GIS
2. ALL PROPERTY BOUNDARY AND OWNER INFORMATION TAKEN FROM WAKE COUNTY GIS AND WAKE COUNTY IMAPS
3. ALL EXISTING SANITARY SEWER AND WATER INFORMATION TAKEN FROM WAKE COUNTY IMAPS

N

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

McADAMS
The John R. McAdams Company, Inc.
2905 Meridian Parkway
Durham, NC 27713

phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

www.mcadamsco.com

CLIENT

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

JOYNER PROPERTY
OPEN SPACE EXHIBIT
MASTER LAND USE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22286 ENGINEER MICHAEL J.E. SANCHEZ
PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	04. 05. 2022	PER TOWN COMMENTS
2	12. 08. 2022	PER TOWN COMMENTS
3	02. 27. 2023	PER TOWN COMMENTS

PLAN INFORMATION

PROJECT NO.	202011075
FILENAME	202011075-XC1
CHECKED BY	LPH
DRAWN BY	JAR
SCALE	1"=200'
DATE	02. 27. 2023

SHEET

EXISTING CONDITIONS

C-1

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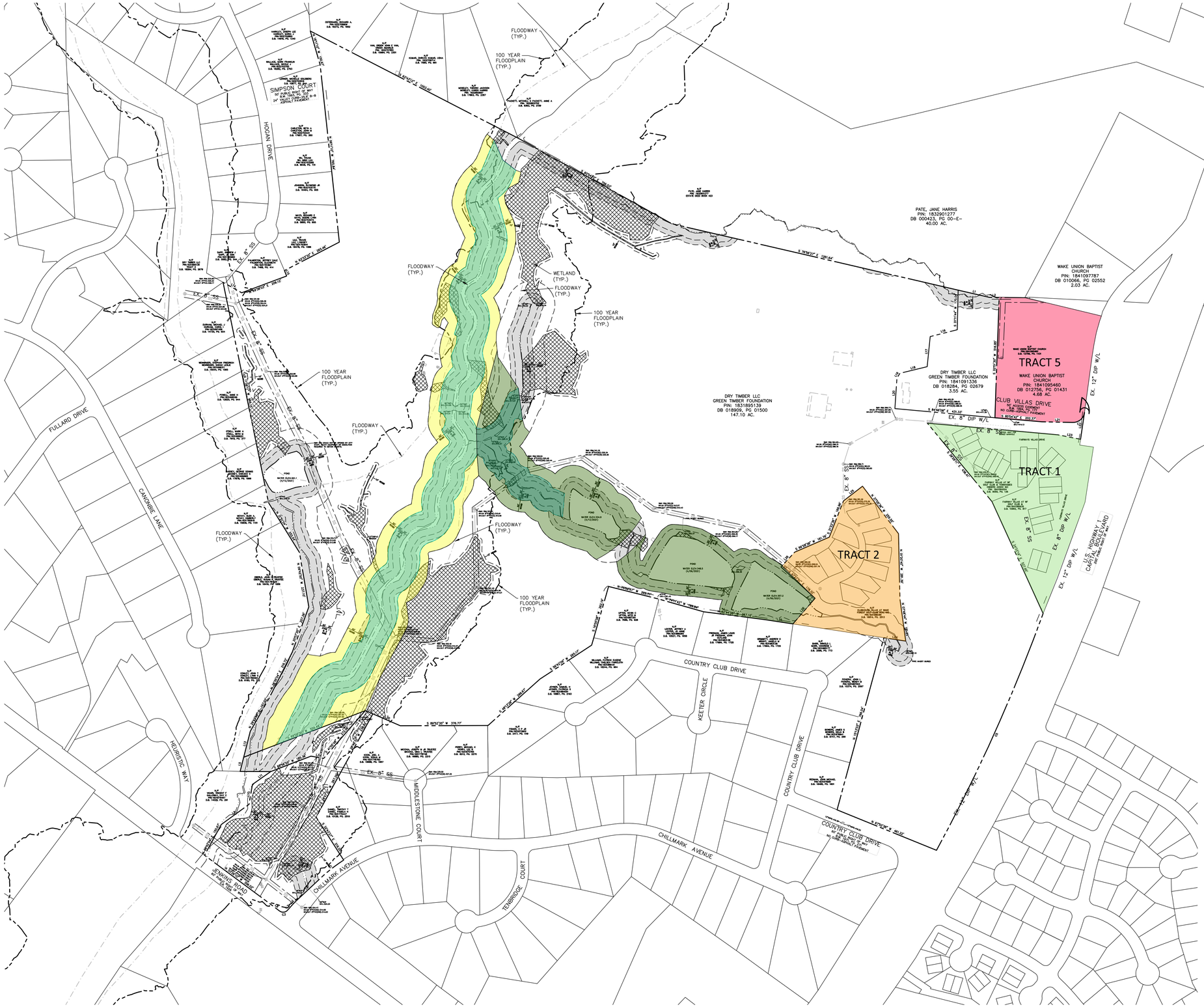

LEGEND

- TRACT #1 - EXISTING RESIDENTIAL 5.55 AC
- TRACT #3 - PROPOSED OPEN SPACE AREA 10.00 AC
- TRACT #2 - EXISTING RESIDENTIAL 4.45 AC
- TRACT #4 - PROPOSED OPEN SPACE AREA 14.99 AC
- TRACT #5 - EXISTING VACANT COMMERCIAL 5.01 AC
- EXISTING CONSERVATION EASEMENT 10.35 AC PER WAKE COUNTY REGISTER OF DEEDS BM2003, PG 02044

OPEN SPACE

TRACT 1
10.00 AC PROPOSED

TRACT 2
14.99 AC PROPOSED

TOTAL OPEN SPACE PROVIDED = 24.99 AC

- OPEN SPACE SHALL BE MAINTAINED BY PROPERTY OWNER(S) OF SUBJECT PROPERTY. AT A FUTURE DATE, THE OPEN SPACE'S OWNERSHIP MAY BE TRANSFERRED TO A NON-PROFIT CONSERVATION ORGANIZATION, GOVERNMENT ENTITY, OR HOMEOWNERS ASSOCIATION.
- EXISTING CART PATHS WITHIN OPEN SPACE MAY BE UTILIZED FOR PEDESTRIAN TRAILS IN THE FUTURE.

GENERAL NOTES

1. ALL TOPOGRAPHIC INFORMATION TAKEN FROM WAKE COUNTY GIS
2. ALL PROPERTY BOUNDARY AND OWNER INFORMATION TAKEN FROM WAKE COUNTY GIS AND WAKE COUNTY IMAPS
3. ALL EXISTING SANITARY SEWER AND WATER INFORMATION TAKEN FROM WAKE COUNTY IMAPS

N

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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Durham, NC 27713

phone 919. 361. 5000
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CLIENT

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

JOYNER PROPERTY
OPEN SPACE EXHIBIT
MASTER LAND USE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22286 ENGINEER MICHAEL J.E. SANCHEZ
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	04. 05. 2022	PER TOWN COMMENTS
2	12. 08. 2022	PER TOWN COMMENTS
3	02. 27. 2023	PER TOWN COMMENTS

PLAN INFORMATION

PROJECT NO.	202011075
FILENAME	202011075-S1
CHECKED BY	LPH
DRAWN BY	JAR
SCALE	1"=200'
DATE	02. 27. 2023

SHEET

PROPOSED CONDITIONS

C-2

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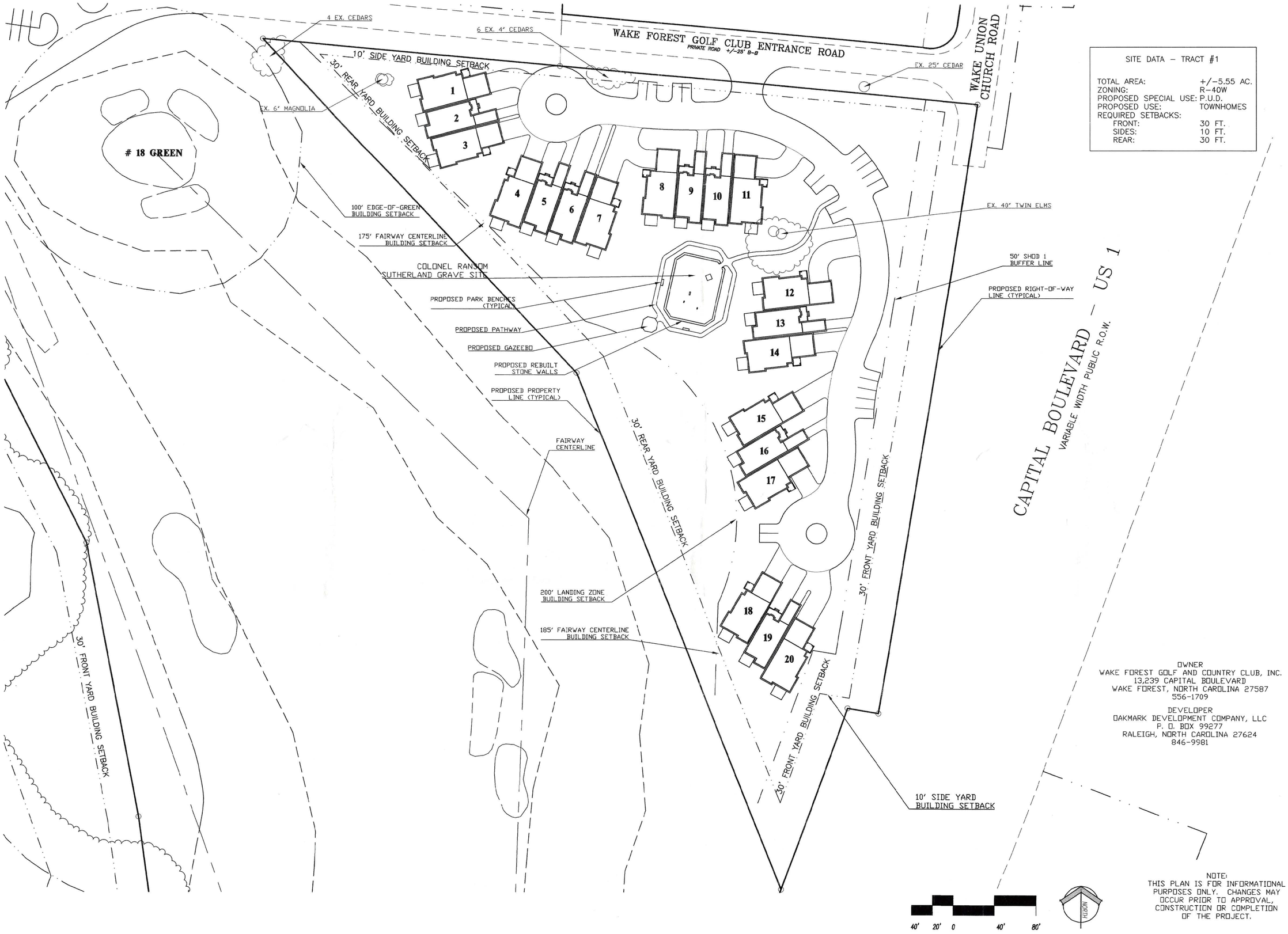

SITE DATA – TRACT #1

TOTAL AREA:	+/-5.55 AC.
ZONING:	R-40W
PROPOSED SPECIAL USE:	P.U.D.
PROPOSED USE:	TOWNHOMES
REQUIRED SETBACKS:	
FRONT:	30 FT.
SIDES:	10 FT.
REAR:	30 FT.

OWNER
WAKE FOREST GOLF AND COUNTRY CLUB, INC.
13,239 CAPITAL BOULEVARD
WAKE FOREST, NORTH CAROLINA 27587
556-1709

DEVELOPER
OAKMARK DEVELOPMENT COMPANY, LLC
P. O. BOX 99277
RALEIGH, NORTH CAROLINA 27624
846-9981

NOTE:
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CLINE DAVIS
ARCHITECTS PA

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Raleigh, NC 27603

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919/836-1280 FAX
CDA@INTERPATH.COM

WAKE FOREST GOLF CLUB

Town of Wake Forest, North Carolina

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Project #98014

Date 12.03.98

Revisions

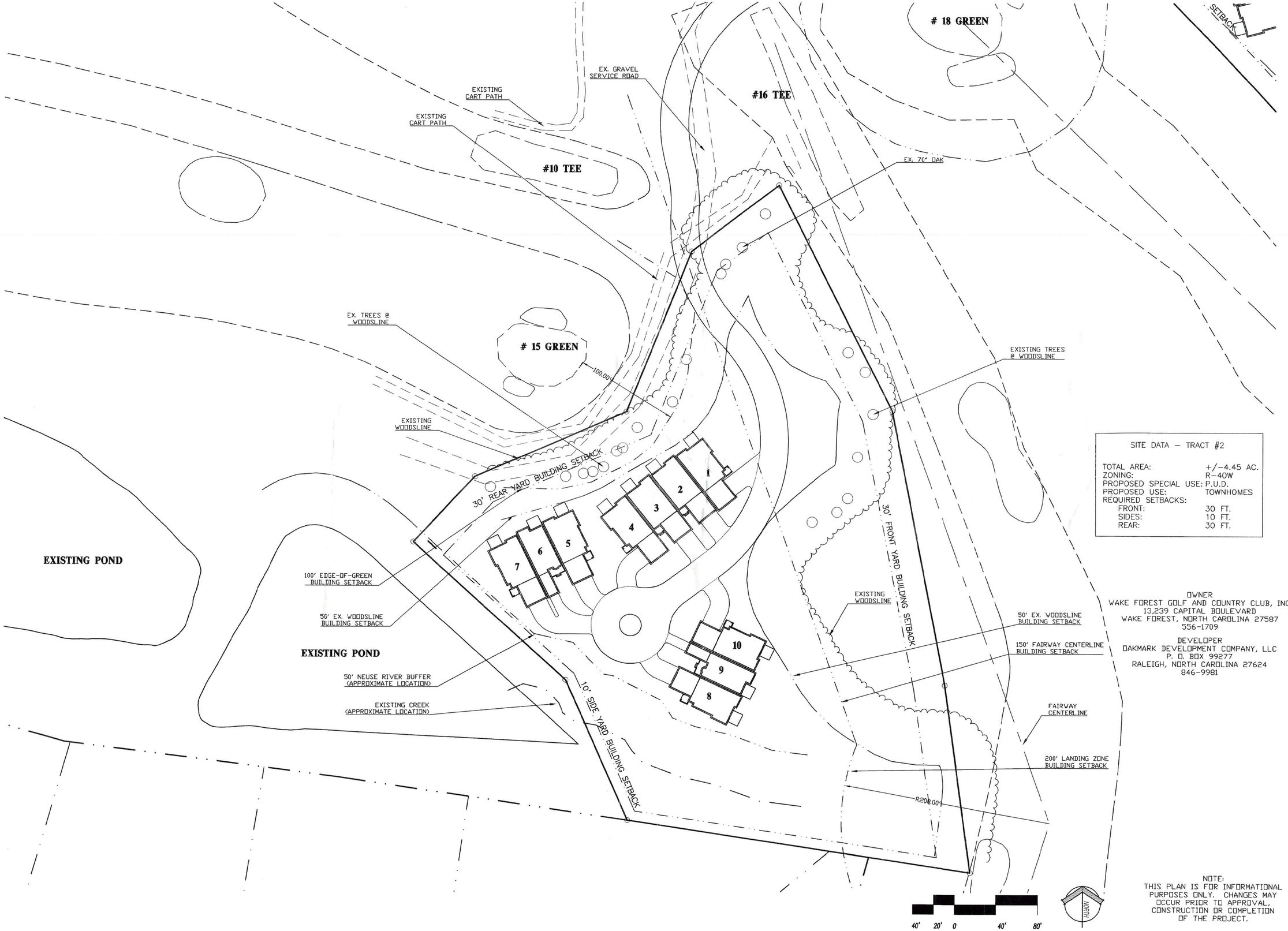
Drawn By PRM

Checked By

Content

TRACT #1 ILLUSTRATIVE SITE PLAN

Sheet **C-3**



SITE DATA – TRACT #2

TOTAL AREA:	+/-4.45 AC.
ZONING:	R-40W
PROPOSED SPECIAL USE:	P.U.D.
PROPOSED USE:	TOWNHOMES
REQUIRED SETBACKS:	
FRONT:	30 FT.
SIDES:	10 FT.
REAR:	30 FT.

OWNER
WAKE FOREST GOLF AND COUNTRY CLUB, INC.
13,239 CAPITAL BOULEVARD
WAKE FOREST, NORTH CAROLINA 27587
556-1709

DEVELOPER
OAKMARK DEVELOPMENT COMPANY, LLC
P. O. BOX 99277
RALEIGH, NORTH CAROLINA 27624
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WAKE FOREST GOLF CLUB

Town of Wake Forest, North Carolina

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Project #98014

Date 12.03.98

Revisions

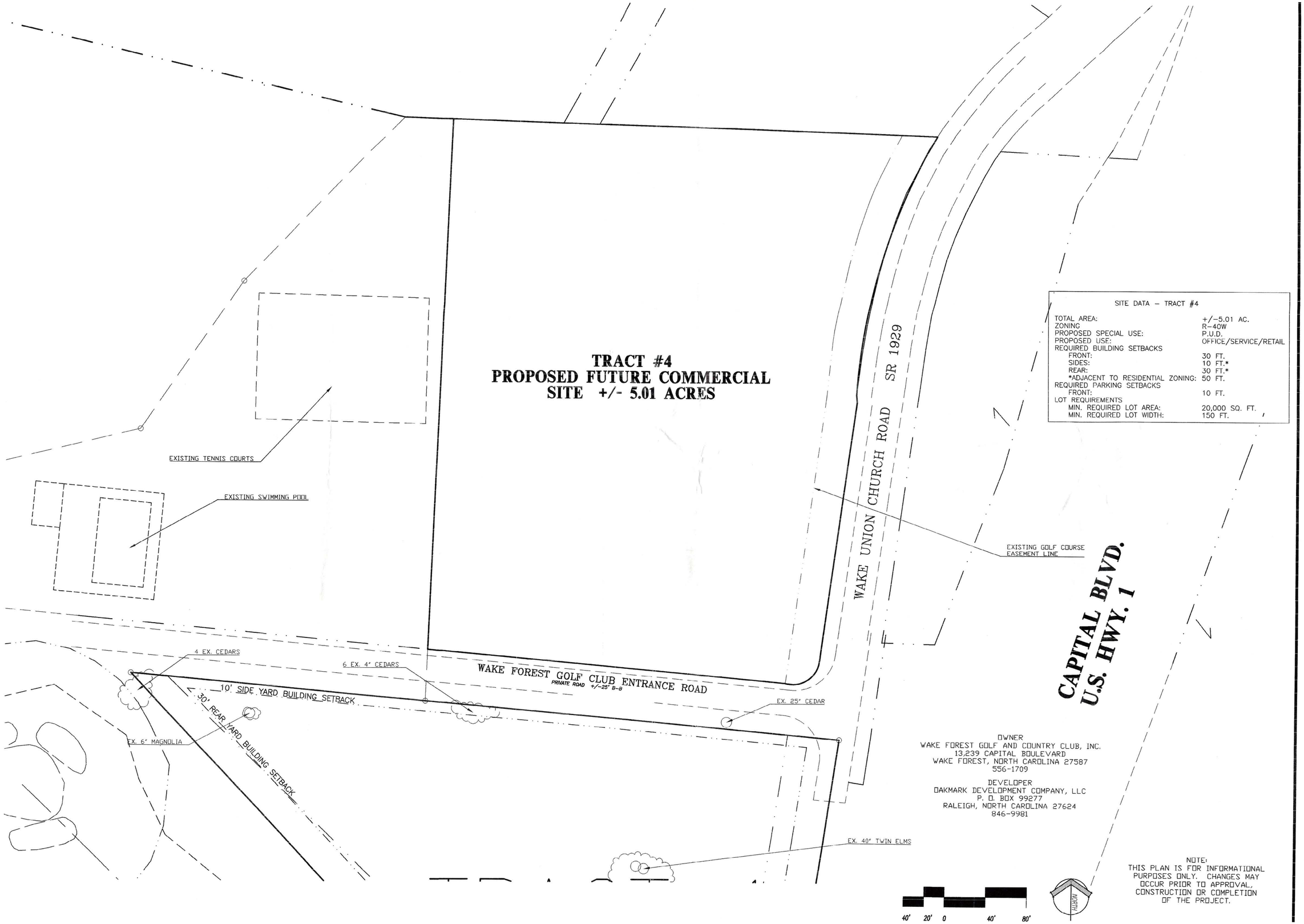
Drawn By PRM

Checked By

Content

TRACT #2 ILLUSTRATIVE SITE PLAN

Sheet **C-4**



SITE DATA – TRACT #4

TOTAL AREA:	+/–5.01 AC.
ZONING	R–40W
PROPOSED SPECIAL USE:	P.U.D.
PROPOSED USE:	OFFICE/SERVICE/RETAIL
REQUIRED BUILDING SETBACKS	
FRONT:	30 FT.
SIDES:	10 FT.*
REAR:	30 FT.*
*ADJACENT TO RESIDENTIAL ZONING:	50 FT.
REQUIRED PARKING SETBACKS	
FRONT:	10 FT.
LOT REQUIREMENTS	
MIN. REQUIRED LOT AREA:	20,000 SQ. FT.
MIN. REQUIRED LOT WIDTH:	150 FT.

OWNER
WAKE FOREST GOLF AND COUNTRY CLUB, INC.
13,239 CAPITAL BOULEVARD
WAKE FOREST, NORTH CAROLINA 27587
556-1709

DEVELOPER
OAKMARK DEVELOPMENT COMPANY, LLC
P. O. BOX 99277
RALEIGH, NORTH CAROLINA 27624
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CLINE DAVIS
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WAKE FOREST GOLF CLUB

Town of Wake Forest, North Carolina

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Project #98014

Date 12.03.98

Revisions

Drawn By PRM

Checked By

Content

TRACT #4 ILLUSTRATIVE SITE PLAN

Sheet C-5

TOWN *of*
WAKE FOREST

Report Requirements:

Per NCGS 160D-604, all proposed amendments to the zoning ordinance or zoning map shall have a written report provided from the Planning Board to the Board of Commissioners within 30 days of referral of the amendment to the Planning Board, or the Board of Commissioners may proceed in its consideration of the amendment without the Planning Board report. Furthermore, in no case is the Board of Commissioners bound by the recommendations, if any, of the Planning Board.

Per NCGS 160D-604, the Planning Board shall advise and comment on whether the proposed zoning amendment is consistent with all applicable officially adopted plans, and provide a written recommendation to the Board of Commissioners that addresses plan consistency and other matters as deemed appropriate by the Planning Board, but a comment by the Planning Board that a proposed amendment is inconsistent with the officially adopted plans shall not preclude consideration or approval of the proposed amendment by the Board of Commissioners.

GENERAL INFORMATION

Applicant:	McAdams Company
Owner:	Green Timber Foundation
Requested Action:	Rezone 124.68 acres on the Town of Wake Forest Zoning Map from General Residential 3 Planned Unit Development* (GR3 PUD*); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O) to General Residential 10 Conditional District (GR10-CD); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O) *While these parcels are labeled as GR3 (PUD), the parcels are not subject to any PUD regulations as the PUD regulations were removed when SU-99-02-01 was approved. Due to the zoning map label, staff will refer to the current zoning as GR3 PUD until such time the official zoning map is amended to remove the PUD text.
Existing Zoning:	from General Residential 3 Planned Unit Development* (GR3 PUD*); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O)
Location:	1180 and 1200 (portion) Club Villas Dr
Size:	124.68 acres
Tax PINs:	1841091336 and 1831895139 (portion)
Existing Land Use:	Vacant with abandoned recreation facilities

Applicable Officially Adopted Plans:

The request is generally inconsistent with the relevant policies in the Comprehensive Plan, and denial of the zoning map request is reasonable and in the public interest. See Attachment.

This report reflects the recommendation of the Planning Board, this the 12th day of September 2023.

Introduced by Planning Board member: Shelia Bishop

TOWN *of*
WAKE FOREST

Seconded by Planning Board member: Michael Hickey

Attest:

Karin Kuropas, Planning Board Chair

Courtney Tanner, Planning Director

Community Plan Consistency Grid

		YES	NO	NA
GENERAL POLICY RECOMMENDATIONS		**YES**	**NO**	**NA**
GPR-1	Develop complete neighborhoods built around gathering spaces with a mix of housing types, lot sizes, and integrated commercial uses versus monolithic subdivisions			
GPR-2	Appropriately transition large-scale commercial, institutional, and industrial uses into surrounding neighborhoods			
GPR-3	Integrate alternative modes of transportation, such as transit and biking, into development			
GPR-4	Carefully configure street patterns to allow for multiple outlets from neighborhoods, and to continue the policy of providing for connections between neighborhoods, without encouraging through traffic			
GPR-5	Require sidewalks, bikeways and greenways as part of the necessary infrastructure for new development			
GPR-6	Require regularly spaced street trees, selected and planted in accordance with a street tree master plan, in new developments, whether commercial, office or residential			
GPR-7	Place new public and private buildings of architectural significance in locations of prominence and visual importance			
GPR-8	Ensure neighborhoods have adequate open space areas designed into the development			
GPR-9	Ensure residential architecture respects the value of the street upon which it faces with houses pulled up to the street, porches in the front, garages to the rear or setback from the rest of the home's front facade, and front walkways to the sidewalk			
POLICIES FOR OLDER NEIGHBORHOODS		**YES**	**NO**	**NA**
ON-1	Concentrate police protection, preferably in the form of foot and bicycle patrols, as part of a comprehensive strategy for neighborhood revitalization and crime prevention			
ON-2	Encourage pedestrian-level streetlights and appropriately designed private property lights , particularly in the town's older walkable neighborhoods			
ON-3	Implement housing programs, code enforcement activities, and public improvements in partnership with residents in targeted neighborhood areas and include restoration and rehabilitation activities			
ON-4	Ensure new infill development is architecturally compatible with existing structures, site layout and the streetscape within its vicinity			
ON-5	Continually reinvest in the infrastructure of older urban neighborhoods, including but not limited to: park improvements, sidewalks, street paving and maintenance, street trees, street lights, water and sewer lines, and drainage			
ON-6	Encourage pedestrian-oriented, designed and scaled stores and services providing basic necessities to residents of the town's older neighborhoods			
ON-7	Facilitate mass transit services through recognition of planned transit routes, development mix and density, and accommodation for future transit stop locations in redevelopment and infill projects in older neighborhoods			
POLICIES FOR NEWER NEIGHBORHOODS		**YES**	**NO**	**NA**
NN-1	Encourage architecturally compatible accessory housing on developed lots within existing neighborhood areas, especially for the elderly			
NN-2	Working in cooperation with neighborhood residents, support the provision of greenways, bikeways and walkways within existing neighborhoods			
NN-3	Architecturally compatible, residentially scaled office and institutional development may be permitted along major streets forming a boundary of a neighborhood planning area			
NN-4	Existing, less intensive development (i.e. residential or office uses) located at the intersection of two or more major streets may be allowed to undergo an orderly transition to appropriate commercial use, provided that original use is no longer viable and that careful site design will allow for compatibility with adjoining areas			

Community Plan Consistency Grid

		YES	NO	NA
POLICIES FOR FUTURE NEIGHBORHOODS		**YES**	**NO**	**NA**
FN-1	Promote a walkable community to minimize sprawl, as most new neighborhoods should be compact in form			
FN-2	Ensure new neighborhood streets are no wider than necessary to serve their intended purpose			
FN-3	Consider future transit service corridors and reinforce these corridors with development mixtures and densities appropriate for transit services			
FN-4	Include at least one neighborhood center or focal point in neighborhood planning areas			
FN-5	Encourage neighborhood serving businesses in neighborhood design			
FN-6	Encourage centrally located amenity centers and discourage them on the periphery of neighborhoods			
FN-7	Encourage a mixture of housing types, sizes, and prices for each neighborhood planning area			
FN-8	Encourage higher density housing that is served by transit and located close to adjoining work and shopping areas			
FN-9	Ensure new neighborhoods are connected to other neighborhoods, shopping, and work areas within the neighborhood planning area			
FN-10	Ensure street design gives equal priority to pedestrians and automobiles			
FN-11	Recognize bike routes and greenways in neighborhoods at the time of development			
POLICIES FOR EXISTING COMMERCIAL AREAS		**YES**	**NO**	**NA**
EC-1	Encourage appropriate landscaping and reconfiguration of large, existing unlandscaped parking areas.			
EC-2	Encourage the provision of convenience clusters for pedestrians, bicyclists and future transit services at strategic locations in existing commercial areas			
EC-3	Encourage the consolidation of commercial driveways onto major streets and the connection of adjacent parking lots			
EC-4	Encourage businesses to replace existing, non-conforming signage with more attractive, conforming signage.			
EC-5	Encourage new infill development across the front street face of existing, over-designed parking lots			
EC-6	Continue to prohibit billboards within the planning jurisdiction of Wake Forest			
EC-7	Ensure bicycle and pedestrian access to existing commercial areas			
POLICIES FOR FUTURE LARGE-SCALE COMMERCIAL AREAS		**YES**	**NO**	**NA**
LSC-1	Encourage large-scale commercial developments where appropriate, to contain a diverse mixture of retail, office, restaurant and service uses			
LSC-2	Locate large-scale commercial uses on the corners of neighborhood planning areas, that is, at the intersection of two or more major streets			
LSC-3	Allow planned mixed-use developments which allow for a compatible mixture of residential and non-residential uses with a pedestrian scale and design should be encouraged			
LSC-4	In planning for a new large scale development, buffer large-scale uses from adjacent residential areas by smaller scale buildings or by buffer strips			
LSC-5	Except for limited access highways, pull up new commercial buildings to the street; parking should be placed to the rear or side of the structure			
LSC-6	When appropriate, require the use of all around architecture (high quality facades on all sides of a building)			
LSC-7	Plan ahead for new large-scale commercial development in regards to future public transit stops and convenience clusters			
LSC-8	Limit driveway access for new large-scale commercial development to major thoroughfares and connect all adjacent parking lots			
LSC-9	Cluster together auto dealerships, large equipment sales and other businesses primarily dependent upon expansive outdoor sales lots for both functional and economic reasons			
LSC-10	Strongly discourage the abandonment of “big box” retail stores, for the purpose of relocating to another “bigger box” location in the community			

	Community Plan Consistency Grid				
	POLICIES FOR SMALL SCALE NEIGHBORHOOD BUSINESSES		**YES**	**NO**	**NA**
	SSB-1	Encourage small scale, pedestrian-oriented shopping and work places in the design of new neighborhoods			
	SSB-2	Locate neighborhood businesses at center of planning area rather than major thoroughfares			
	SSB-3	Ensure neighborhood businesses are designed at a residential scale and character			
	SSB-4	Coordinate the location of neighborhood serving businesses with bikeways and, where appropriate, future transit stops			
	SSB-5	Employ on-street parking in coordination with a limited amount of off-street parking for neighborhood serving businesses			
	SSB-6	Ensure neighborhood businesses have residential scale signage and lighting			
	SSB-7	Ensure neighborhood businesses encouraged as upfront infrastructure cost of new development			
	SSB-8	Ensure neighborhood businesses locate near public amenities if opportunity allows			
	SSB-9	Encourage living quarters over small retail shops and offices			
	POLICIES FOR FIRST GENERATION BUSINESS AND INDUSTRIAL AREAS		**YES**	**NO**	**NA**
	FGI-1	Actively participate, facilitate and partner in the adaptive reuse and conversion of former production, warehousing and manufacturing buildings into uses compatible with their design and location			
	FGI-2	If the demolition of an old industrial building or complex becomes necessary, any new structure(s) and site redevelopment should be compatible with the neighborhood context; such redevelopment should serve to improve the quality, character and livability of the surrounding area			
	POLICIES FOR SECOND GENERATION BUSINESS AND INDUSTRIAL AREAS		**YES**	**NO**	**NA**
	SGI-1	Encourage and support the rehabilitation, improvement, and re-occupancy of viable business and industrial properties that have become vacant.			
	SGI-2	The Town of Wake Forest acknowledges and supports the work of state and federal agencies, as well as its own town building inspectors, concerning the enforcement of environmental regulations and building standards, particularly concerning the redevelopment or adaptive reuse of manufacturing sites and buildings			
	POLICIES FOR THIRD GENERATION BUSINESS AND INDUSTRIAL AREAS		**YES**	**NO**	**NA**
	TGI-1	Periodically examine zoning ordinance and other development regulations to maintain or update appropriate standards and locations for manufacturing, warehouse and distribution opportunities within the Town's planning jurisdiction			
	TGI-2	Employ industrial development performance standards to promote the establishment or expansion of industries that are compatible with the public health, safety, and welfare of area residents, and that are supportive of the long term economic prosperity and environmental quality of the community			
	TGI-3	Provide and maintain adequate screening and buffering between residential areas and newly developed industrial sites			
	TGI-4	Ensure industrial and warehouse sites located within view of a public right-of-way or nearby property provide landscaping that enhances the property and is consistent with a quality image			

Community Plan Consistency Grid

		YES	NO	NA
POLICIES FOR DOWNTOWN		**YES**	**NO**	**NA**
D-1	Encourage a compatible, diverse mixture of retail, office, institutional, residential, dining, services, entertainment, and public open space in the downtown area			
D-2	Recognize the advantages of clustering similar activities and development forms in appropriate parts of the downtown			
D-3	Expand pedestrian oriented streetscape improvements, including wider sidewalks, street trees, decorative street lights, street furniture, and landscaping			
D-4	Direct new and expanding businesses to compatible buildings and sites in or near the downtown area			
D-5	Reserve ground floor space for retail uses with office and other uses on upper floors			
D-6	Maintain a tangible presence and committment to the downtown through the location of the Town's major municipal offices there and encourage other local, state and federal government agencies to maintain similar commitments to the downtown			
D-7	Continue to support the Wake Forest farmers market at the municipal parking lot in downtown Wake Forest			
D-8	Continue to utilize the Renaissance Area Urban Code to ensure that development and redevelopment will be supportive of the architectural and historic context that is vital to the economic success of downtown Wake Forest			
D-9	Encourage efforts to restore missing or underutilized street frontages, particularly on lots where previous buildings have been demolished and replaced with (oftentimes) surface parking			
D-10	Locate parking lots to the side or behind buildings or in the interior of the block with off-street parking spaces for multi-family buildings being in the rear yard			
POLICIES FOR PARKS, OPEN SPACE AND RECREATION		**YES**	**NO**	**NA**
PR-1	In cooperation with private sector interests, develop a system of open space greenways and walking trails to connect to residential areas with, especially, schools and park facilities			
PR-2	Include mini-parks in existing and proposed developments to meet the needs of small children and the elderly, and to encourage social interaction and mutual support among area families			
PR-3	Locate parks in full view of residential/non-residential activity for security			
PR-4	Provide funding to help demand for open space and recreation created by development			
PR-5	Co-locate parks & recreation facilities with schools, utility companies, and federal, state and local government agencies			
PR-6	Continue to seek efficiencies, cost savings, and quality services for park maintenance as the Town grows			
PR-7	Continue to explore new opportunities for providing recreation programs with all available partners			
POLICIES FOR MAJOR STREETS		**YES**	**NO**	**NA**
S-1	Space major streets no more than 1 mile apart			
S-2	Ensure access to undeveloped sections of major streets are from intersecting minor streets, rather than private driveways			
S-3	Ensure minor streets intersect major streets regularly at approximately every 400 to 600 feet			
S-4	Incorporate central medians into the design of new or improved major streets			
S-5	Plant landscaping, and where possible, street trees in central medians of major streets			
S-6	Plant and retain streetyard vegatation along major streets to soften and unify the streetscape			
S-7	Ensure contrasting streetyards along major streets for change in visual character			
S-8	Preserve and enhance natural, cultural and historic features along major streets			
S-9	Ensure parking areas are screened from view within major street corridors			
S-10	Employ special roadway overlay zoning to help implement corridor plans			
S-11	Ensure road widenings and/or one-way pairs are avoided for streets where the original design intent and relationship to adjoining land uses was otherwise			

	Community Plan Consistency Grid				
	POLICIES FOR MINOR STREETS		**YES**	**NO**	**NA**
	S-12	Encourage street patterns that respond to site topography, accentuate focal points and interesting vistas, create interesting public spaces and intersections, and that are coordinated with the placement of significant structures or open spaces			
	S-13	Consider incorporation of medians in neighborhood axial streets			
	S-14	Create short blocks of 300-500 feet in length to allow for many alternative routes for walking and biking, as well as a beneficial network of local streets			
	S-15	Design street widths to fit the intended use of the street, corresponding to the traffic load and planned development types			
	S-16	Employ a fully-connected honeycomb of streets to promote convenient circulation within the neighborhood and provide for multiple, alternative outlets from the area to adjoining neighborhoods and major streets			
	S-17	Encourage on-street parking in compact neighborhoods			
	S-18	Utilize grass swales to capture runoff in conservation subdivisions			
	S-19	Ensure turning radius of corners at intersections are as small as possible to shorten the street crossing distance for pedestrians at intersections			
	S-20	Install traffic calming methods as necessary to enhance livability			
	POLICIES FOR SIDEWALKS		**YES**	**NO**	**NA**
	SW-1	Where no sidewalks are present, provide sidewalks in existing developed areas to connect residential areas to walkable pedestrian destinations			
	SW-2	Ensure sidewalks are required on both sides of the street in new developments when along thoroughfares and collectors, in multi-family developments, in “front porch” developments, and along local streets within walking distance of a major pedestrian trip attractor			
	SW-3	Ensure sidewalk widths correspond with anticipated pedestrian traffic volumes, adjoining land uses, and sidewalk activities with minimum sidewalk widths at 5 feet, or 6 feet if along the verge of a street			
	SW-4	Continue curb stamp installation and retrofit curb ramps in existing sidewalks			
	SW-5	Ensure crosswalks are plainly marked and well lit, especially where significant pedestrian activity is observed or expected			
	POLICIES FOR BIKEWAYS		**YES**	**NO**	**NA**
	B-1	The bicycle facility selection guide, as used by the Federal Highway Administration, shall be employed for determining the most suitable type of bicycle facility for any new or upgraded roads in Wake Forest			
	B-2	Facilitate bicycle and pedestrian way connections between neighborhoods, either by street or connecting path, to enable the effective use of local, minor streets for pedestrian and bicycle travel			
	B-3	Install striped bicylce lanes and appropriate signage along existing streets where called for in the Bicycle Plan			
	B-4	Install striped bicylce lanes and appropriate signage along new collector streets			
	B-5	Install bicycle-responsive signals at intersections where appropriate			
	B-6	Ensure all new public and private developments have bike parking and bicycle access			
	B-7	Examine all future road construction and improvements for bikeway feasibility and conformity with the Town of Wake Forest Bicycle Plan			
	B-8	Examine all future developments and site plans for bicycle compatibility and conformity with the town Bicycle Plan			
	B-9	Include bicycle facilities and their impacts in traffic impact analyses for new private developments			
	B-10	Establish and implement pedestrian and bicycle friendly schools zones around all schools			
	B-11	Ensure bicycle-related improvements are an integral component of the Town’s annual budget for public infrastructure investment			

Community Plan Consistency Grid

		YES	NO	NA
POLICIES FOR GREENWAY TRAILS		**YES**	**NO**	**NA**
GT-1	Continue to pursue a greenway trails system that connects residential areas with schools and park facilities			
GT-2	Develop greenway trails in accordance with the environmental conditions of its corridor, its intended use for travel versus recreation, and the anticipated traffic volume of pedestrians and bicyclists			
GT-3	Ensure greenway construction is treated as a normal element of infrastructure necessary to support new development			
GT-4	Ensure greenway maintenance and safety in Town control after transfer from private control			
POLICIES FOR PUBLIC TRANSPORTATION		**YES**	**NO**	**NA**
PT-1	Support the successful operation and expansion of transit with compact, transit-compatible development patterns			
PT-2	Require site planning that incorporates transit stops and convenience clusters			
POLICIES FOR STREET TREES		**YES**	**NO**	**NA**
ST-1	Prepare and maintain an official Street Tree Planting Master Plan			
ST-2	Ensure consistent street tree species occur along certain sections of streets			
ST-3	Ensure a diversity of street tree species Town wide with no single species comprising more than 10-15% of total trees			
ST-4	Install regularly spaced street trees in central medians and frontage street medians			
ST-5	Continue to require The planting or preservation of street trees of appropriate size and species			
ST-6	Maximize available budget dollars for street tree master plan implementation			
POLICIES FOR STREETLIGHTS		**YES**	**NO**	**NA**
SL-1	Ensure streetlights are installed according to the design speed and/or intended use of the street or area they serve			
SL-2	Periodically evaluate emerging lighting technologies for best color, brightness and energy efficiency			
SL-3	Continue to develop and implement joint policies and standards for street light selection, installation, operation and maintenance in cooperation with Wake Electric and Duke/Progress Energy			
SL-4	Ensure streetlights are installed on both sides of streets unless a newly approved street is planned from the outset to have a sidewalk on only one side			
POLICIES FOR UTILITY POLES AND WIRES		**YES**	**NO**	**NA**
UPW-1	Maintain a master plan for the undergrounding of utilities, with priority given to pre-determined areas			
UPW-2	Ensure major town entrances and gateway corridors receive first priority for the undergrounding of overhead utilities			
UPW-3	Ensure high visibility, pedestrian-oriented areas receive second priority for the undergrounding of overhead utilities			
UPW-4	Ensure overhead utilities in other priority areas are placed underground or relocated as opportunities arise			
POLICIES FOR WIRELESS TELECOMMUNICATION FACILITIES		**YES**	**NO**	**NA**
WTF-1	Facilitate the development of wireless service technology as an economic development asset and significant benefit to the town and its residents			
WTF-2	Ensure the impacts of wireless telecommunication facilities should not be permitted to compromise the health, safety and public welfare of area residents; nor should such facilities be allowed to diminish the character of the community and visual quality of its environment			
WTF-3	Ensure that in residential areas, historic districts and the Renaissance districts, cell towers are only considered when there is no alternative for serving those areas and no other alternative wireless telecommunication structure can be utilized			
WTF-4	Initiate updates to standards for wireless telecommunication facilities as new technologies and structural requirements for wireless capabilities emerge over time			

Community Plan Consistency Grid

		YES	NO	NA
POLICIES FOR TOWN AND SPECIAL AREA ENTRANCES				
TSE-1	Employ noticeable streetscape improvements to clearly announce a town entrance and to enhance gateway corridors			
TSE-2	Extend streetscape improvements as the Town limits expand			
TSE-3	Employ special “gateway” treatment where where a bridge, underpass, overpass or other roadway feature is located at an entry point to the town or some portion of it			
POLICIES FOR COMMUNITY CHARACTER				
CC-1	Employ architectural standards consistent with Wake Forest’s architectural character for new, expanding, or improved businesses			
CC-2	Exceptional locations, views and vistas in the town should receive exceptional treatment and/or protection in design and development			
CC-3	Place noteworthy buildings, important outdoor spaces, objects of historic merit, important monuments, and significant works of art in positions of visibility and prominence			
CC-4	Incorporate significant natural and existing man-made elements into the thematic design of new developments			
CC-5	Save large trees, ponds, creeks, or other natural features of the landscape when locating new streets, buildings,parking lots, etc			
CC-6	Support community character by ensuring development is compatible with surrounding area			
CC-7	Ensure exterior lighting is attractive, functional and safety conscious, while also avoiding negative impacts on the night sky visibility of Wake Forest			
POLICIES FOR REGIONAL TRANSPORTATION				
RT-1	Continue to anticipate and plan for the impacts of new high speed rail service as it passes through Wake Forest en route to major urban centers north and south along the east coast			
RT-2	Continue to anticipate and plan for the transformation of US 1 Capital Blvd into a limited access freeway and multi-modal transportation corridor as per the plans of the US 1 Corridor Study			
RT-3	Support the express bus service between downtown Wake Forest and downtown Raleigh			
POLICIES FOR WATER AND SEWER				
WS-1	Work proactively with other local governments, utility service providers, and the State of North Carolina on regional, long term solutions for water supplies and sewage treatment			
WS-2	Place water and sewer utilities in areas where growth is desired			
WS-3	Avoid placing sewer utilities in environmentally sensitive areas or in areas where open space is desired			
WS-4	Encourage the development of sewer services that employ water reuse technologoes			
POLICIES FOR WATER CONSERVATION				
WC-1	Conserve, to the fullest extent possible, potable water and waste water treatment capacity			
WC-2	Employ other types of non-municipal water supplies such as wells, rainwater catching systems, rain barrels and in-ground cisterns			
WC-3	Eliminate or reduce usage of the municipal water supply for outside irrigation			
WC-4	Encourage new development to plant drought tolerant grasses on lawns			
WC-5	Encourage construction of new rainwater retainage systems			
WC-6	Encourage new development to include traditional plants native to the area			
WC-7	Encourage the installation of water saving devices in new and existing development			

	Community Plan Consistency Grid				
	POLICIES FOR COMMUNITY ORIENTED SCHOOLS		**YES**	**NO**	**NA**
	S-1	Plan for new school locations in advance through joint collaboration between the Town and School Board — with emphasis on steering facilities to desirable growth areas and avoiding sprawl			
	S-2	Encourage offering land for new school facilities, particularly in conjunction with related neighborhood development			
	S-3	Design safe campuses with pedestrian access to adjoining neighborhoods			
	S-4	Prioritize traffic management and safety in the vicinity of public schools			
	S-5	Co-locate school facilities with other community facilities and services			
	S-6	Ensure costs for new schools should be borne largely by new growth and development creating the demand			
	S-7	Foster diversity in community-oriented public schools by encouraging diversity in nearby neighborhoods feeding each school			
	POLICIES FOR PAYING FOR GROWTH		**YES**	**NO**	**NA**
	PFG-1	Ensure the costs of infrastructure, facilities and services related to new growth and development should be borne primarily by those creating the demand			
	PFG-2	Continually seek to balance residential and non-residential development to foster a favorable service-cost to revenue-generated tax base			
	PFG-3	Fees charged by the Town for development reviews and inspections should approximate the actual costs to the Town of conducting such work			
	PFG-4	Explore cost recovery fees for new "greenfield" development			
	PFG-5	Undertake annual planning and budegting for capital facilities			
	POLICIES FOR A HEALTHY SUSTAINABLE ENVIRONMENT		**YES**	**NO**	**NA**
	HSE-1	Ensure development policies work to make Wake Forest more walkable and pedestrian-friendly, and less dependent on the single-occupant automobile			
	HSE-2	Encourage compact, transit-oriented, mixed-use developments to facilitate walking, biking and transit options			
	HSE-3	Locate new higher density residential development within walking distance of jobs and services and design it to be transit compatible with current and future transit services			
	HSE-4	Recognize and facilitate low impact development			
	HSE-5	Ensure runoff and drainage from development is of a quality and quantity as near to natural conditions as possible			
	HSE-6	Require vegetative riparian buffers along all creeks, rivers, lakes and other water bodies in Wake Forest			
	HSE-7	Encourage conservation subdivisions where site conditions call for minimizing environmental disturbance and protecting adjoining natural resources			
	HSE-8	Ensure large parking lots have landscaped planting islands and perimeter buffer strips and may use other design technologies to intercept and absorb runoff			
	HSE-9	Carefully control development activities in the special flood hazard areas			
	HSE-10	Encourage the construction of energy efficient structures, including the use of "green" building design			
	HSE-11	Ensure site plans for new development work sympathetically with the natural features of the land, including existing topography and significant existing vegetation			
	HSE-12	Explore a combination of incentives and disincentives to protect existing trees and/or require the replacement of trees removed for development			
	HSE-13	Encourage green infrastructure (grassed swales, rain gardens, bio-retention strips, cisterns, rain barrels, permeable pavements, etc.)			
	HSE-14	Offer a variety of solid waste reduction strategies and services including educational programs on waste prevention, recycling and reuse			
	HSE-15	Facilitate proper disposal of household hazardous waste materials			
	HSE-16	Encourage on-site residential composting			
	HSE-17	Continue off-site mulching and redistribution of landscape yard waste			
	HSE-18	Continue to support education and activities that reduce litter and illegal dumping			
	HSE-19	Continue to plan in advance for area requirements concerning solid waste collection and disposal			

Community Plan Consistency Grid

POLICIES FOR ECONOMIC DEVELOPMENT		**YES**	**NO**	**NA**
ED-1	Encourage new and expanding industries and businesses that are compatible with the long-term quality of the area's natural and cultural resources, match up well with the area's infrastructure and services, employ and develop the skills of area workers, and diversify the local economy			
ED-2	Retain quality businesses and to attract new ones continue to invest in infrastructure and services that sustain and enhance the area's already high quality of life, image and cultural identity			
ED-3	Pursue economic and business development partnerships between the Town, other local jurisdictions, other economic development organizations, and private companies			
ED-4	Strive for a financial and regulatory environment that supports the establishment and growth of small business			
ED-5	Develop real estate "product" suitable for business placement that focuses on the identification, enhancement and certification of buildings and sites readily available for construction and/or occupancy			
POLICIES FOR ARTS CULTURE AND HISTORIC PRESERVATION		**YES**	**NO**	**NA**
ACH-1	Encourage efforts and actively participate in the provision of indoor and outdoor public and private spaces to showcase the work of visual and performing artists in Wake Forest			
ACH-2	Encourage new private sector developments to include art as an integral element of privately owned common areas and semi-public spaces			
ACH-3	Ensure budgets for new construction and renovations of town buildings include a line item for the purchase and display of art			
ACH-4	Continue to have cultural arts be enhanced as a permanent function of the Town's recreation program offerings			
ACH-5	Employ design standards that ensure development and redevelopment is consistent with the architectural context, community character, economic attractiveness and livability of Wake Forest			
ACH-6	Encourage the identification, restoration, and active use of structures, buildings, monuments, landmarks, sites and neighborhoods of historic or architectural significance			
ACH-7	Strongly discourage the destruction of architectural, historic, and archealogical resources of Wake Forest			
POLICIES FOR PUBLIC SAFETY		**YES**	**NO**	**NA**
PS-1	Employ community education, school, and public involvement programs to enhance community awareness of public safety issues			
PS-2	Periodically review the need for additional paid personnel, capital improvements and equipment needs to meet or exceed public safety standards, insurance ratings and other measures of public safety			
PS-3	Strategically locate additional public safety substations, provided that sufficient resources can be made available to properly staff and equip them			
PS-4	Proactively support legislative efforts to strengthen local law enforcement tools			
PS-5	Employ a holistic approach to public safety involving residents, businesses, and institutions in the preparation of neighborhood improvement plans, with priority given to public safety concerns			
PS-6	Encourage excellence in law enforcement, fire protection, and emergency services through on-going education, training and participation in national accreditation programs			
PS-7	Support the establishment of an east-west through street (or loop road) on the north side of town to improve emergency access to locations in that area			
POLICIES FOR LEADERSHIP AND COMMUNITY INVOLVEMENT		**YES**	**NO**	**NA**
LCI-1	Continue to emphasize the importance of advisory boards & committees in conducting the Town's business			
LCI-2	Ensure boards and committees of the Town are representative of the population and geography of the planning area or subject matter being addressed			
LCI-3	Encourage public involvement in decisions on land use and development by making the public aware of proposed developments at the earliest lawful opportunity, as well as fostering communication between developers and the general public			
LCI-4	Encourage neighborhood and special area planning			
LCI-5	Continue to ensure maintenance and enhancements to the Town's internet and multi-media news dissemination capabilities			
LCI-6	Participate proactively in the cooperation of efforts among civic and volunteer organizations for maximum impact in the community			

May 2021

CARROLL JOYNER RESIDENTIAL

Traffic Impact Analysis

LOCATED IN WAKE FOREST, NC

Prepared for:

Dr. E. Carroll Joyner
394 Fleming Road
Youngsville, NC 28596

Prepared by:

Exult Engineering, PC
P.O. Box 99277
Raleigh, NC 27624

EXULT ENGINEERING

This document entitled Carroll Joyner Residential Traffic Impact Analysis was prepared by Exult Engineering, PC for the account of Dr. E. Carroll Joyner. The material in it reflects Exult Engineering's best judgement in light of the information available to them at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Exult Engineering, PC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Carroll Joyner Residential Traffic Impact Analysis

Prepared by: _____ (sign)

Date: 5-24-2021

Lisa Lundeen, PE

Reviewed by: _____ (sign)

Date: 5-24-21

Brittany Chase, PE

EXULT ENGINEERING

NORTH CAROLINA PROFESSIONAL SEAL 033825 ENGINEER BRITTANY L. W. CHASE

5-24-21

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EXECUTIVE SUMMARY

The proposed 131.65-acre site is situated on the west side of Capital Boulevard south of Purnell Road in Wake Forest, North Carolina. The property is currently zoned as General Residential 3 Planned Unit Development (GR3 PUD). The proposed development consists of 168 single family residential units, 137 residential townhomes, and 90 senior adult detached residential units and does require rezoning to the GR-10 Conditional District. The proposed site is to be developed within six years by the year 2027. The proposed development will be accessed via connectivity to the existing Club Villas Drive and the existing Country Club Drive, both of which currently provide full movement access to Capital Boulevard. The western portion of the site will serve the senior adult detached residential units and will have access to Purnell Road via connectivity to Simpson Court. The purpose of this TIA is to analyze the potential traffic impacts of the proposed development on the surrounding roadway network and to identify any roadway improvements necessary to mitigate the impact of the project traffic.

A TIA Scoping Meeting was held on Tuesday, April 6, 2021 and a follow-up Memorandum of Understanding was prepared and submitted to the Town of Wake Forest and North Carolina Department of Transportation (NCDOT). The MOU and subsequent correspondence regarding the scope of the TIA is included in the Appendix of this report. The *NCDOT Congestion Management Capacity Analysis Guidelines* were referenced to perform this traffic study.

As determined by the Town of Wake Forest and NCDOT, the study area includes:

1. Purnell Road and Hogan Drive
2. Capital Boulevard and Purnell Road/Harris Road
3. Capital Boulevard and Club Villas Drive
4. Capital Boulevard and Country Club Drive/Templeridge Road
5. Capital Boulevard and Jenkins Road/Stadium Drive

The proposed development is expected to generate 3,186 daily trips, 228 AM peak hour trips (59 entering, 169 exiting), and 292 PM peak hour trips (183 entering, 109 exiting).

Based on coordination with the Town, a 3% annual growth rate was applied to the existing traffic volumes to determine 2027 background traffic volumes. Approved developments are developments in the area of the proposed site that have been approved but not yet constructed. The traffic from these approved developments is expected to contribute to the background traffic volumes projected for the study intersections. According to the Town and NCDOT, the following approved developments were to be considered in the future year analysis scenarios:

1. Devon Square - 135 single family homes and 150 townhomes located on the east side of Capital Boulevard to the south of Harris Road in Wake Forest with an anticipated buildout year of 2022.
2. Glen Oaks – 225 single family homes and 73 townhomes located on the east side of Capital Boulevard to the north of Wall Road in Wake Forest with an anticipated buildout year of 2022.

To determine the traffic impacts of the proposed development, capacity analyses were performed at the study intersections under the following scenarios:

- Existing (2021) Traffic Conditions
- No-Build (2027) Traffic Conditions

- Buildout (2027) Traffic Conditions
- Buildout (2027) Traffic Conditions with Recommended Improvements

NCDOT and the Town have indicated there are no roadway improvements committed to by others to include in the future analysis for the study intersections.

Based on the capacity analysis presented herein, the following roadway improvements are recommended to be completed **by the developer** to accommodate project traffic:

U.S. 1/Capital Boulevard at Club Villas Drive:

- Stripe the existing eastbound approach of Club Villas Drive to provide two egress lanes on the stem that exists between Capital Boulevard and Wake Union Church Road.

In addition to the improvement listed above, the Town of Wake Forest is requiring the developer to construct the service road along Capital Boulevard within the site in accordance with the Town of Wake Forest's *Comprehensive Transportation Plan*. The service road will provide connectivity when Capital Boulevard is upgraded to a controlled-access facility (NCDOT TIP# U-5307).

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

June 1, 2021

Toll Brothers - Carroll Joyner Residential

Traffic Impact Analysis Review Report

Congestion Management Section

TIA Project: SC-2021-119
Division: 5
County: Wake

Doumit Y. Ishak, Regional Engineer
Clarence B. Bunting, IV, P.E. Project Engineer
Braden M. Walker, P.E. Project Design Engineer

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION MOBILITY & SAFETY DIVISION
1561 MAIL SERVICE CENTER
RALEIGH, NC 27699-1561

Telephone: (919) 814-5000
Fax: (919) 771-2745
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
750 N. GREENFIELD PARKWAY
GARNER, NC 27529

Toll Brothers - Carroll Joyner Residential

SC-2021-119	Wake Forest	Wake County

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data for background conditions presented in the Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

Date Initially Received by CMS	05/03/21	Date of Site Plan	N/A
Date of Complete Information	05/03/21	Date of Sealed TIA	05/03/21

Proposed Development

The TIA assumes the development is to be completed by 2027 and consist of the following:

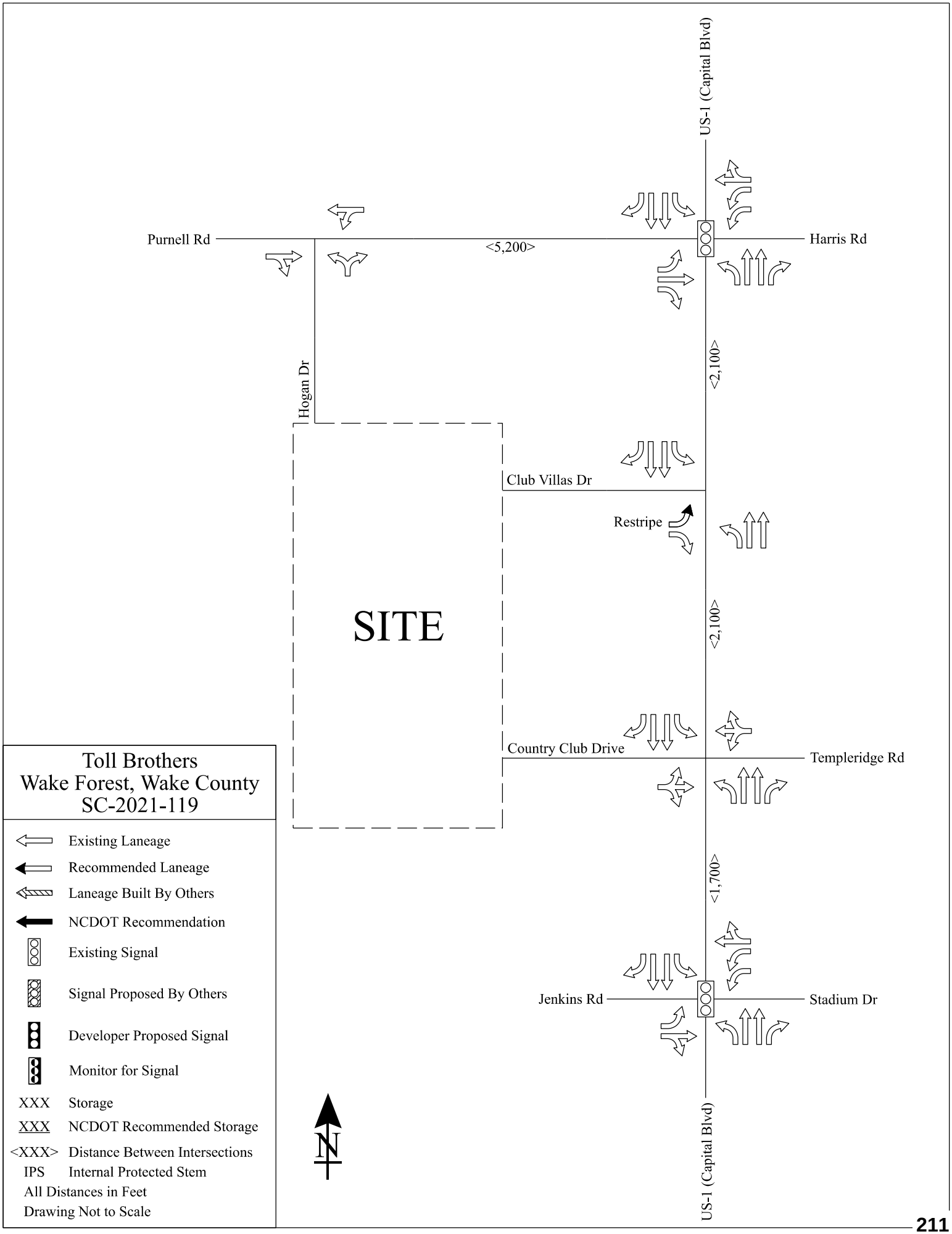
Land Use	Land Use Code	Size
Single Family	210	168 d.u.
Multi-Family Housing (Low-Rise)	220	137 d.u.
Senior Adult Housing	251	90 d.u.

Trip Generation - Unadjusted Volumes During a Typical Weekday			
	IN	**OUT**	**TOTAL**
AM Peak Hour	59	169	228
PM Peak Hour	183	109	292
Daily Trips			3,186

General Reference

For reference to various documents applicable to this review please reference the following link: *http://www.ncdot.org/doh/preconstruct/traffic/teppl/Topics/C-37/C-37.html*

Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section.


US-1 (Capital Blvd)
Purnell Rd
<5,200>
Harris Rd
<2,100>
Hogan Dr
Club Villas Dr
Restripe
SITE
<2,100>
Country Club Drive
Templeridge Rd
<1,700>
Jenkins Rd
Stadium Dr
US-1 (Capital Blvd)
N
Toll Brothers
Wake Forest, Wake County
SC-2021-119
Existing Laneage
Recommended Laneage
Laneage Built By Others
NCDOT Recommendation
Existing Signal
Signal Proposed By Others
Developer Proposed Signal
Monitor for Signal
XXX Storage
XXX NCDOT Recommended Storage
<XXX> Distance Between Intersections
IPS Internal Protected Stem
All Distances in Feet
Drawing Not to Scale

- BEGINNING AT THE INTERSECTION OF THE COMMON CORNER OF THE NORTHERN RIGHT-OF-WAY LINE OF COUNTY CLUB DRIVE A 60’ PUBLIC R/W AND U.S. HIGHWAY 1 – CAPITAL BOULEVARD A 200’ PUBLIC R/W, HAVING NC NAD83(2011) GRID COORDINATES OF N817312.81, E2140089.55;
- THENCE N 67°52'38" W A DISTANCE OF 461.22’ TO A POINT;
- THENCE N 15°13'03" E A DISTANCE OF 766.04’ TO A POINT;
- THENCE S 81°23'09" E A DISTANCE OF 94.87’ TO A POINT;
- THENCE N 07°48'44" W A DISTANCE OF 181.25’ TO A POINT;
- THENCE N 01°20'40" W A DISTANCE OF 281.39’ TO A POINT;
- THENCE N 37°05'36" W A DISTANCE OF 255.55’ TO A POINT;
- THENCE S 52°23'00" W A DISTANCE OF 103.34’ TO A POINT;
- THENCE S 21°22'36" W A DISTANCE OF 166.96’ TO A POINT;
- THENCE S 66°28'38" W A DISTANCE OF 161.76’ TO A POINT;
- THENCE S 43°00'49" W A DISTANCE OF 76.98’ TO A POINT;
- THENCE N 52°48'40" W A DISTANCE OF 7.42’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 7.39', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 57°02'43" W, WITH A CHORD LENGTH OF 7.38',TO A POINT;
- THENCE N 61°16'47" W A DISTANCE OF 49.87’ TO A POINT;
- THENCE N 52°26'16" W A DISTANCE OF 41.60’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 54.99', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 83°56'41" W, WITH A CHORD LENGTH OF 52.26',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 54.73', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 86°47'21" W, WITH A CHORD LENGTH OF 52.04',TO A POINT;
- THENCE S 61°51'11" W A DISTANCE OF 17.57’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 0.41', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 61°37'11" W, WITH A CHORD LENGTH OF 0.41',TO A POINT;
- THENCE N 49°06'08" W A DISTANCE OF 51.59’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 1.69', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 50°04'17" W, WITH A CHORD LENGTH OF 1.69',TO A POINT;
- THENCE N 51°02'25" W A DISTANCE OF 41.46’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 8.91', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 56°08'38" W, WITH A CHORD LENGTH OF 8.90',TO A POINT;
- THENCE N 61°14'50" W A DISTANCE OF 60.47’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 13.42', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 68°56'20" W, WITH A CHORD LENGTH OF 13.38',TO A POINT;
- THENCE N 76°37'50" W A DISTANCE OF 55.14’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 7.55', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 80°57'24" W, WITH A CHORD LENGTH OF 7.54',TO A POINT;
- THENCE N 85°16'58" W A DISTANCE OF 50.44’ TO A POINT;

- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 37.47', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 73°14'47" W, WITH A CHORD LENGTH OF 36.60',TO A POINT;
- THENCE S 51°46'33" W A DISTANCE OF 17.39’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 15.56', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 42°51'31" W, WITH A CHORD LENGTH OF 15.50',TO A POINT;
- THENCE S 33°56'30" W A DISTANCE OF 69.92’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 1.33', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 33°10'44" W, WITH A CHORD LENGTH OF 1.33',TO A POINT;
- THENCE S 32°24'58" W A DISTANCE OF 40.22’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 5.23', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 29°25'02" W, WITH A CHORD LENGTH OF 5.23',TO A POINT;
- THENCE S 26°25'05" W A DISTANCE OF 28.35’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 8.63', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 87°18'49" W, WITH A CHORD LENGTH OF 8.62',TO A POINT;
- THENCE N 12°22'19" W A DISTANCE OF 15.98’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 17.52', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 00°46'39" E, WITH A CHORD LENGTH OF 17.43',TO A POINT;
- THENCE N 15°08'30" E A DISTANCE OF 28.18’ TO A POINT;
- THENCE N 16°43'15" E A DISTANCE OF 9.74’ TO A POINT;
- THENCE N 32°02'28" E A DISTANCE OF 13.10’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 33.52', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF N 12°50'14" E, WITH A CHORD LENGTH OF 32.89',TO A POINT;
- THENCE WITH A REVERSE CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 172.33', WITH A RADIUS OF 530.11', WITH A CHORD BEARING OF S 46°07'47" W, WITH A CHORD LENGTH OF 171.57',TO A POINT;
- THENCE S 09°29'33" E A DISTANCE OF 32.15’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 20.50', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 21°14'09" E, WITH A CHORD LENGTH OF 20.35',TO A POINT;
- THENCE S 32°58'46" E A DISTANCE OF 24.89’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 20.38', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 44°39'21" E, WITH A CHORD LENGTH OF 20.24',TO A POINT;
- THENCE S 56°19'56" E A DISTANCE OF 19.64’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 8.06', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 60°56'56" E, WITH A CHORD LENGTH OF 8.05',TO A POINT;
- THENCE S 65°33'56" E A DISTANCE OF 21.08’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 32.95', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 84°26'35" E, WITH A CHORD LENGTH OF 32.35',TO A POINT;
- THENCE S 59°59'51" E A DISTANCE OF 2.04’ TO A POINT;

- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 6.58', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 63°46'12" E, WITH A CHORD LENGTH OF 6.58',TO A POINT;
- THENCE S 67°32'34" E A DISTANCE OF 12.20’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 12.28', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 74°34'41" E, WITH A CHORD LENGTH OF 12.25',TO A POINT;
- THENCE S 81°36'49" E A DISTANCE OF 45.85’ TO A POINT;
- THENCE S 78°09'26" E A DISTANCE OF 48.49’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 6.61', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 81°56'41" E, WITH A CHORD LENGTH OF 6.61',TO A POINT;
- THENCE S 85°43'55" E A DISTANCE OF 60.86’ TO A POINT;
- THENCE S 84°23'07" E A DISTANCE OF 58.86’ TO A POINT;
- THENCE S 82°37'58" E A DISTANCE OF 63.93’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 3.22', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 84°28'42" E, WITH A CHORD LENGTH OF 3.22',TO A POINT;
- THENCE S 86°19'25" E A DISTANCE OF 21.78’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 0.94', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 86°51'48" E, WITH A CHORD LENGTH OF 0.94',TO A POINT;
- THENCE S 19°21'34" W A DISTANCE OF 26.74’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 36.50', WITH A RADIUS OF 50.00', WITH A CHORD BEARING OF S 01°33'13" E, WITH A CHORD LENGTH OF 35.70',TO A POINT;
- THENCE N 82°44'06" W A DISTANCE OF 73.00’ TO A POINT;
- THENCE N 74°11'42" W A DISTANCE OF 199.94’ TO A POINT;
- THENCE N 75°52'57" W A DISTANCE OF 222.71’ TO A POINT;
- THENCE S 16°05'08" W A DISTANCE OF 262.19’ TO A POINT;
- THENCE S 56°42'09" W A DISTANCE OF 265.17’ TO A POINT;
- THENCE S 48°13'28" W A DISTANCE OF 299.67’ TO A POINT;
- THENCE S 89°52'35" W A DISTANCE OF 376.77’ TO A POINT;
- THENCE N 66°38'08" W A DISTANCE OF 128.17’ TO A POINT;
- THENCE N 66°38'11" W A DISTANCE OF 35.33’ TO A POINT;
- THENCE N 24°03'00" E A DISTANCE OF 150.54’ TO A POINT;
- THENCE N 28°16'24" E A DISTANCE OF 106.79’ TO A POINT;
- THENCE N 28°12'55" E A DISTANCE OF 137.83’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 52.49', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 07°34'23" E, WITH A CHORD LENGTH OF 51.89',TO A POINT;
- THENCE N 07°27'47" W A DISTANCE OF 61.20’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 68.29', WITH A RADIUS OF 101.12', WITH A CHORD BEARING OF N 51°59'52" E, WITH A CHORD LENGTH OF 67.00',TO A POINT;
- THENCE N 32°39'02" E A DISTANCE OF 41.15’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 47.23', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 19°07'16" E, WITH A CHORD LENGTH OF 46.79',TO A POINT;

- THENCE N 05°35'30" E A DISTANCE OF 53.61’ TO A POINT;
- THENCE N 03°15'37" E A DISTANCE OF 11.90’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 24.37', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 07°01'44" W, WITH A CHORD LENGTH OF 24.31',TO A POINT;
- THENCE N 34°25'53" E A DISTANCE OF 7.70’ TO A POINT;
- THENCE N 76°18'59" E A DISTANCE OF 39.10’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 17.32', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 71°21'19" E, WITH A CHORD LENGTH OF 17.30',TO A POINT;
- THENCE N 66°23'40" E A DISTANCE OF 18.41’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 72.88', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 45°30'53" E, WITH A CHORD LENGTH OF 71.28',TO A POINT;
- THENCE N 24°38'06" E A DISTANCE OF 38.25’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 47.70', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 10°58'13" E, WITH A CHORD LENGTH OF 47.25',TO A POINT;
- THENCE N 02°41'40" W A DISTANCE OF 45.55’ TO A POINT;
- THENCE N 18°06'42" E A DISTANCE OF 15.00’ TO A POINT;
- THENCE N 33°38'32" E A DISTANCE OF 47.83’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 60.92', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 16°11'19" E, WITH A CHORD LENGTH OF 59.99',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 27.50', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 48°29'08" E, WITH A CHORD LENGTH OF 27.41',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 20.83', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 44°34'42" E, WITH A CHORD LENGTH OF 20.79',TO A POINT;
- THENCE S 50°32'43" E A DISTANCE OF 10.46’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 9.11', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 53°09'21" E, WITH A CHORD LENGTH OF 9.11',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 57.74', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 42°12'10" E, WITH A CHORD LENGTH OF 56.94',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 61.82', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 32°16'58" E, WITH A CHORD LENGTH OF 60.84',TO A POINT;
- THENCE S 49°59'30" E A DISTANCE OF 15.48’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 49.84', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 64°16'16" E, WITH A CHORD LENGTH OF 49.33',TO A POINT;
- THENCE S 78°33'02" E A DISTANCE OF 18.76’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 22.90', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 85°06'42" E, WITH A CHORD LENGTH OF 22.85',TO A POINT;
- THENCE S 41°44'27" E A DISTANCE OF 14.89’ TO A POINT;

- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 56.31', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 57°52'24" E, WITH A CHORD LENGTH OF 55.57',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 19.50', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 21°31'35" E, WITH A CHORD LENGTH OF 19.47',TO A POINT;
- THENCE S 27°06'42" E A DISTANCE OF 10.44’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 30.50', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 35°50'59" E, WITH A CHORD LENGTH OF 30.38',TO A POINT;
- THENCE S 44°35'15" E A DISTANCE OF 10.36’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 66.01', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 63°29'55" E, WITH A CHORD LENGTH OF 64.82',TO A POINT;
- THENCE WITH A REVERSE CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 12.86', WITH A RADIUS OF 55.87', WITH A CHORD BEARING OF S 69°52'22" E, WITH A CHORD LENGTH OF 12.83',TO A POINT;
- THENCE S 66°02'50" E A DISTANCE OF 32.86’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 19.74', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 71°42'12" E, WITH A CHORD LENGTH OF 19.71',TO A POINT;
- THENCE S 77°21'34" E A DISTANCE OF 21.03’ TO A POINT;
- THENCE S 72°12'41" E A DISTANCE OF 35.91’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 27.76', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 44°06'56" E, WITH A CHORD LENGTH OF 27.67',TO A POINT;
- THENCE S 52°04'04" E A DISTANCE OF 10.50’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 14.28', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 56°09'27" E, WITH A CHORD LENGTH OF 14.26',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 266.31', WITH A RADIUS OF 473.43', WITH A CHORD BEARING OF N 47°20'48" E, WITH A CHORD LENGTH OF 262.82',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 28.79', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 35°27'15" W, WITH A CHORD LENGTH OF 28.69',TO A POINT;
- THENCE N 43°42'05" W A DISTANCE OF 9.63’ TO A POINT;
- THENCE N 24°38'07" W A DISTANCE OF 24.17’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 79.25', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 47°20'21" W, WITH A CHORD LENGTH OF 77.19',TO A POINT;
- THENCE N 70°02'35" W A DISTANCE OF 10.01’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 1.12', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 35°42'35" W, WITH A CHORD LENGTH OF 1.12',TO A POINT;
- THENCE N 36°01'47" W A DISTANCE OF 24.11’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 53.02', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 51°13'03" W, WITH A CHORD LENGTH OF 52.40',TO A POINT;
- THENCE N 66°24'19" W A DISTANCE OF 42.59’ TO A POINT;

- THENCE N 51°58'42" W A DISTANCE OF 34.78’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 16.81', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF N 56°47'41" W, WITH A CHORD LENGTH OF 16.79',TO A POINT;
- THENCE N 61°36'41" W A DISTANCE OF 10.85’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 134.65', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 79°48'55" W, WITH A CHORD LENGTH OF 124.70',TO A POINT;
- THENCE S 41°14'30" W A DISTANCE OF 3.28’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 28.04', WITH A RADIUS OF 96.93', WITH A CHORD BEARING OF N 55°48'17" W, WITH A CHORD LENGTH OF 27.94',TO A POINT;
- THENCE N 63°50'06" W A DISTANCE OF 31.86’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 34.40', WITH A RADIUS OF 99.18', WITH A CHORD BEARING OF N 73°41'23" W, WITH A CHORD LENGTH OF 34.23',TO A POINT;
- THENCE N 31°19'08" W A DISTANCE OF 8.93’ TO A POINT;
- THENCE N 38°02'19" W A DISTANCE OF 9.16’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 11.98', WITH A RADIUS OF 2382.99', WITH A CHORD BEARING OF N 42°21'33" W, WITH A CHORD LENGTH OF 11.98',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 13.04', WITH A RADIUS OF 2592.41', WITH A CHORD BEARING OF N 49°11'53" W, WITH A CHORD LENGTH OF 13.04',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 11.45', WITH A RADIUS OF 2276.35', WITH A CHORD BEARING OF N 57°53'53" W, WITH A CHORD LENGTH OF 11.45',TO A POINT;
- THENCE N 60°21'03" W A DISTANCE OF 1.09’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 50.10', WITH A RADIUS OF 98.38', WITH A CHORD BEARING OF N 36°03'13" W, WITH A CHORD LENGTH OF 49.56',TO A POINT;
- THENCE N 43°34'59" E A DISTANCE OF 15.86’ TO A POINT;
- THENCE N 32°34'06" E A DISTANCE OF 58.31’ TO A POINT;
- THENCE N 43°14'28" W A DISTANCE OF 29.00’ TO A POINT;
- THENCE N 16°37'42" W A DISTANCE OF 36.59’ TO A POINT;
- THENCE N 07°24'07" W A DISTANCE OF 133.72’ TO A POINT;
- THENCE N 33°13'03" W A DISTANCE OF 160.35’ TO A POINT;
- THENCE N 06°11'08" W A DISTANCE OF 68.01’ TO A POINT;
- THENCE N 01°45'36" E A DISTANCE OF 39.99’ TO A POINT;
- THENCE N 18°55'11" E A DISTANCE OF 53.35’ TO A POINT;
- THENCE N 03°49'40" W A DISTANCE OF 23.25’ TO A POINT;
- THENCE N 14°51'24" W A DISTANCE OF 38.26’ TO A POINT;
- THENCE N 25°53'09" W A DISTANCE OF 25.64’ TO A POINT;
- THENCE N 23°08'58" W A DISTANCE OF 16.25’ TO A POINT;
- THENCE N 40°45'16" E A DISTANCE OF 32.45’ TO A POINT;
- THENCE N 29°23'24" E A DISTANCE OF 45.06’ TO A POINT;
- THENCE N 17°54'08" E A DISTANCE OF 25.48’ TO A POINT;
- THENCE N 15°10'03" E A DISTANCE OF 26.92’ TO A POINT;
- THENCE N 19°34'34" E A DISTANCE OF 35.96’ TO A POINT;

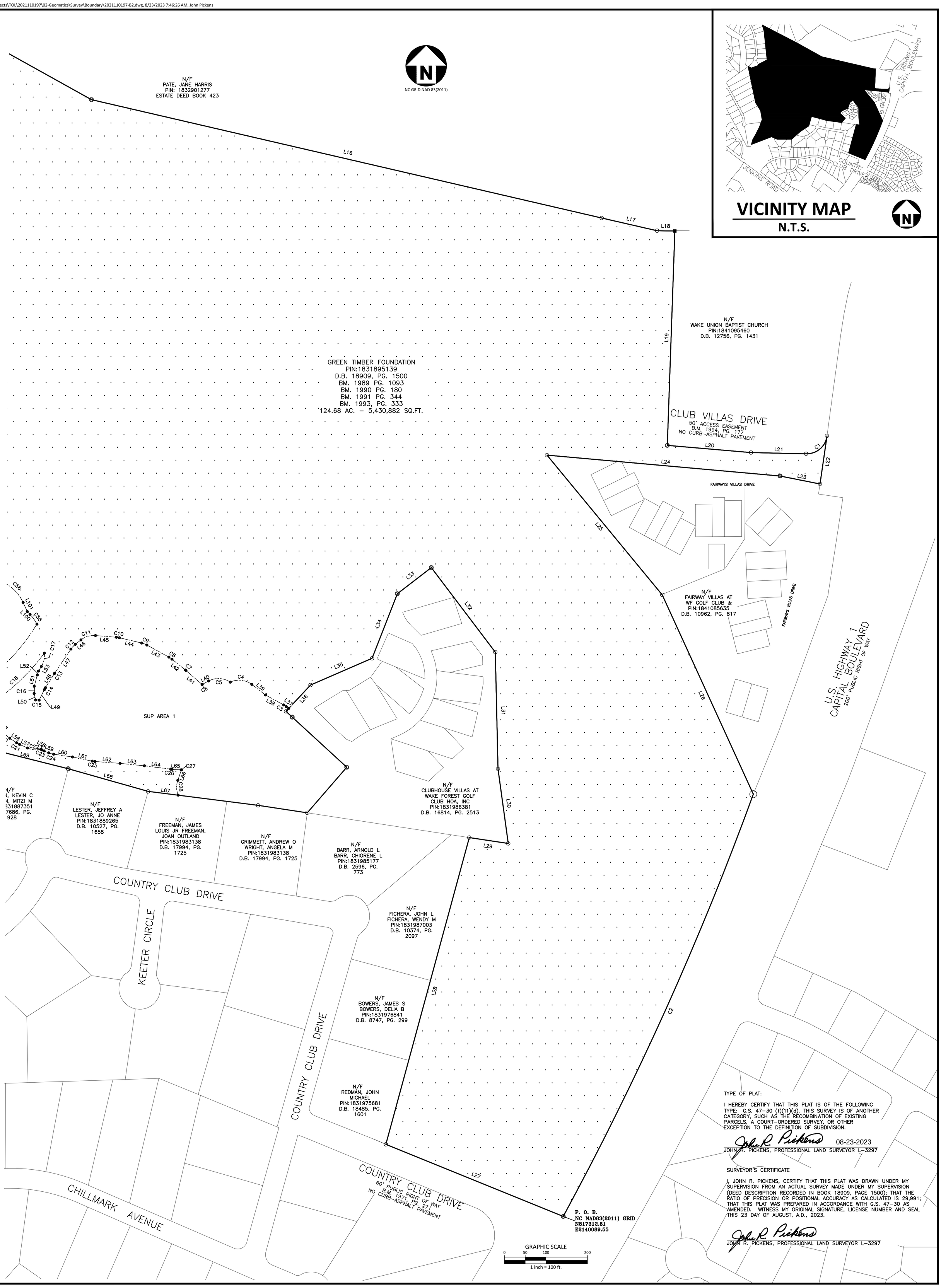
- THENCE N 19°18'10" E A DISTANCE OF 39.23’ TO A POINT;
- THENCE N 15°00'01" E A DISTANCE OF 15.00’ TO A POINT;
- THENCE N 10°35'49" E A DISTANCE OF 41.09’ TO A POINT;
- THENCE N 00°43'50" W A DISTANCE OF 40.44’ TO A POINT;
- THENCE N 04°13'05" W A DISTANCE OF 18.09’ TO A POINT;
- THENCE N 14°27'25" W A DISTANCE OF 35.55’ TO A POINT;
- THENCE N 24°41'45" W A DISTANCE OF 32.60’ TO A POINT;
- THENCE N 25°51'01" W A DISTANCE OF 45.71’ TO A POINT;
- THENCE N 07°48'56" W A DISTANCE OF 33.12’ TO A POINT;
- THENCE N 27°14'42" E A DISTANCE OF 36.27’ TO A POINT;
- THENCE N 62°09'00" E A DISTANCE OF 49.79’ TO A POINT;
- THENCE N 12°53'31" E A DISTANCE OF 46.99’ TO A POINT;
- THENCE N 69°04'13" W A DISTANCE OF 23.59’ TO A POINT;
- THENCE N 52°22'31" W A DISTANCE OF 69.99’ TO A POINT;
- THENCE N 24°09'10" W A DISTANCE OF 93.20’ TO A POINT;
- THENCE N 47°40'33" W A DISTANCE OF 40.09’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 34.95', WITH A RADIUS OF 109.88', WITH A CHORD BEARING OF S 29°49'10" W, WITH A CHORD LENGTH OF 34.80',TO A POINT;
- THENCE S 19°47'54" W A DISTANCE OF 45.43’ TO A POINT;
- THENCE S 24°27'05" W A DISTANCE OF 26.26’ TO A POINT;
- THENCE S 22°55'31" W A DISTANCE OF 6.47’ TO A POINT;
- THENCE S 34°52'41" W A DISTANCE OF 28.23’ TO A POINT;
- THENCE S 46°56'17" W A DISTANCE OF 36.90’ TO A POINT;
- THENCE S 40°52'30" W A DISTANCE OF 21.12’ TO A POINT;
- THENCE S 34°48'44" W A DISTANCE OF 35.86’ TO A POINT;
- THENCE S 24°18'25" W A DISTANCE OF 36.46’ TO A POINT;
- THENCE S 13°48'07" W A DISTANCE OF 42.11’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 57.49', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 02°40'06" E, WITH A CHORD LENGTH OF 56.70',TO A POINT;
- THENCE S 19°08'19" E A DISTANCE OF 34.08’ TO A POINT;
- THENCE S 24°44'36" E A DISTANCE OF 64.31’ TO A POINT;
- THENCE S 25°06'31" E A DISTANCE OF 30.16’ TO A POINT;
- THENCE S 24°00'37" W A DISTANCE OF 21.18’ TO A POINT;
- THENCE S 22°38'28" W A DISTANCE OF 10.17’ TO A POINT;
- THENCE S 19°46'53" W A DISTANCE OF 38.66’ TO A POINT;
- THENCE S 13°58'08" W A DISTANCE OF 36.48’ TO A POINT;
- THENCE S 55°29'36" W A DISTANCE OF 27.31’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 78.43', WITH A RADIUS OF 129.52', WITH A CHORD BEARING OF S 38°08'46" W, WITH A CHORD LENGTH OF 77.23',TO A POINT;
- THENCE S 16°43'26" W A DISTANCE OF 36.18’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 48.94', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 02°42'13" W, WITH A CHORD LENGTH OF 48.45',TO A POINT;
- THENCE S 10°16'37" W A DISTANCE OF 27.45’ TO A POINT;
- THENCE S 20°47'44" W A DISTANCE OF 44.74’ TO A POINT;

- THENCE S 04°29'25" W A DISTANCE OF 37.33’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 10.66', WITH A RADIUS OF 9.81', WITH A CHORD BEARING OF S 26°39'02" E, WITH A CHORD LENGTH OF 10.14',TO A POINT;
- THENCE S 57°07'21" E A DISTANCE OF 17.77’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 18.82', WITH A RADIUS OF 10.00', WITH A CHORD BEARING OF N 68°58'12" E, WITH A CHORD LENGTH OF 16.16',TO A POINT;
- THENCE N 15°03'44" E A DISTANCE OF 26.96’ TO A POINT;
- THENCE N 41°59'56" E A DISTANCE OF 15.44’ TO A POINT;
- THENCE S 34°53'37" E A DISTANCE OF 29.07’ TO A POINT;
- THENCE S 26°34'15" W A DISTANCE OF 33.50’ TO A POINT;
- THENCE S 20°15'06" W A DISTANCE OF 34.85’ TO A POINT;
- THENCE S 15°02'58" W A DISTANCE OF 18.13’ TO A POINT;
- THENCE S 09°50'49" W A DISTANCE OF 23.75’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 34.12', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 00°04'24" W, WITH A CHORD LENGTH OF 33.95',TO A POINT;
- THENCE S 09°42'01" E A DISTANCE OF 36.10’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 15.81', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 14°13'47" E, WITH A CHORD LENGTH OF 15.79',TO A POINT;
- THENCE S 47°41'05" W A DISTANCE OF 11.59’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 65.07', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 29°02'38" W, WITH A CHORD LENGTH OF 63.93',TO A POINT;
- THENCE S 10°24'11" W A DISTANCE OF 34.34’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 2.72', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 09°37'24" W, WITH A CHORD LENGTH OF 2.72',TO A POINT;
- THENCE S 08°50'38" W A DISTANCE OF 49.98’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 27.40', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 00°59'38" W, WITH A CHORD LENGTH OF 27.32',TO A POINT;
- THENCE S 06°49'47" W A DISTANCE OF 47.66’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 75.73', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 14°51'55" E, WITH A CHORD LENGTH OF 73.93',TO A POINT;
- THENCE S 36°33'38" E A DISTANCE OF 37.01’ TO A POINT;
- THENCE S 44°56'46" W A DISTANCE OF 43.58’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 60.31', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 27°40'08" W, WITH A CHORD LENGTH OF 59.40',TO A POINT;
- THENCE S 10°23'31" W A DISTANCE OF 62.42’ TO A POINT;
- THENCE S 36°58'35" W A DISTANCE OF 28.30’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 50.34', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 22°33'18" W, WITH A CHORD LENGTH OF 49.81',TO A POINT;
- THENCE S 08°08'01" W A DISTANCE OF 51.63’ TO A POINT;

- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 0.39', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 08°01'18" W, WITH A CHORD LENGTH OF 0.39',TO A POINT;
- THENCE WITH A COMPOUND CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 27.40', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 66°36'47" W, WITH A CHORD LENGTH OF 27.31',TO A POINT;
- THENCE S 58°45'52" W A DISTANCE OF 33.70’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 35.83', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 48°30'02" W, WITH A CHORD LENGTH OF 35.64',TO A POINT;
- THENCE S 38°14'12" W A DISTANCE OF 53.97’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 23.95', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 31°22'36" W, WITH A CHORD LENGTH OF 23.89',TO A POINT;
- THENCE S 24°31'00" W A DISTANCE OF 39.67’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 46.37', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 11°13'58" W, WITH A CHORD LENGTH OF 45.95',TO A POINT;
- THENCE S 02°03'03" E A DISTANCE OF 15.42’ TO A POINT;
- THENCE S 24°47'28" W A DISTANCE OF 51.03’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 5.64', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 44°20'34" W, WITH A CHORD LENGTH OF 5.64',TO A POINT;
- THENCE S 42°43'33" W A DISTANCE OF 65.28’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 89.02', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 17°13'23" W, WITH A CHORD LENGTH OF 86.11',TO A POINT;
- THENCE S 08°16'46" E A DISTANCE OF 62.95’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 10.02', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 11°09'03" E, WITH A CHORD LENGTH OF 10.02',TO A POINT;
- THENCE S 36°21'58" W A DISTANCE OF 8.16’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 16.13', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 31°44'39" W, WITH A CHORD LENGTH OF 16.12',TO A POINT;
- THENCE S 27°07'19" W A DISTANCE OF 94.15’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 0.60', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 26°57'04" W, WITH A CHORD LENGTH OF 0.60',TO A POINT;
- THENCE S 26°46'50" W A DISTANCE OF 72.07’ TO A POINT;
- THENCE S 32°50'22" W A DISTANCE OF 4.25’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 38.54', WITH A RADIUS OF 100.00', WITH A CHORD BEARING OF S 80°52'41" W, WITH A CHORD LENGTH OF 38.30',TO A POINT;
- THENCE S 69°50'11" W A DISTANCE OF 29.84’ TO A POINT;
- THENCE N 81°53'51" W A DISTANCE OF 53.77’ TO A POINT;
- THENCE S 32°58'01" W A DISTANCE OF 28.23’ TO A POINT;
- THENCE S 27°27'56" W A DISTANCE OF 49.68’ TO A POINT;
- THENCE S 25°41'57" W A DISTANCE OF 62.73’ TO A POINT;
- THENCE S 31°37'18" W A DISTANCE OF 10.32’ TO A POINT;

- THENCE S 37°32'39" W A DISTANCE OF 48.61’ TO A POINT;
- THENCE S 32°35'26" W A DISTANCE OF 57.10’ TO A POINT;
- THENCE S 23°57'38" W A DISTANCE OF 35.67’ TO A POINT;
- THENCE S 26°26'06" W A DISTANCE OF 6.64’ TO A POINT;
- THENCE S 36°50'28" W A DISTANCE OF 7.03’ TO A POINT;
- THENCE S 39°36'37" W A DISTANCE OF 16.58’ TO A POINT;
- THENCE S 19°37'39" W A DISTANCE OF 12.35’ TO A POINT;
- THENCE S 09°27'48" W A DISTANCE OF 66.54’ TO A POINT;
- THENCE S 15°48'19" W A DISTANCE OF 11.05’ TO A POINT;
- THENCE S 28°06'16" W A DISTANCE OF 10.38’ TO A POINT;
- THENCE S 34°03'42" W A DISTANCE OF 7.84’ TO A POINT;
- THENCE S 04°21'49" W A DISTANCE OF 30.52’ TO A POINT;
- THENCE S 69°00'35" W A DISTANCE OF 86.88’ TO A POINT;
- THENCE N 14°10'34" E A DISTANCE OF 115.35’ TO A POINT;
- THENCE N 29°42'58" E A DISTANCE OF 167.57’ TO A POINT;
- THENCE N 26°35'04" E A DISTANCE OF 216.72’ TO A POINT;
- THENCE N 20°07'35" E A DISTANCE OF 207.26’ TO A POINT;
- THENCE N 09°42'50" W A DISTANCE OF 237.10’ TO A POINT;
- THENCE N 31°51'04" W A DISTANCE OF 252.04’ TO A POINT;
- THENCE N 11°39'11" W A DISTANCE OF 966.15’ TO A POINT;
- THENCE S 60°41'37" E A DISTANCE OF 91.53’ TO A POINT;
- THENCE N 69°38'03" E A DISTANCE OF 206.12’ TO A POINT;
- THENCE N 21°46'12" W A DISTANCE OF 25.32’ TO A POINT;
- THENCE N 62°33'32" E A DISTANCE OF 265.46’ TO A POINT;
- THENCE N 06°11'10" W A DISTANCE OF 765.84’ TO A POINT;
- THENCE N 16°11'10" W A DISTANCE OF 150.97’ TO A POINT;
- THENCE S 62°43'12" E A DISTANCE OF 1003.40’ TO A POINT;
- THENCE S 60°54'15" E A DISTANCE OF 756.53’ TO A POINT;
- THENCE S 76°56'27" E A DISTANCE OF 1261.64’ TO A POINT;
- THENCE S 77°03'58" E A DISTANCE OF 136.80’ TO A POINT;
- THENCE S 89°06'20" E A DISTANCE OF 42.92’ TO A POINT;
- THENCE S 02°01'30" W A DISTANCE OF 516.85’ TO A POINT;
- THENCE S 85°04'42" E A DISTANCE OF 202.37’ TO A POINT;
- THENCE S 88°44'51" E A DISTANCE OF 132.76’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 70.67', WITH A RADIUS OF 49.10', WITH A CHORD BEARING OF N 50°45'46" E, WITH A CHORD LENGTH OF 64.73',TO A POINT;
- THENCE S 08°17'23" W A DISTANCE OF 114.82’ TO A POINT;
- THENCE N 78°47'17" W A DISTANCE OF 98.10’ TO A POINT;
- THENCE N 84°52'19" W A DISTANCE OF 563.66’ TO A POINT;
- THENCE S 39°29'11" E A DISTANCE OF 436.41’ TO A POINT;
- THENCE S 24°33'19" E A DISTANCE OF 527.95’ TO A POINT;
- THENCE WITH A CURVE TURNING TO THE RIGHT WITH AN ARC LENGTH OF 1116.61', WITH A RADIUS OF 7581.08', WITH A CHORD BEARING OF S 24°13'57" W, WITH A CHORD LENGTH OF 1115.60',TO A POINT WHICH IS THE **POINT OF BEGINNING,**
- HAVING AN AREA OF 5,430,882 SQUARE FEET, 124.68 ACRES

M:\Projects\TOL\2021110197\02-Geomatics\Survey\Boundary\2021110197-B2.dwg, 8/23/2023 7:46:26 AM, John Pickens



TYPE OF PLAT:

I HEREBY CERTIFY THAT THIS PLAT IS OF THE FOLLOWING TYPE: G.S. 47–30 (f)(11)(d). THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT–ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

08-23-2023
JOHN R. PICKENS, PROFESSIONAL LAND SURVEYOR L–3297

SURVEYOR'S CERTIFICATE

I, JOHN R. PICKENS, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK 18909, PAGE 1500); THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY AS CALCULATED IS 29,991; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47–30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS 23 DAY OF AUGUST, A.D., 2023.

JOHN R. PICKENS, PROFESSIONAL LAND SURVEYOR L–3297

JOYNER PROPERTY

REZONING MAP
MASTER LAND USE PLAN

CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

CLIENT

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

MCADAMS
The John R. McAdams Company, Inc.
621 Hillsborough Street
Suite 500
Raleigh, NC 27603
phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187
www.mcadamsco.com

REVISIONS

NO.	DATE

NORTH CAROLINA PROFESSIONAL SEAL L–3297 LAND SURVEYOR JOHN R. PICKENS
08-23-2023

PLAN INFORMATION

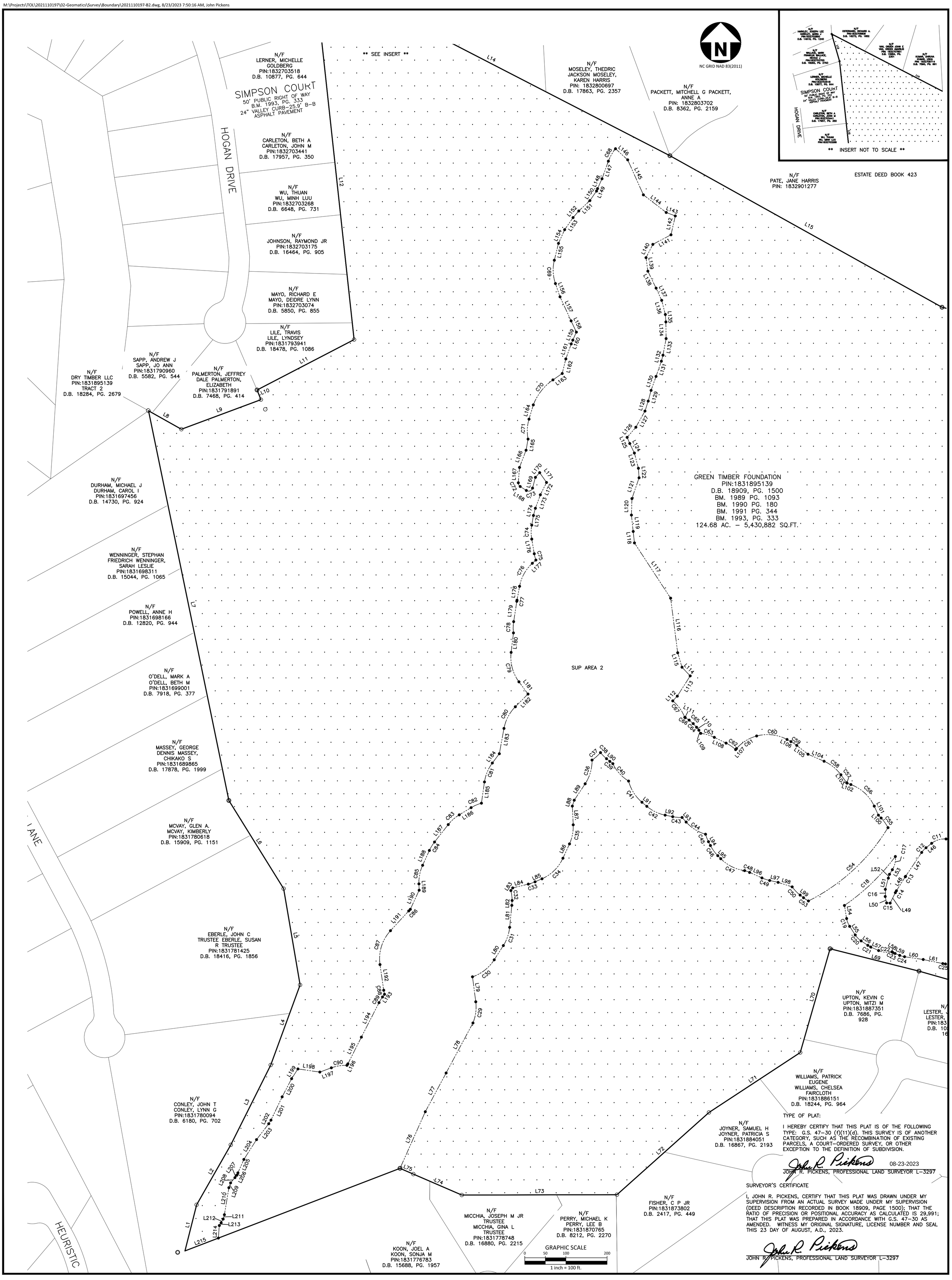
PROJECT NO.	2021110197
FILENAME	2021110197-B2
CHECKED BY	JBT
DRAWN BY	JRP
SCALE	1"=100'
DATE	07.31.2023

SHEET

SHEET TITLE
SECOND LINE

CX.XX

M:\Projects\TOL\2021110197\02-Geomatics\Survey\Boundary\2021110197-B2.dwg, 8/23/2023 7:50:16 AM, John Pickens



TYPE OF PLAT:

I HEREBY CERTIFY THAT THIS PLAT IS OF THE FOLLOWING TYPE: G.S. 47-30 (f)(11)(d). THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

08-23-2023
JOHN R. PICKENS, PROFESSIONAL LAND SURVEYOR L-3297

SURVEYOR'S CERTIFICATE

I, JOHN R. PICKENS, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK 18909, PAGE 1500); THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY AS CALCULATED IS 29,991; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS 23 DAY OF AUGUST, A.D., 2023.

JOHN R. PICKENS, PROFESSIONAL LAND SURVEYOR L-3297

JOYNER PROPERTY

REZONING MAP
MASTER LAND USE PLAN

CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO.	DATE

NORTH CAROLINA PROFESSIONAL SEAL L-3297 LAND SURVEYOR JOHN R. PICKENS
08-23-2023

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-B2
CHECKED BY	JBT
DRAWN BY	JRP
SCALE	1"=100'
DATE	07.31.2023

SHEET

SHEET TITLE
SECOND LINE

CX.XX

CLIENT

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

MCADAMS
The John R. McAdams Company, Inc.
621 Hillsborough Street
Suite 500
Raleigh, NC 27603
phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187
www.mcadamsco.com

VICINITY MAP
N.T.S.

GENERAL NOTES

1. THIS IS A SURVEY OF AN EXISTING PARCEL(S) OF LAND. THIS IS AN REZONING PLAT.
2. BEARINGS FOR THIS SURVEY ARE BASED ON NORTH CAROLINA GRID.
3. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.
4. ZONING: GR3
5. AREA BY COORDINATE GEOMETRY.
6. FLOOD NOTE: THIS PROPERTY IS LOCATED IN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE "X" & "AE" AS DEFINED BY F.E.M.A F.I.R.M COMMUNITY PANELTOWN OF WAKE FOREST #3720183100K, 3720183200L, 3720184400K, 3720184200M DATED 7/19/2022.
7. REFERENCES: DB. 2086 PG. 677, OF THE WAKE COUNTY REGISTRY & CAROLINA POWER & LIGHT DRAWING # L-D-2581 PIN: 0629626959
8. UTILITY STATEMENT
   THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
9. NO PUBLISHED NC GID MONUMENTS WITHIN 2000' OF SITE. REFERENCE TBM WERE ESTABLISH BY GPS.
11. ELEVATIONS FOR THIS SURVEY ARE BASED ON NAD83
12. NO EVIDENCE OF RECENT EARTH MOVING WORK OR BUILDING CONSTRUCTION.

LINE TABLE

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
L1	N 14°10'34" E	115.35'	L56	S 56°19'56" E	19.64'	L111	N 60°21'03" W	1.09'	L166	S 20°47'44" W	44.74'
L2	N 29°42'58" E	167.57'	L57	S 65°33'56" E	21.08'	L112	N 43°34'59" E	15.86'	L167	S 04°29'25" W	37.33'
L3	N 26°35'04" E	216.72'	L58	S 59°59'51" E	2.04'	L113	N 32°34'06" E	58.31'	L168	S 57°07'21" E	17.77'
L4	N 20°07'35" E	207.26'	L59	S 67°32'34" E	12.20'	L114	N 43°14'28" W	29.00'	L169	N 15°03'44" E	26.96'
L5	N 09°42'50" W	237.10'	L60	S 81°36'49" E	45.85'	L115	N 16°37'42" W	36.59'	L170	N 41°59'56" E	15.44'
L6	N 31°51'04" W	252.04'	L61	S 78°09'26" E	48.49'	L116	N 07°24'07" W	133.72'	L171	S 34°53'37" E	29.07'
L7	N 11°39'11" W	966.15'	L62	S 85°43'55" E	60.86'	L117	N 33°13'03" W	160.35'	L172	S 26°34'15" W	33.50'
L8	S 60°41'37" E	91.53'	L63	S 84°23'07" E	58.86'	L118	N 06°11'08" W	27.96'	L173	S 20°15'06" W	34.85'
L9	N 69°38'03" E	206.12'	L64	S 82°37'58" E	63.93'	L119	N 06°11'08" W	40.05'	L174	S 15°02'58" W	18.13'
L10	N 21°46'12" W	25.32'	L65	S 86°19'25" E	21.78'	L120	N 01°45'36" E	39.99'	L175	S 09°50'49" W	23.75'
L11	N 62°33'32" E	265.46'	L66	S 19°21'34" W	26.74'	L121	N 18°55'11" E	53.35'	L176	S 09°42'01" E	36.10'
L12	N 06°11'10" W	765.84'	L67	N 82°44'06" W	73.00'	L122	N 03°49'40" W	23.25'	L177	S 47°41'05" W	11.59'
L13	N 16°11'10" W	150.97'	L68	N 74°11'42" W	199.94'	L123	N 14°51'24" W	38.26'	L178	S 10°24'11" W	34.34'
L14	S 62°43'12" E	1003.40'	L69	N 75°52'57" W	222.71'	L124	N 25°53'09" W	25.64'	L179	S 08°50'38" W	49.98'
L15	S 60°54'15" E	756.53'	L70	S 16°05'08" W	262.19'	L125	N 23°08'58" W	16.25'	L180	S 06°49'47" W	47.66'
L16	S 76°56'27" E	1261.64'	L71	S 56°42'09" W	265.17'	L126	N 40°45'16" E	32.45'	L181	S 36°33'38" E	37.01'
L17	S 77°03'58" E	136.80'	L72	S 48°13'28" W	299.67'	L127	N 29°23'24" E	45.06'	L182	S 44°56'46" W	43.58'
L18	S 89°06'20" E	42.92'	L73	S 89°52'35" W	376.77'	L128	N 17°54'08" E	25.48'	L183	S 10°23'31" W	62.42'
L19	S 02°01'30" W	516.85'	L74	N 66°38'08" W	128.17'	L129	N 15°10'03" E	26.92'	L184	S 36°58'35" W	28.30'
L20	S 85°04'42" E	202.37'	L75	N 66°38'11" W	35.33'	L130	N 19°34'34" E	35.96'	L185	S 08°78'58" W	52.03'
L21	S 88°44'51" E	132.76'	L76	N 24°03'00" E	150.54'	L131	N 19°18'10" E	39.23'	L186	S 58°45'52" W	33.70'
L22	S 08°17'23" W	114.82'	L77	N 28°16'24" E	106.79'	L132	N 15°00'01" E	15.00'	L187	S 38°14'12" W	53.97'
L23	N 78°47'17" W	98.10'	L78	N 28°12'55" E	137.83'	L133	N 10°35'49" E	41.09'	L188	S 24°31'00" W	39.67'
L24	N 84°52'19" W	563.66'	L79	N 07°27'47" W	61.20'	L134	N 00°43'50" W	40.44'	L189	S 02°03'03" E	15.42'
L25	S 39°29'11" E	436.41'	L80	N 32°39'02" E	41.15'	L135	N 04°13'05" W	18.09'	L190	S 24°47'28" W	51.03'
L26	S 24°33'19" E	527.95'	L81	N 05°35'30" E	53.61'	L136	N 14°27'25" W	35.55'	L191	S 42°43'33" W	65.28'
L27	N 67°52'38" W	461.22'	L82	N 03°15'37" E	11.90'	L137	N 24°41'45" W	32.60'	L192	S 08°16'46" E	62.95'
L28	N 15°13'03" E	766.04'	L83	N 34°25'53" E	7.70'	L138	N 25°51'01" W	45.71'	L193	S 36°21'58" W	8.16'
L29	S 81°23'09" E	94.87'	L84	N 76°18'59" E	39.10'	L139	N 07°48'56" W	33.12'	L194	S 27°07'15" W	94.75'
L30	N 07°48'44" W	181.25'	L85	N 66°23'40" E	18.41'	L140	N 27°14'42" E	36.27'	L195	S 26°46'50" W	72.07'
L31	N 01°20'40" W	281.39'	L86	N 24°38'06" E	38.25'	L141	N 62°09'00" E	49.79'	L196	S 32°50'22" W	4.25'
L32	N 37°05'36" W	255.55'	L87	N 02°41'40" W	45.55'	L142	N 12°53'31" E	46.99'	L197	S 69°50'11" W	29.84'
L33	S 52°23'00" W	103.34'	L88	N 18°06'42" E	15.00'	L143	N 69°04'13" W	23.59'	L198	N 81°53'51" W	53.77'
L34	S 21°22'36" W	166.96'	L89	N 33°38'32" E	47.83'	L144	N 52°22'31" W	69.99'	L199	S 32°58'01" W	28.23'
L35	S 66°28'38" W	161.76'	L90	S 50°32'43" E	10.46'	L145	N 24°09'10" W	93.20'	L200	S 27°27'56" W	49.68'
L36	S 43°00'49" W	76.98'	L91	S 49°59'30" E	15.48'	L146	N 47°40'33" W	40.09'	L201	S 25°41'57" W	62.73'
L37	N 52°48'40" W	7.42'	L92	S 78°33'02" E	18.76'	L147	S 19°47'54" W	45.43'	L202	S 31°37'18" W	10.32'
L38	N 61°16'47" W	49.87'	L93	S 41°44'27" E	14.89'	L148	S 24°27'05" W	26.26'	L203	S 37°32'39" W	48.61'
L39	N 52°26'16" W	41.60'	L94	S 27°06'42" E	10.44'	L149	S 22°55'31" W	6.47'	L204	S 32°35'26" W	57.10'
L40	S 61°51'11" W	17.57'	L95	S 44°35'15" E	10.36'	L150	S 34°52'41" W	28.23'	L205	S 23°57'38" W	35.67'
L41	N 49°06'08" W	51.59'	L96	S 66°02'50" E	32.86'	L151	S 46°56'17" W	36.90'	L206	S 26°26'06" W	6.64'
L42	N 51°02'25" W	41.46'	L97	S 77°21'34" E	21.03'	L152	S 40°52'30" W	21.12'	L207	S 36°50'28" W	7.03'
L43	N 61°14'50" W	60.47'	L98	S 72°12'41" E	35.91'	L153	S 34°48'44" W	35.86'	L208	S 39°36'37" W	16.58'
L44	N 76°37'50" W	55.14'	L99	S 52°04'04" E	10.50'	L154	S 24°18'25" W	36.46'	L209	S 19°37'39" W	12.35'
L45	N 85°16'58" W	50.44'	L100	N 43°42'05" W	9.63'	L155	S 13°48'07" W	42.11'	L210	S 09°27'48" W	66.54'
L46	S 51°46'33" W	17.39'	L101	N 24°38'07" W	24.17'	L156	S 19°08'19" E	34.08'	L211	S 15°48'19" W	11.05'
L47	S 33°56'30" W	69.92'	L102	N 70°02'35" W	10.01'	L157	S 24°44'36" E	64.31'	L212	S 28°06'16" W	10.38'
L48	S 32°24'58" W	40.22'	L103	N 36°01'47" W	24.11'	L158	S 25°06'31" E	30.16'	L213	S 34°03'42" W	7.84'
L49	S 26°25'05" W	28.35'	L104	N 66°24'19" W	42.59'	L159	S 24°00'37" W	21.18'	L214	S 04°21'49" W	30.52'
L50	N 12°22'19" W	15.98'	L105	N 51°58'42" W	34.78'	L160	S 22°38'28" W	10.17'	L215	S 69°00'35" W	86.88'
L51	N 15°08'30" E	28.18'	L106	N 61°36'41" W	10.85'	L161	S 19°46'53" W	38.66'			
L52	N 16°43'15" E	9.74'	L107	S 41°14'30" W	3.28'	L162	S 13°58'08" W	36.48'			
L53	N 32°02'28" E	13.10'	L108	N 63°50'06" W	31.86'	L163	S 55°29'36" W	27.31'			
L54	S 09°29'33" E	32.15'	L109	N 31°19'08" W	8.93'	L164	S 16°43'26" W	36.18'			
L55	S 32°58'46" E	24.89'	L110	N 38°02'19" W	9.16'	L165	S 10°16'37" W	27.45'			

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	49.10'	70.67'	N 50°45'46" E	64.73'
C2	7581.08'	1116.61'	S 24°13'57" W	1115.60'
C3	50.00'	7.39'	N 57°02'43" W	7.38'
C4	50.00'	54.99'	N 83°56'41" W	52.26'
C5	50.00'	54.73'	N 86°47'21" W	52.04'
C6	50.00'	0.41'	S 61°37'11" W	0.41'
C7	50.00'	1.69'	N 50°04'17" W	1.69'
C8	50.00'	8.91'	N 56°08'38" W	8.90'
C9	50.00'	13.42'	N 68°56'20" W	13.38'
C10	50.00'	7.55'	N 80°57'24" W	7.54'
C11	50.00'	37.47'	S 73°14'47" W	36.60'
C12	50.00'	15.56'	S 42°51'31" W	15.50'
C13	50.00'	1.33'	S 33°10'44" W	1.33'
C14	50.00'	5.23'	S 29°25'02" W	5.23'
C15	50.00'	8.63'	N 87°18'49" W	8.62'
C16	50.00'	17.52'	N 00°46'39" E	17.43'
C17	50.00'	33.52'	N 12°50'14" E	32.89'
C18	530.11'	172.33'	S 46°07'47" W	171.57'
C19	50.00'	20.50'	S 21°14'09" E	20.35'
C20	50.00'	20.38'	S 44°39'21" E	20.24'
C21	50.00'	8.06'	S 60°56'56" E	8.05'
C22	50.00'	32.95'	S 84°26'35" E	32.35'
C23	50.00'	6.58'	S 63°46'12" E	6.58'
C24	50.00'	12.28'	S 74°34'41" E	12.25'
C25	50.00'	6.61'	S 81°56'41" E	6.61'
C26	50.00'	3.22'	S 84°28'42" E	3.22'
C27	50.00'	0.94'	S 86°51'48" E	0.94'
C28	50.00'	36.50'	S 01°33'13" E	35.70'
C29	100.00'	52.49'	N 07°34'23" E	51.89'
C30	101.12'	68.29'	N 51°59'52" E	67.00'
C31	100.00'	47.23'	N 19°07'16" E	46.79'
C32	100.00'	24.37'	N 07°01'44" W	24.31'
C33	100.00'	17.32'	N 71°21'19" E	17.30'
C34	100.00'	72.88'	N 45°30'53" E	71.28'
C35	100.00'	47.70'	N 10°58'13" E	47.25'
C36	100.00'	60.92'	N 16°11'19" E	59.99'
C37	100.00'	27.50'	N 48°29'08" E	27.41'
C38	100.00'	20.83'	S 44°34'42" E	20.79'
C39	100.00'	9.11'	S 53°09'21" E	9.11'
C40	100.00'	57.74'	S 42°12'10" E	56.94'
C41	100.00'	61.82'	S 32°16'58" E	60.84'
C42	100.00'	49.84'	S 64°16'16" E	49.33'
C43	100.00'	22.90'	S 85°06'42" E	22.85'
C44	100.00'	56.31'	S 57°52'24" E	55.57'
C45	100.00'	19.50'	S 21°31'35" E	19.47'
C46	100.00'	30.50'	S 35°50'59" E	30.38'
C47	100.00'	66.01'	S 63°29'55" E	64.82'
C48	55.87'	12.86'	S 69°52'22" E	12.83'
C49	100.00'	19.74'	S 71°42'12" E	19.71'
C50	100.00'	27.76'	S 44°06'56" E	27.67'
C53	100.00'	14.28'	S 56°09'27" E	14.28'
C54	473.43'	266.31'	N 47°20'48" E	262.82'
C55	100.00'	28.79'	N 35°27'15" W	28.69'
C56	100.00'	79.25'	N 47°20'21" W	77.19'
C57	100.00'	1.12'	N 35°42'35" W	1.12'
C58	100.00'	53.02'	N 51°13'03" W	52.40'
C59	100.00'	16.81'	N 56°47'41" W	16.79'
C60	100.00'	76.11'	N 83°24'51" W	74.28'
C61	100.00'	58.54'	S 58°00'44" W	57.71'
C62	96.93'	28.04'	N 55°48'17" W	27.94'
C63	99.18'	34.40'	N 73°41'23" W	34.23'
C64	2382.99'	11.98'	N 42°21'33" W	11.98'
C65	2592.41'	13.04'	N 49°11'53" W	13.04'
C66	2276.35'	11.45'	N 57°53'53" W	11.45'
C67	98.38'	50.10'	N 36°03'13" W	49.56'
C68	109.88'	34.95'	S 29°49'10" W	34.80'
C69	100.00'	57.49'	S 02°40'06" E	56.70'
C70	129.52'	78.43'	S 38°08'46" W	77.23'
C71	100.00'	48.94'	S 02°42'13" W	48.45'
C72	9.81'	10.66'	S 26°39'02" E	10.14'
C73	10.00'	18.82'	N 68°58'12" E	16.16'
C74	100.00'	34.12'	S 00°04'24" W	33.95'
C75	100.00'	15.81'	S 14°13'47" E	15.79'
C76	100.00'	65.07'	S 29°02'38" W	63.93'
C77	100.00'	2.72'	S 09°37'24" W	2.72'
C78	100.00'	27.40'	S 00°59'38" W	27.32'
C79	100.00'	75.73'	S 14°51'55" E	73.93'
C80	100.00'	60.31'	S 27°40'08" W	59.40'
C81	100.00'	50.34'	S 22°33'18" W	49.81'
C82	100.00'	27.40'	S 66°36'47" W	27.31'
C83	100.00'	35.83'	S 48°30'02" W	35.64'
C84	100.00'	23.95'	S 31°22'36" W	23.89'
C85	100.00'	46.37'	S 11°13'58" W	45.95'
C86	100.00'	5.64'	S 44°20'34" W	5.64'
C87	100.00'	89.02'	S 17°13'23" W	86.11'
C88	100.00'	10.02'	S 11°09'03" E	10.02'
C89	100.00'	16.13'	S 31°44'39" W	16.12'
C90	100.00'	38.54'	S 80°52'41" W	38.30'

TYPE OF PLAT:

I HEREBY CERTIFY THAT THIS PLAT IS OF THE FOLLOWING TYPE: G.S. 47-30 (f)(11)(d). THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION.

08-23-2023
JOHN R. PICKENS, PROFESSIONAL LAND SURVEYOR L-3297

SURVEYOR'S CERTIFICATE

I, JOHN R. PICKENS, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK 18909, PAGE 1500); THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY AS CALCULATED IS 29,991; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS 23 DAY OF AUGUST, A.D., 2023.

JOHN R. PICKENS, PROFESSIONAL LAND SURVEYOR L-3297

MCADAMS
The John R. McAdams Company, Inc.
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JOYNER PROPERTY
REZONING MAP
MASTER LAND USE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL L-3297 LAND SURVEYOR JOHN R. PICKENS
08-23-2023

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-B2
CHECKED BY	JBT
DRAWN BY	JRP
SCALE	1"=100'
DATE	07.31.2023

SHEET

SHEET TITLE
SECOND LINE
CX.XX

M:\Projects\TOL\2021110197\02-Geomatics\Survey\Boundary\2021110197-B2.dwg, 8/23/2023 7:53:28 AM, John Pickens

Consistency Statement of the Wake Forest Board of Commissioners Pursuant to G.S. 160D-605 Addressing Action on Zoning Map Amendment RZ-21-08: Joyner Property Conditional District

The Wake Forest Board of Commissioners finds that RZ-21-08 is inconsistent with the 2009 Wake Forest Community Plan. The Wake Forest Board of Commissioners finds that the denial of the rezoning request is reasonable and in the public interest for the following reasons:

1. The Community Plan's Sub-Urban Zone states that the Town wishes to see more well-designed services and places of employment proximate to and well-integrated with nearby residential development. The proposed rezoning is adjacent to US-1 and integrates a portion of the future service road through the development. By not providing any non-residential development, development is not in keeping with the policy emphasis of Sub-Urban Zone.

2. The Community Plan's General Policy Recommendation Policy 1 states that complete neighborhoods should be built around gathering spaces with a mix of housing types, lot sizes, and integrated commercial uses versus monolithic subdivisions. The proposed rezoning only provides single-family and townhome dwellings and no commercial uses have been integrated.

3. The Community Plan's Future Neighborhood Policies 3 & 5 states that the town should consider future transit corridors and reinforce these corridors with development mixtures and densities appropriate for transit services and encourage neighborhood serving businesses in neighborhood design. The proposed rezoning does not provide any commercial even though it is within the US-1 Corridor and proposing townhomes to front on a service road is not an appropriate use along a service road.

4. The Community Plan's Small Scale Neighborhood Businesses Policies 1 & 3 states that the Town should encourage small scale, pedestrian-oriented shopping and workplaces in the design of new neighborhoods and that they are designed at a residential scale and character. The proposed rezoning does not propose any non-residential development within the neighborhood.

5. The Community Plan's Major Street Policies 7 & 10 states to provide contrasting streetyards along major streets for change in visual character and employ Special Highway Overlay Zoning to help implement roadway corridor plans particularly with regard to development standards for buildings within sight of the roadway. The proposed rezoning proposes to reduce the buffer from 30' to 10' and 15' along the service road in front of the townhomes. This is inadequate buffering for townhomes that face a service road.

6. The Community Plan's Regional Transportation Policy 2 states that The Town should continue to anticipate and plan for the transformation of US-1 Capital Boulevard into a limited access freeway and multi-modal transportation corridor. The proposed rezoning does not provide any non-residential uses along this corridor and proposes townhomes adjacent to the service road.

JOYNER PROPERTY

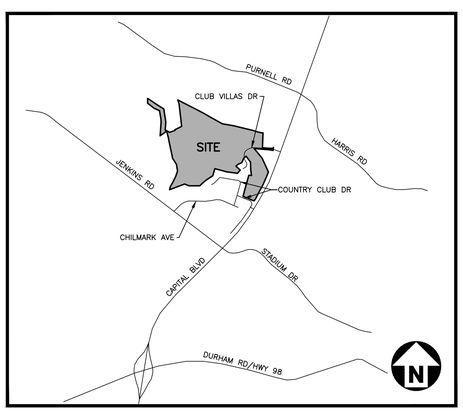
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA
MASTER SITE PLAN

PROJECT NUMBER: 2021110197
DATE: SEPTEMBER 07, 2023

TOWN OF WAKE FOREST
PROJECT #SP-21-02
REZONING CASE #RZ-21-08

SITE DATA

PIN	1831895139 (PORTION OF); 1841091336	
REAL ESTATE ID	0132708; 0338557	
SITE AREA	5,430,882 SF (124.68 AC) - GROSS 68,917 SF (1.58 AC) - R/W DEDICATION 5,361,965 SF / 123.10 AC - NET	
EXISTING ZONING	GR3-PUD	
PROPOSED ZONING	GR-10-CD	
WATERSHED OVERLAY	FALLS LAKE WATERSHED MANAGEMENT AREA DISTRICT (FL-WMA)	
WATER SUPPLY WATERSHED	FALLS LAKE	
RIVER BASIN	NEUSE	
COMMUNITY PLAN DESIGNATION	GENERAL URBAN	
EXISTING USE	VACANT, GOLF COURSE	
PROPOSED USE	176 SINGLE FAMILY UNITS, 113 TOWNHOME UNITS (289 UNITS TOTAL)	
MAXIMUM UNITS ALLOWED	448 UNITS	
DENSITY	MAXIMUM	3 DU/AC
	PROPOSED	289 UNITS / 149.66 AC = 1.93 DU/AC
BUILDING HEIGHT	MAXIMUM	3 STORIES
	PROPOSED	2 STORIES
SETBACKS	REQUIRED	TRADITIONAL SINGLE FAMILY DWELLING FRONT: 20' SIDE: 5' CORNER: 8' REAR: 25' REAR LOADED SINGLE FAMILY DWELLING FRONT: 5' SIDE: 5' CORNER: 8' REAR: 5' REAR LOADED TOWNHOME DWELLING FRONT: 10' SIDE: 5' CORNER: 8' REAR: 25'
PARKING	REQUIRED	289 UNITS x 1.8/UNIT = 520 SPACES
	PROPOSED	116 SPACES (SURFACE PARKING, PARKING LOTS) 578 SPACES (DRIVEWAYS, GARAGES) TOTAL SPACES: 694
ACCESSIBLE PARKING	REQUIRED	694 SPACES x 2% = 14 SPACES (2 VAN)
	PROPOSED	15 SPACES (15 VAN)
BICYCLE PARKING	REQUIRED	694 SPACES x 2/40 VEHICLE SPACES = 35 SPACES 289 UNITS x 1/30 UNITS = 10 SPACES
	PROPOSED	444 TOTAL SPACES 46 SPACES (13 SPACES FOR PARK SPACE AREA)
IMPERVIOUS AREA	PROPOSED	35% (OF TOTAL PROJECT AREA)
IMPERVIOUS AREA ALLOWED		WEST OF HORSE CREEK: 70% HIGH DENSITY OPTION EAST OF HORSE CREEK: 70% HIGH DENSITY OPTION
EXISTING CONSERVATION EASEMENT AREA		450,841 SF (10.35 AC) PER WAKE COUNTY REGISTER OF DEEDS BOOK: BM2003; PAGE: 02044
TREE COVERAGE		SEE CALCULATIONS SHEET L5.11
FLOODPLAIN		THIS SITE IS IN A SPECIAL FLOOD HAZARD AREA PER FEMA MAPS 3720183200K DATED 04/16/2013 AND 3720183100J DATED 05/02/2006
PROPOSED SCMs	4	
EXISTING SCMs	4 (NOT TO BE USED AS SCMs)	
OPEN SPACE (UNIMPROVED)	REQUIRED	5,430,882 SF x 10% = 543,088 SF
	PROPOSED	2,188,322 SF (40.29%)
OPEN SPACE W/IN:	TREE SAVE	1,004,444 SF (45.9%)
	REFORESTATION	63,901 SF (2.92%)
	CONSERVATION ESMTS	0 SF (EXCLUDED)
OPEN SPACE OUTSIDE OF FLOOD HAZARD, WATERCOURSES, AND WATERSHED BUFFERS	REQUIRED	2,188,322 SF x 25% = 54,708 SF
	PROPOSED	1,119,977 SF (51.18%)
PARK SPACE	REQUIRED	5,430,882 SF x 2.5% = 135,772 SF
	PROPOSED	275,886 SF (5.0%)
	ACTIVE REQUIRED	68,971 SF (25% PARK SPACE)
	ACTIVE PROPOSED	82,881 SF (30.04%)
PARK SPACE OUTSIDE OF PONDS, LAKES, WETLANDS, AND POWER EASEMENTS	REQUIRED	275,886 SF x 50% = 91,306 SF
	PROPOSED	275,886 SF (100%)



VICINITY MAP
N.T.S.

PROPOSED JOYNER PROPERTY ZONING CONDITIONS

1. SITE MASTER PLAN (SP-21-02) IS A CONDITION OF THE REZONING REQUEST. AMENDMENTS OF THE MASTER PLAN SHALL REQUIRE A REZONING AMENDMENT UNLESS THE ADMINISTRATOR FINDS THE MODIFICATION TO BE MINOR AND IN KEEPING WITH THE SPIRIT AND INTENT OF THE ADOPTED SUBDIVISION MASTER PLAN.

2. THE DEVELOPMENT SHALL HAVE A MAXIMUM DENSITY OF 3 UNITS PER ACRE.

3. VINYL SIDING SHALL NOT BE PERMITTED; HOWEVER, VINYL WINDOWS, DECORATIVE ELEMENTS, AND TRIM ARE PERMITTED.

4. THE FOLLOWING SHALL APPLY TO ALL SINGLE-FAMILY DETACHED AND TOWNHOMES (EXCEPT FOR LOTS 157-182; 201-206), ANY EXTERIOR WALL OF A UNIT VISIBLE FROM A STREET SHALL CONTAIN AT LEAST THREE DECORATIVE ELEMENTS SUCH AS, BUT NOT LIMITED TO, THE FOLLOWING ELEMENTS:
a. BAY WINDOW;
b. RECESSED WINDOW;
c. DECORATIVE WINDOW;
d. SIDE PORCH;
e. TWO OR MORE BUILDING MATERIALS;
f. DECORATIVE BRICK OR STONE;
g. DECORATIVE TRIM;
h. DECORATIVE SHAKE;
i. DECORATIVE GABLE;
j. DECORATIVE CORNICE;
k. PORTICO;
l. DORMER.

5. TOWNHOMES IN THE AREA NUMBERED 157-182; 201-206 WITHIN THE MASTER PLAN SHALL BE SUBJECT TO THE FOLLOWING ARCHITECTURAL CONDITIONS:
a. END UNITS SHALL BE AT LEAST 34' WIDE. INTERIOR UNITS SHALL BE AT LEAST 28' WIDE.
b. EACH UNIT SHALL HAVE AT LEAST A 2-CAR GARAGE.
c. EACH UNIT SHALL BE ACCESSED OFF A REAR ALLEY.
d. NO UNIT SHALL EXCEED TWO FULL STORIES IN HEIGHT.
e. EACH UNIT SHALL CONTAIN A MINIMUM OF 1,600 SQUARE FEET OF LIVABLE SPACE. THE ACTUAL NUMBER OF UNITS AND LOCATION WILL BE FINALIZED DURING THE CONSTRUCTION DRAWING PROCESS.
f. ANY EXTERIOR WALL FRONTING A STREET SHALL CONTAIN AT LEAST 3 DECORATIVE ELEMENTS SUCH AS, BUT NOT LIMITED TO, THE FOLLOWING:
- BAY, RECESSED, OR DECORATIVE WINDOW.
- 3.5" MINIMUM TRIM AROUND WINDOWS.
- SHUTTERS.
- BALCONY.
- PORCH, COVERED STOOP, OR PORTICO. ALL WILL BE A MINIMUM OF 5' IN DEPTH.
- DECORATIVE TRIM.
- BRICK OR STONE COVERING THE FIRST FLOOR (TO INCLUDE EXPOSED FOUNDATION), PATTERNED FINISH (SCALES, WAINSCOTTING, ETC.) FOR SECOND FLOOR AND WALLS NOT FACING THE STREET.
- ROOF ELEMENT (DORMER, TURNED GABLE, CUPOLA). ROOF SHALL NOT VISUALLY REPRESENT ONE LONG SINGLE GABLE.
g. EXTERIOR WALL MATERIALS SHALL BE SOLELY OR A COMBINATION OF; WOOD CLAPBOARD; CEMENTITIOUS FIBER BOARD SIDING; SHINGLE/SHAKE; OR BOARD AND BATTEN; BRICK; AND CULTURED OR NATURAL STONE.
h. VINYL SIDING WILL NOT BE ALLOWED. VINYL WINDOWS, DECORATIVE ELEMENTS, TRIM, AND SOFFITS SHALL BE PERMITTED.
i. EACH BUILDING SHALL INCLUDE A MINIMUM OF PREDOMINANT COLORS/(EXCLUDING TRIM COLORS). NO TWO ADJACENT UNITS SHALL HAVE THE SAME PREDOMINANT COLORS. FRONT DOORS SHALL BE AN ACCENT COLOR DIFFERENT THAN THE PREDOMINANT UNIT COLOR. IN ADDITION, FRONT DOORS SHALL HAVE EITHER A TRANSOM OVER THE DOOR, A SIDELIGHT OR A GLASS DOOR INSERT.
j. ALL FRONT ENTRANCES SHALL BE RAISED FROM THE FINISHED GRADE (AT THE RIGHT-OF-WAY LINE) A MINIMUM OF ONE INCHES AND ANY EXPOSED FOUNDATION ON THE FRONT OF THE UNITS SHALL BE BRICK OR STONE.

k. ROOF MATERIALS SHALL BE COMPRISED OF ASPHALT SHINGLES. STANDING SEAM METAL ROOFS SHALL BE PERMITED ON PORCH ROOFS OR COVERED FRONT ENTRY ONLY.

l. FRONT EAVES SHALL PROJECT AT LEAST 2 INCHES FROM THE WALL OF THE STRUCTURE, SIDE EAVES SHALL PROJECT A MINIMUM OF 8 INCHES FROM THE WALL OF THE STRUCTURE. EAVES WILL BE ALLOWED TO ENCROACH INTO SETBACKS AS ALLOWED IN THE UDO.

6. A VARIED COLOR PALETTE SHALL BE UTILIZED ON BUILDINGS THROUGHOUT THE DEVELOPMENT TO INCLUDE A MINIMUM OF THREE COLOR FAMILIES FOR SIDING AND SHALL INCLUDE VARIED TRIM, SHUTTER, AND ACCENT COLORS COMPLIMENTING THE SIDING COLOR.

7. TRADITIONAL BUILDING SETBACKS AS OUTLINED IN TABLE 2.2.5. C. SHALL NOT BE APPLICABLE TO BUILDINGS SHOWN WITHIN THIS DEVELOPMENT. YARD REQUIREMENTS SHALL BE REQUIRED PER THE SITE DATA TABLE. SETBACKS AS SHOWN IN THE SITE DATA TABLE ARE AS FOLLOWS:

TRADITIONAL SINGLE FAMILY DWELLING (MINIMUM)		REAR LOADED SINGLE FAMILY DWELLING (MINIMUM)		REAR LOADED TOWNHOME DWELLING (MINIMUM)	
FRONT:	20'	FRONT:	5'	FRONT:	10'
SIDE:	5'	SIDE:	5'	SIDE:	5'
CORNER:	8'	CORNER:	8'	CORNER:	8'
REAR:	25'	REAR:	5'	REAR:	25'

8. FOR SINGLE FAMILY AND TOWNHOME DWELLINGS, AT LEAST 15% OF AREA OF EACH FAÇADE THAT FACES A STREET LOT LINE MUST BE WINDOWS OR MAIN ENTRANCE DOORS, AS MEASURED FROM THE FINISHED FLOOR ELEVATION TO THE EAVE.

9. ROOF MATERIALS: RESIDENTIAL ROOFS SHALL BE CLAD IN WOOD SHINGLES, STANDING SEAM METAL (PORCH ROOF OR COVERED ENTRY ONLY), TERNE, SLATE, ASPHALT SHINGLES, OR SYNTHETIC MATERIALS SIMILAR AND/OR SUPERIOR IN APPEARANCE AND DURABILITY.

10. ALL SINGLE-FAMILY DETACHED AND TOWNHOME DWELLINGS SHALL CONTAIN A MINIMUM OF 1,600 SQUARE FEET.

11. IN ACCORDANCE WITH RESTRICTIVE COVENANTS RECORDED IN WAKE COUNTY REGISTRY AT BOOK 4662, PAGE 0366, ADJCENT TO WAKE COUNTY PINS: 1832706809 AND 1832707851 A 160' BUFFER ZONE SHALL BE ESTABLISHED; ADJACENT TO WAKE COUNTY PINS: 1832709714 AND 1832800697 A 120' BUFFER ZONE SHALL BE ESTABLISHED.

12. AS NECESSARY TO MINMIZE ENVRONMENTAL IMPACTS AND MAXIMIZE DEVELOPABLE AREA, "SIMPSON COURT" MAY EXCEED MAXIMUM BLOCK LENGTH REQUIREMENTS (SECTION 6.5.1.C).

13. DUE TO PRESCRIBED ALIGNMENT OF THE PROPOSED SERVICE ROAD, THE REQUIRED STREET BUFFERYARD SHALL BE REDUCED FROM 30' TO 10'. (SECTION 2.4.3.C.).

14. THE BUILDING SETBACK SHALL BE REDUCED FROM 100' TO 75' FROM THE PROPERTY LINE ABUTTING THE MAJOR ACCESS CORRIDOR (US-1 ROW) (SECTION 2.4.3. D.).

15. DEVELOPED PASSIVE PARK SAPCES SHALL CONTAIN A MINIMUM OF 3 OF THE FOLLOWING ELEMENTS, BUT NOT LIMITED TO: WALKING TRAILS; BUTTERFLY/POLLINATOR GARDENS; CUT FLOWER GARDENS; COMMUNITY GARDEN; DOG PARK; HAMMOCK LOUNGE; FIREPITS; CORNHOLE. THE PARK SPACES PROVIDED IN THE DEVELOPMENT SHALL BE A MINIMUM OF 2,000 SQUARE FEET.

16. DEVELOPED ACTIVE PARK SPACES SHALL CONTAIN A MINIMUM OF 3 OF THE FOLLOWING ELEMENTS, BUT NOT LIMITED TO: CLUBHOUSE; SWIMMING POOL; FITNESS CENTER; PLAYGROUND; VOLLEYBALL COURT; TENNIS/PICKLEBALL COURT. THE PARK SPACES PROVIDED IN THE DEVELOPMENT SHALL BE A MINIMUM OF 2,000 SQUARE FEET.

17. PARK #1 AS SHOWN WITHIN THE MASTER PLAN, SHALL BE CONSTRUCTED BY THE DEVELOPER AND THEN CONVEYED BY NON-WARRANTY THE FAIRWAY VILLAS AT WAKE FOREST GOLF CLUB AND CLUBHOUSE VILLAS AT WAKE FOREST GOLF CLUB TOWNHOMES OWNERS ASSOCIATION, INC. THIS PARK SHALL NOT BE LESS THAN 90,000 SQUARE FEET IN SIZE. A MINIMUM OF THREE DECORATIVE BENCHES WILL BE INSTALLED IN THE PARK. A BERM AT LEAST 4' IN HEIGHT AND LANDSCAPED WITH A TOWN OF WAKE FOREST UDO TYPE A LANDSCAPE BUFFER (USING OPTION #2) SHALL BE INSTALLED ADJACENT TO THE PROPOSED SERVICE ROAD DEPICTED WITHIN THE MASTER PLAN THAT BORDER SAID PARK. PIN OAKS AND MAGNOLIAS SHALL BE PROHIBITED FROM THE BUFFER. SHRUBS ARE NOT BE EVERGREENS AND NON-FLOWERING. SECTION 7.5.5.A. SHALL BE PROVIDED EXCEPT FOR TRASH AND RECYCLING BINS IN SECTION 7.5.5.A.3.

18. THERE WILL NO NEW DEVELOPMENT SOUTH OF THE THREE EXISTING PONDS. THE LAND WILL REMAIN IN ITS CURRENT STATE AS A COMMUNITY OPEN SPACE. THE LAND SHALL BE DEEDED PRIOR TO FIRST PLAT APPROVAL, TO THE TOWN COUNTY, STATE, NON-PROFIT ORGANIZATION (UNAFFILIATED WITH THE DEVELOPER) OR HOA.

19. PRIOR TO ISSUANCE OF A GRADING PERMIT, THE DEVELOPER SHALL BE REQUIRED TO CONDUCT A PHASE 2 ENVIRONMENTAL SITE ASSESSMENT FOR THE ENTIRE TRACT. THE DATA FROM THE PHASE 2 ENVIRONMENTAL SITE ASSESSMENT SHALL BE SUBMITTED TO THE TOWN FOR REVIEW WITH INITIAL SUBMITTAL OF CONSTRUCTION DRAWINGS TO THE TOWN.

20. AT THE TIME OF INITIAL CONSTRUCTION DRAWING APPROVAL, THE DEVELOPER SHALL BE REQUIRED TO REQUIEST THAT THE TOWN OF WAKE FOREST AND NCDOT DESIGNATE COUNTRY CLUB DRIVE AS "ONE WAY" ALONG THE EAST-WEST SEGMENT TO THE INTERSECTION WITH THE PROPOSED STREET "H" TO PROHIBIT ACCESS TO CHILLMARK AVENUE DIRECTLY FROM THE PROPOSED DEVELOPMENT OR THE PROPOSED SERVICE ROAD. THIS CONDITION SHALL BE SATISFIED UPON THE MAKING OF THE REQUEST REGARDLESS OF WHETHER SUCH REQUEST IS GRANTED.

21. A 20' TYPE B PERIMETER BUFFER SHALL BE PROVIDED AND SHALL BE PLANTED IN ACCORDANCE WITH LANDSCAPE DETAILS ONLY AS ALLOWED ON SHEET LS 5.00 WITHIN THE MASTER PLAN.

22. IN ORDER TO NOT INTERFERE WITH THE EXISTING BERM AND LANDSCAPING BETWEEN CLUB VILLAS DRIVE AND THE EXISTING TOWNHOMES; THE SIDEWALK, CURB, AND/OR UPGRADES MAY BE WAIVED ON THE SOUTH SIDE OF CLUB VILLAS DRIVE. THE DETERMINATION OF REQUIREMENTS SHALL BE MADE BY THE TOWN OF WAKE FOREST PLANNING DEPARTMENT AT TIME OF CONSTRUCTION PLANS.

23. IF ANY OF THE EXISTING PONDS ADJACENT TO LOTS 45-62 ARE DRAINED TAND ARE NOT RE-ESTABLISHED, THE ADJACENT PROPOSED LOTS TO THE NORTH WILL BE ALLOWED TO REMAIN AS SHOWN ON THE MASTER PLAN. IF THE EXISTING PONDS ARE NOT DRAINED, THE ADJACENT PROPOSED LOTS TO THE NORTH WILL EITHER BE ELIMINATED OR REVISED TO ENSURE THAT THE REQUIRED 100-FOOT BUFFER IS NOT ON ANY OF THE SINGLE-FAMILY DETACHED LOTS.

24. IF NCDOT DEEMS THAT THE EXISTING NORTHBOUND LEFT TURN MOVEMENT FROM CLUB VILLAS DRIVE TO CAPITAL BOULEVARD IS TO BE ELIMINATED, IN ORDER TO FACILITATE THIS DEVELOPMENT'S TRAFFIC TO PROCEED NORTHBOUND ON CAPITAL BOULEVARD, SUBJECT TO NCDOT APPROVAL AND ADEQUATE EXISTING RIGHT-OF-WAY, THE DEVELOPER SHALL SUBMIT CONSTRUCTION PLANS FOR THE U-TURN TO NCDOT WHEN ON-SITE CONSTRUCTION PLANS ARE SUBMITTED TO THE TOWN. CONSTRUCTION OF THE U-TURN WILL BE STARTED WITHIN 90 DAYS AND COMPLETED WITHIN ONE YEAR OF NCDOT APPROVAL OF THE U-TURN CONSTRUCTION PLANS.

CITY OF RALEIGH PUBLIC UTILITIES STANDARD UTILITY NOTES (AS APPLICABLE)

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION).

2. UTILITY SEPARATION REQUIREMENTS:

a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.

b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.

c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.

d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.

e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49).

f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.

3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.

4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY.

5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.

6. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.

7. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.

8. INSTALL 3/4" COPPER WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.

9. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.

10. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE.

11. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.

12. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.

13. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.

14. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. A CERTIFICATE OF COMPLIANCE SHALL ALSO BE OBTAINED FROM THE RW CROSS-CONNECTION COORDINATOR FOR EACH DEVICE PRIOR TO ISSUANCE OF A UC / BLDG PERMIT. CONTACT (919) 996-5923 OR CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION.

15. NOTICE FOR PROJECTS WITH REPLACED OR OVERSIZED MAINS: IF THE CITY'S REIMBURSEMENT FOR AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT PROJECT IS $250,000 OR GREATER - THE PROJECT MUST BE PUBLICLY BID

MASTER PLAN APPROVAL
BY THE TOWN OF WAKE FOREST
TECHNICAL REVIEW COMMITTEE
PLANNING: _____ DATE:_____
ENGINEERING: _____ DATE:_____
Subject to addressing outstanding conditions of approval within the issued comment letter. Plans are not released for construction. Approval is valid for two years from the date above.

MASTER PLAN APPROVAL
BY THE TOWN OF WAKE FOREST
TECHNICAL REVIEW COMMITTEE
BOARD OF COMMISSIONERS: _____ DATE:_____
Subject to addressing outstanding conditions of approval within the issued comment letter. Plans are not released for construction. Approval is valid for two years from the date above.

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L7.00	LIGHTING PERFORMANCE PLAN

MCADAMS
The John R. McAdams Company, Inc.
2905 Meridian Parkway
Durham, NC 27713

phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

www.mcadamsco.com

CONTACT

LAURA HOLLOMAN
holloman@mcadamsco.com
PHONE: 919. 361. 5000

CLIENT

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

GREEN TIMBER FOUNDATION
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

CONTACT:
JAMES ADAMS
jmas@millridgeco.com
PHONE: 919. 556. 5418

PROJECT DIRECTORY

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

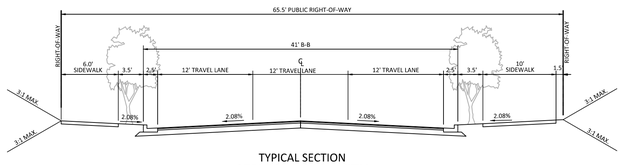
REVISIONS

NO. DATE

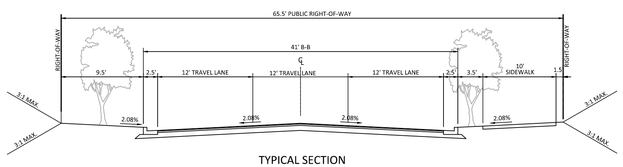
MASTER SITE PLAN FOR:
JOYNER PROPERTY
WAKE FOREST, NORTH CAROLINA
PROJECT NUMBER: 2021110197

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

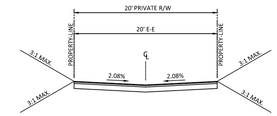
M:\Projects\TOA\2021110197\04-Production\Engineering\Master Plan - Pricing Set\Current Drawings\2021110197-C5.dwg, 9/7/2023 3:18:54 PM, Juan Montes



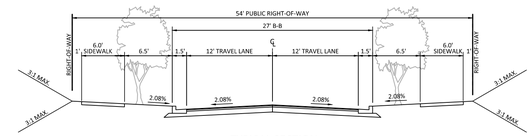
TYPICAL SECTION
SERVICE ROAD WITH
SIDEWALK ON BOTH SIDES
(65.5' R/W, 41' B-B)



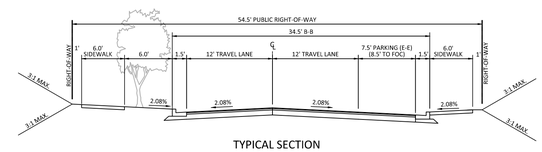
TYPICAL SECTION
SERVICE ROAD WITH
SIDEWALK ON ONE SIDE
(65.5' R/W, 41' B-B)



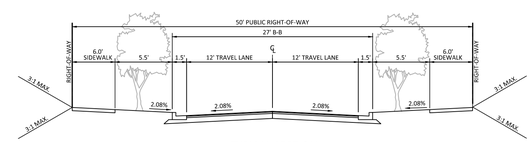
TYPICAL SECTION
PRIVATE ALLEY
(TWO-WAY)
(20' R/W, 20' E-E)



TYPICAL SECTION
YIELD STREET
(54' R/W, 27' B-B)



TYPICAL SECTION
YIELD STREET WITH
PARKING ON ONE SIDE
(54.5' R/W, 34.5' B-B)



TYPICAL SECTION
CLUB VILLAS DRIVE ENTRANCE STREET
(50' R/W, 27' B-B)

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JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=wodaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-TS1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	N/A
DATE	08. 25. 2023

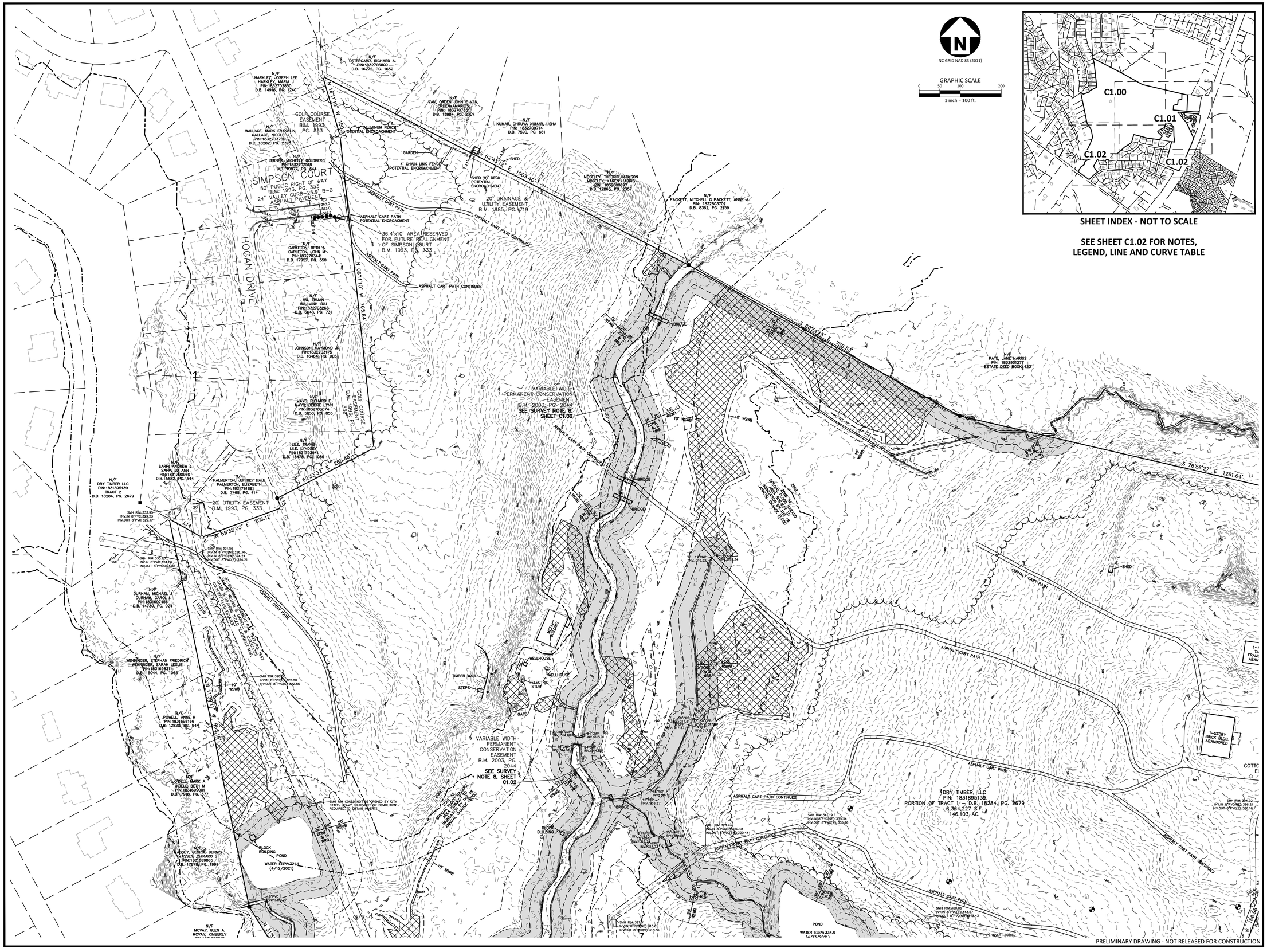
SHEET

TYPICAL SECTIONS

C0.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

M:\Projects\TO\2021110197\04-Production\Engineering\Master Plan - Pricing Set\Current Drawing\2021110197-TS1.dwg, 9/7/2023 1:08:11 PM, Juan Montes



SHEET INDEX - NOT TO SCALE

SEE SHEET C1.02 FOR NOTES, LEGEND, LINE AND CURVE TABLE

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JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL L-3297 LAND SURVEYOR JOHN R. PIGGINS

08-09-2023

REVISIONS

NO.	DATE
1	

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-C1
CHECKED BY	EMC
DRAWN BY	EMC
SCALE	1"=100'
DATE	06. 07. 2021

SHEET

EXISTING CONDITIONS

C1.00

SHEET INDEX - NOT TO SCALE

SEE SHEET C1.02 FOR NOTES, LEGEND, LINE AND CURVE TABLE

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

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NORTH CAROLINA PROFESSIONAL SEAL L-3297 LAND SURVEYOR JOHN R. PICKENS

08-09-2023

REVISIONS

NO.	DATE
1	

PLAN INFORMATION

PROJECT NO.	2021110197
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DRAWN BY	EMC
SCALE	1"=100'
DATE	06. 07. 2021

SHEET

EXISTING CONDITIONS

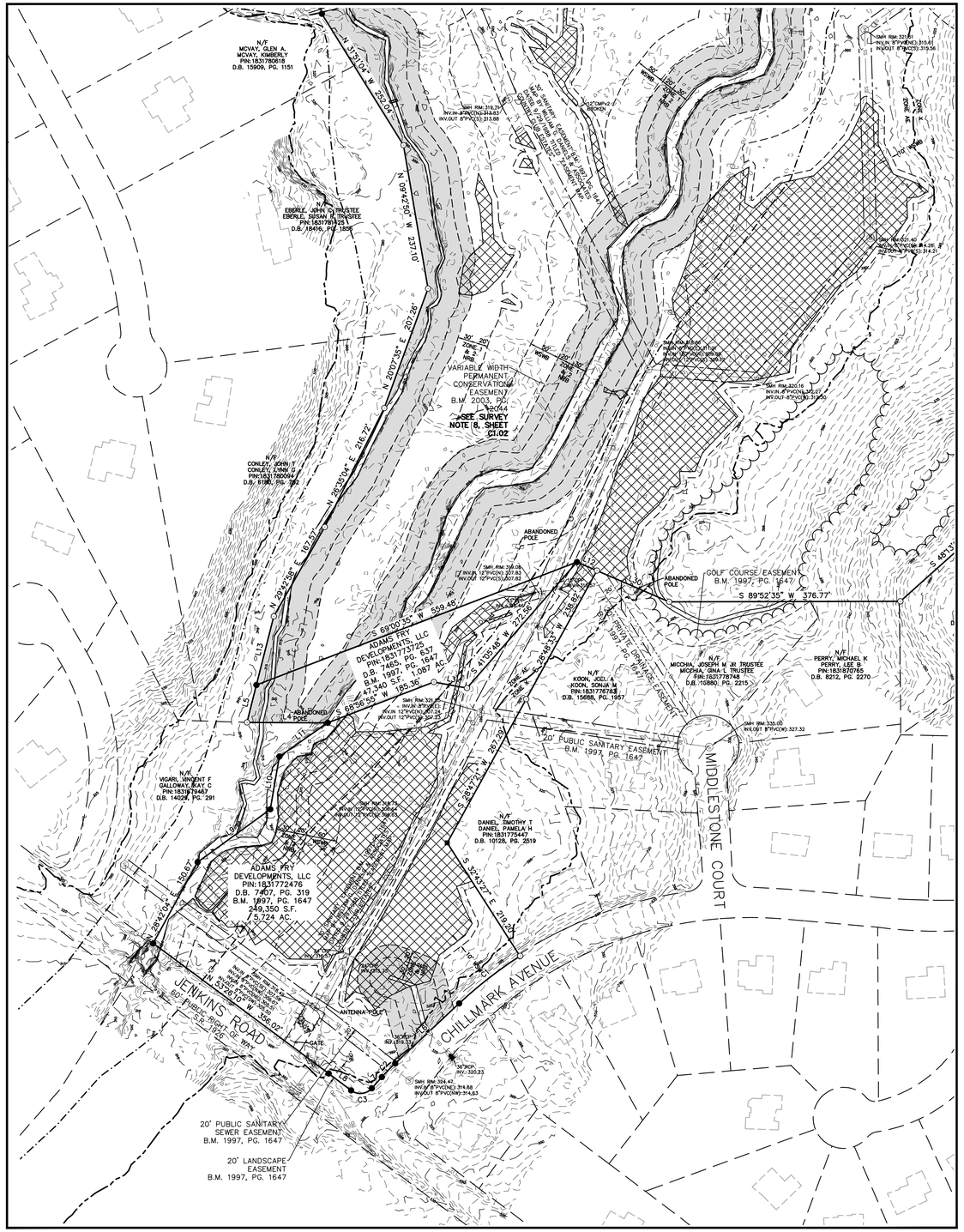
C1.01

I, JOHN R. PICKENS, CERTIFY THAT THIS PROJECT WAS COMPLETED UNDER MY DIRECT AND RESPONSIBLE CHARGE FROM AN ACTUAL SURVEY PERFORMED UNDER MY SUPERVISION; THAT THIS GROUND/AERIAL SURVEY WAS PERFORMED AT THE 95 PERCENT CONFIDENCE LEVEL TO MEET FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC/PLANIMETRIC SURVEY TO THE ACCURACY OF CLASS A AND VERTICAL ACCURACY WHEN APPLICABLE TO THE CLASS A STANDARD, AND THAT THE SURVEY WAS COMPLETED ON JUNE 6, 2021; AND ALL ELEVATIONS ARE BASED ON NAVD 88.

NORTH CAROLINA PROFESSIONAL SEAL L-3297 LAND SURVEYOR JOHN R. PICKENS

08-09-2023

JOHN R. PICKENS, PLS L-3297



SURVEY NOTES

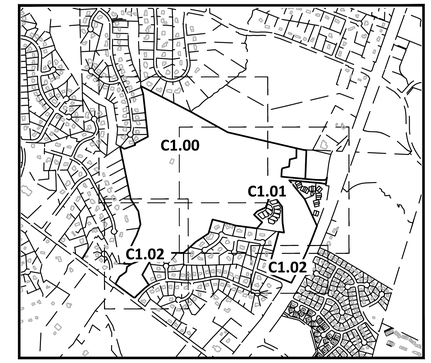
1. THIS EXISTING CONDITIONS SURVEY WAS COMPLETED ON JUNE 6, 2021.
2. BEARINGS FOR THIS SURVEY ARE BASED ON NC GRID NAD 83 (2011).
3. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES UNLESS NOTED OTHERWISE.
4. AREA IS BY COORDINATE GEOMETRY.
5. THIS PROPERTY **IS** LOCATED IN A SPECIAL FLOOD HAZARD ZONE AS DEFINED BY F.E.M.A F.I.R.M COMMUNITY PANEL #3720183100J, DATED MAY 2, 2006.
6. THIS SURVEY WAS PERFORMED AND THE MAP WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT. THIS SURVEY IS SUBJECT TO ANY FACTS AND EASEMENTS WHICH MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.
7. ELEVATIONS FOR THIS SURVEY ARE BASED ON NAVD 88.
8. THE PERMANENT CONSERVATION EASEMENT ALONG HORSE CREEK WAS DEDICATED IN A PLAT PREPARED BY DEWBERRY & DAVIS, INC. IN BOOK OF MAPS 2003, PAGE 2044. THE CALLS FOR THE EASEMENT LINES DO NOT MATCH THE LINES SHOWN ON THE PLAT. THE EASEMENT DOES NOT CLOSE. THE LINES SHOWN ON THIS SURVEY WERE DERIVED BY GEOREFERENCING AN IMAGE OF THE PLAT AND DIGITIZING THE EASEMENT LINES. THE TRUE LOCATION OF THE EASEMENT IS NOT OBTAINABLE.

GPS METADATA

(1)CLASS OF SURVEY: CLASS A
(2)POSITIONAL ACCURACY: 0.06' (95%)
(3)TYPE OF GPS FIELD PROCEDURE: REAL-TIME NETWORK (NC RTN)
(4)DATE OF SURVEY: MARCH 17, 2021
(5)DATUM/EPOCH: NAD 83 (2011)
(6)PUBLISHED/FIXED-CONTROL USED: NGS "POWER" & "T 217"
(7)VERTICAL DATUM: NAVD 88 (GEOID12B)
(8)COMBINED GRID FACTOR(S): 0.99995005
(9)UNITS: US SURVEY FEET

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 77°03'58" E	136.80'
L2	S 89°06'20" E	42.92'
L3	N 79°35'44" W	54.94'
L4	N 89°40'56" W	131.55'
L5	N 14°10'34" E	62.84'
L6	S 46°52'54" W	142.80'
L7	S 41°41'14" W	24.52'
L8	N 52°58'38" W	45.69'
L9	N 53°56'58" E	146.49'
L10	N 09°52'08" E	87.28'
L11	N 55°06'54" E	95.82'
L12	N 66°38'11" W	35.33'
L13	N 14°10'34" E	115.35'
L14	S 60°41'37" E	91.53'
L15	N 21°46'12" W	25.32'
L16	S 75°54'40" W	120.05'
L17	S 05°36'45" W	129.92'
L18	S 76°15'36" W	120.48'
L19	S 33°04'21" W	23.76'
L20	S 03°51'36" W	131.73'
L21	S 88°44'51" E	132.76'
L22	S 08°17'23" W	116.94'
L23	N 78°47'17" W	98.10'
L24	S 81°23'09" E	94.87'
L25	S 52°23'00" W	103.34'
L26	S 43°00'49" W	86.52'
L27	S 46°58'35" E	20.60'
L28	S 40°53'04" W	145.40'
L29	N 81°21'36" W	119.82'
L30	N 66°38'08" W	128.17'

CURVE TABLE				
CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C1	693.44'	125.80'	S 52°04'42" W	125.63'
C2	345.69'	31.34'	S 44°17'04" W	31.33'
C3	25.00'	37.23'	S 84°20'59" W	33.88'
C4	49.10'	72.80'	N 49°31'16" E	66.31'
C5	7581.08'	1116.61'	S 24°13'57" W	1115.60'



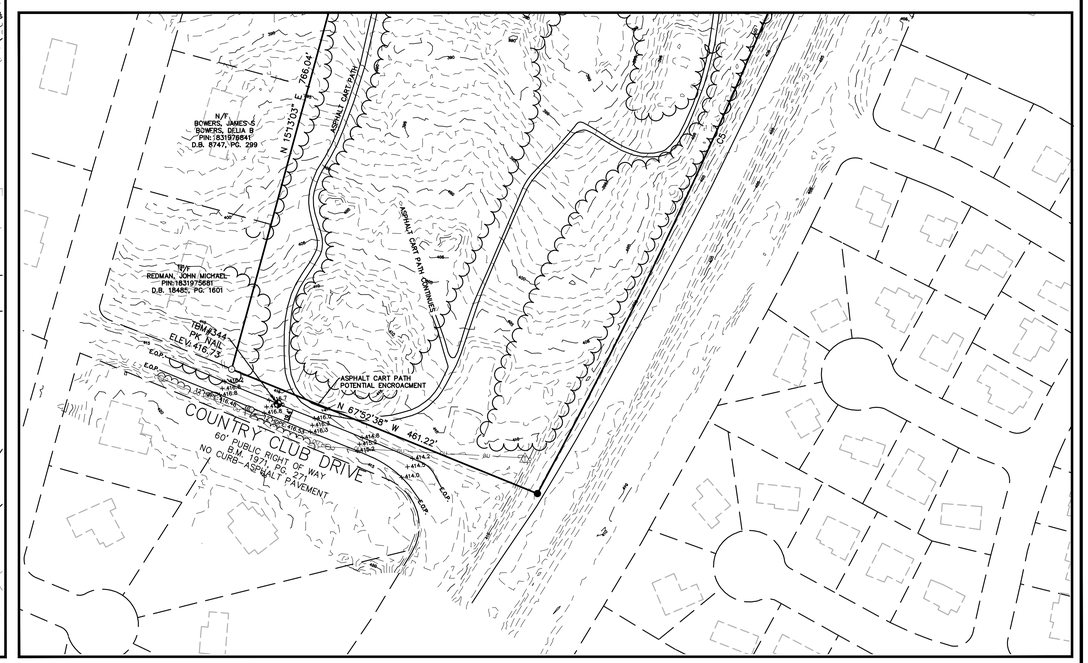
SHEET INDEX - NOT TO SCALE

LEGEND

- PROPERTY BOUNDARY
- ADJOINING GIS PARCEL
- TOPOGRAPHIC CONTOUR
- TOPOGRAPHIC INDEX CONTOUR
- SANITARY SEWER EASEMENT
- STORM DRAINAGE EASEMENT
- GOLF COURSE EASEMENT
- CONSERVATION EASEMENT
- WOOD LINE
- LANDSCAPED AREA
- POND
- BUFFER
- FLOODPLAIN
- FLOODWAY
- OVERHEAD UTILITY
- CHAIN LINK FENCE
- PRIVACY FENCE
- WETLANDS
- STREAM BUFFER
- EXISTING IRON PIPE
- EXISTING CONCRETE MONUMENT
- IRON PIPE SET
- GEODETIC MONUMENT
- TEMPORARY BENCHMARK
- SANITARY SEWER MANHOLE
- SANITARY SEWER VENT
- STORM FLARED END SECTION
- BOREHOLE
- SIGN
- TELEPHONE PEDESTAL
- FIBER OPTIC MARKER
- LIGHT POLE
- UTILITY POLE
- GUY WIRE
- BOLLARD

NC GRID NAD 83 (2011)

GRAPHIC SCALE
0 50 100 200
1 inch = 100 ft.



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JOYNER PROPERTY
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CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO.	DATE
1	

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-C1
CHECKED BY	EMC
DRAWN BY	EMC
SCALE	1"=100'
DATE	06. 03. 2021 ~~06. 09. 2021~~

SHEET

EXISTING CONDITIONS

C1.02

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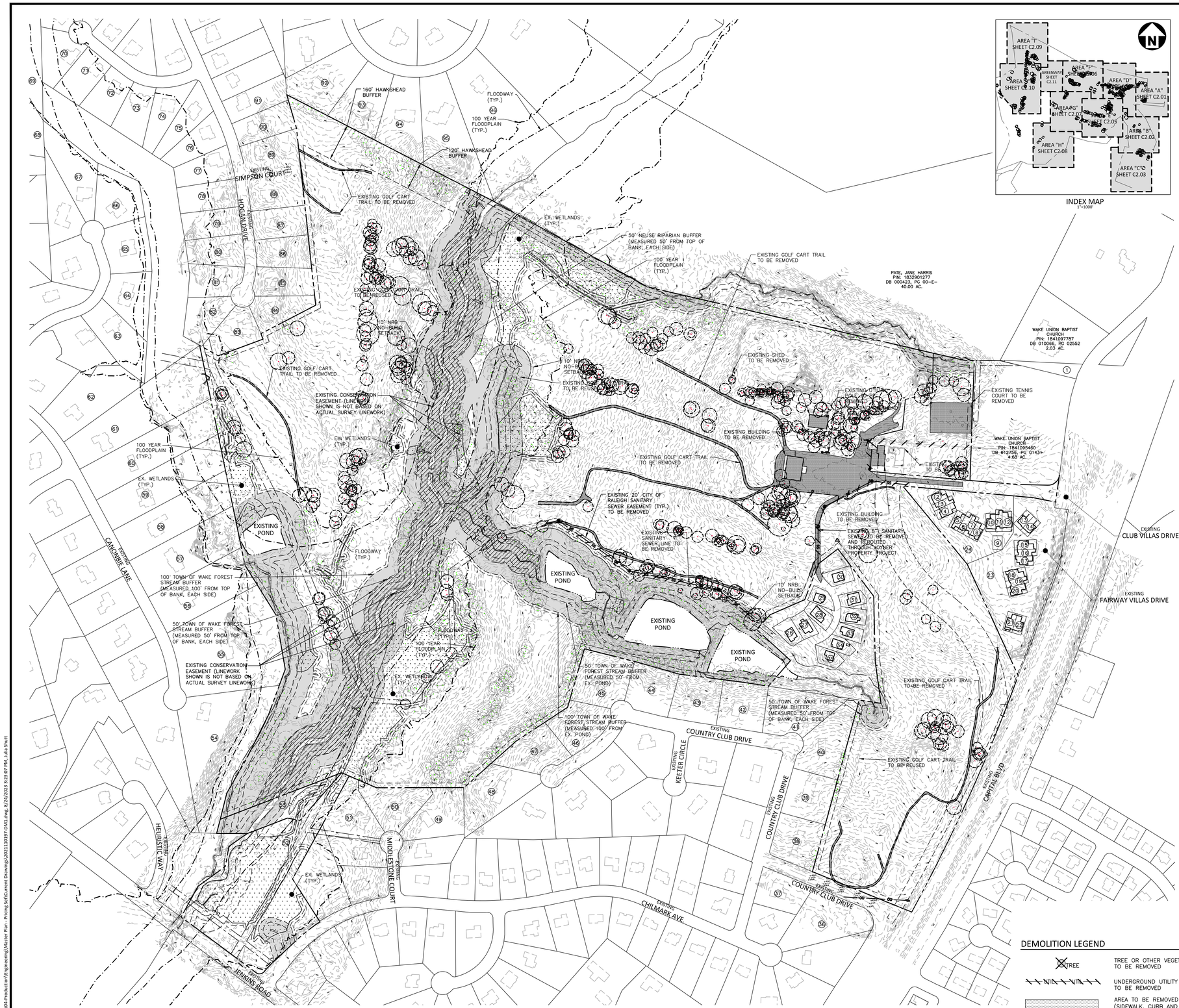

INDEX MAP
1"=1000'

ADJACENT PROPERTY OWNERS

1. WAKE UNION BAPTIST CHURCH PIN: 1841097615 DB 010066, PG 02552 0.26 AC.
2. HORTON, ROBIN RANDALL SR HORTON, MARY HOLLAND PIN: 1841092100 DB 016834, PG 00534 0.08 AC.
3. FINNEGAN, JOSEPH T FINNEGAN, LESLEY E PIN: 1841092027 DB 015001, PG 02043 0.06 AC.
4. CARTER, TERRY W CARTER, SUSAN S PIN: 1841092033 DB 015849, PG 01361 0.08 AC.
5. BRUNKHORST, WILLIAM PIN: 1841082989 DB 14-E, PG 3763 0.07 AC.
6. DOMINICK, JOHN M DOMINICK, BETSY S PIN: 1841083918 DB 016125, PG 00408 0.06 AC.
7. GRADY, DOUGLAS H GRADY, MARTHA S PIN: 1841083947 DB 009563, PG 00022 0.06 AC.
8. CORBETT, MICHAEL P CORBETT, VIRGINIA L PIN: 1841083975 DB 010527, PG 02542 0.07 AC.
9. OAKMARK DEVELOPMENT CO LLC PIN: 1841084950 DB 008579, PG 00285 0.08 AC.
10. BYRNE, THOMAS J JR BYRNE, MARY COLLINS PIN: 1841084928 DB 013727, PG 02265 0.07 AC.
11. PRUITT, DELORES PIN: 1841084969 DB 009228, PG 00583 0.06 AC.
12. ROUSSEAU, CHERYLL E PIN: 1841084999 0.08 AC.
13. NEISES, GAIL ELAINE PIN: 1841085969 DB 017776, PG 00544 0.08 AC.
14. HEATH, CHARLES LARRY HEATH, MARY EDITH PIN: 1841086908 DB 016073, PG 01026 0.08 AC.
15. WALSH, DONNA L PIN: 1841085879 DB 010897, PG 00588 0.09 AC.
16. BONE, MALCOLM BONE, ELIZABETH PIN: 1841085875 DB 013245, PG 01171 0.06 AC.
17. LOVING, JOHN C LOVING, LENNIS F PIN: 1841085872 DB 010355, PG 00066 0.08 AC.
18. MATZKEVICH, DYANNE M PIN: 1841085736 DB 017937, PG 02774 0.09 AC.
19. ROGGE, BEVERLY J TRUSTEE GAIL E AND BEVERLY J ROGGE TRUST PIN: 1841085743 DB 016159, PG 02584 0.06 AC.
20. VOLLMER, CHARLES B VOLLMER, STELLA PIN: 1841085649 DB 014287, PG 00672 0.08 AC.
21. MAIOLO, THOMAS PIN: 1841085516 DB 017711, PG 02381 0.08 AC.
22. ZELVIS, MICHELE HOFFMAN PIN: 1841085545 DB 016929, PG 00340 0.08 AC.
23. FAIRWAY VILLAS AT WF GOLF CLUB PIN: 1841085635 DB 010962, PG 00817 2.87 AC.
24. FAIRWAY VILLAS AT WF GOLF CLUB & TOWNHOMES OWNERS ASSOC INC PIN: 1841094004 DB 009050, PG 00136 1.39 AC.
25. CLUBHOUSE VILLAS AT WAKE FOREST GOLF CLUB HOA, INC PIN: 1831986381 DB 016814, PG 02513 3.17 AC.
26. BIELIK, EDWARD A PACE, KAYLA N. PIN: 1831985552 DB 017423, PG 02305 0.19 AC.
27. ZHAO, BAIRU PIN: 1831986524 DB 017010, PG 01441 0.18 AC.
28. HIGGINS, JOHN W III PIN: 1831986589 DB 017055, PG 00072 0.19 AC.
29. REITMANN, ROBERT PIN: 1831986696 DB 017165, PG 00638 0.16 AC.
30. GOK, KEN Y AYUN, H. LIN PIN: 1831987775 DB 016844, PG 00697 0.18 AC.
31. RAMSARAN, MICHAEL RAMSARAN, CHARMAINE PIN: 1831988635 DB 015098, PG 00453 0.15 AC.
32. JALLORINA, CLAUDE H HABON, LORNA D PIN: 1831988538 DB 017656, PG 00904 0.17 AC.
33. SMS, YVONNE M PIN: 1831988511 DB 017009, PG 02679 0.17 AC.
34. KING, JOHN C JR KING, NETANIS E PIN: 1831987466 DB 016902, PG 01921 0.18 AC.
35. RUPSKY, MARK J RUPSKY, PENNY L PIN: 1831987430 DB 016903, PG 02026 0.17 AC.
36. CIMA, DAVID A CIMA, CINDY PIN: 1831977217 DB 013668, PG 02375 1.25 AC.
37. GOSSETT, LINDA M PIN: 1831975411 DB 016391, PG 00784 0.70 AC.
38. REDMAN, J MICHEAL PIN: 1831975681 DB 013569, PG 01957 0.91 AC.
39. BOWERS, JAMES S BOWERS, DELIA B PIN: 1831976841 DB 008747, PG 00299 0.91 AC.
40. FICHERA, JOHN L. FICHERA, WENDY M PIN: 1831987003 DB 010374, PG 02097 1.20 AC.
41. BARR, ARNOLD L BARR, CHORENE L PIN: 1831985117 DB 002596, PG 00773 1.14 AC.
42. GRIMMETT, ANDREW O WRIGHT, ANGELA M PIN: 1831983138 DB 017994, PG 01725 0.91 AC.
43. FREEMAN, JAMES LOUIS JR FREEMAN, JOAN OUTLAND PIN: 1831981262 DB 010889, PG 00559 0.90 AC.
44. LESTER, JEFFREY A LESTER, JO ANNE D PIN: 1831889265 DB 010527, PG 01658 0.88 AC.
45. UPTON, KEVIN C UPTON, MITZI M PIN: 1831897351 DB 007686, PG 00928 1.13 AC.
46. WILLIAMS, PATRICK EUGENE WILLIAMS, CHELSEA FARGLOTH PIN: 1831886151 DB 018244, PG 00964 0.92 AC.
47. JOYNER, SAMUEL H JOYNER, PATRICIA S PIN: 1831884051 DB 016867, PG 02193 0.93 AC.
48. FISHER, C P JR PIN: 1831873802 DB 002417, PG 00449 1.30 AC.
49. PERRY, MICHAEL K PERRY, LEE B PIN: 1831870765 DB 008212, PG 02270 1.10 AC.
50. MICCHIA, JOSEPH M JR TRUSTEE MICCHIA, GINA L TRUSTEE PIN: 1831778748 DB 016880, PG 02215 0.95 AC.
51. KOON, JOEL A KOON, SONJA M PIN: 1831776783 DB 015688, PG 01957 0.96 AC.
52. ADAMS FRY DEVELOPMENTS LLC PIN: 1831772476 DB 007407, PG 00319 5.70 AC.
53. ADAMS FRY DEVELOPMENTS LLC PIN: 1831773725 DB 007465, PG 00637 1.10 AC.
54. CONLEY, JOHN T CONLEY, LYNN G PIN: 1831780094 DB 006180, PG 00702 3.43 AC.
55. EBERLE, JOHN C EBERLE, SUSAN R PIN: 1831781425 DB 015507, PG 00718 3.80 AC.
56. MCVAY, GLEN A. MCVAY, KIMBERLY PIN: 1831780618 DB 015909, PG 01151 1.76 AC.
57. MASSEY, GEORGE DENNIS MASSEY, CHIKAKO S PIN: 1831689865 DB 017878, PG 01999 1.92 AC.
58. O'DELL, MARK A O'DELL, BETH M PIN: 1831699001 DB 007918, PG 00377 1.81 AC.
59. POWELL, ANNE H PIN: 1831698166 DB 012820, PG 00944 1.96 AC.
60. WENNINGER, STEPHAN FREDRICH WENNINGER, SARAH LESLIE PIN: 1831698311 DB 015044, PG 01065 2.12 AC.
61. DURHAM, MICHAEL J DURHAM, CAROL I PIN: 1831697456 DB 014730, PG 00924 2.78 AC.
62. MEYER, ROGER P MEYER, KATHLEEN F PIN: 1831695532 DB 006223, PG 00200 1.63 AC.
63. BEASLEY, DARYL BERNARD BEASLEY, CUBIE T PIN: 1831696861 DB 017181, PG 02551 1.04 AC.
64. SUCHER, AARON SUCHER, SOU PIN: 1831697924 DB 014805, PG 01066 0.92 AC.
65. HODGES, THOMAS R HODGES, SUSAN C PIN: 1832607117 DB 016741, PG 01362 0.94 AC.
66. BARKLEY, HUBERT MERRILL III BARKLEY, MONICA NABORS PIN: 1832606377 DB 017355, PG 01588 0.98 AC.
67. GIORDANO, GLENN E GIORDANO, JOHNNA D PIN: 1832605408 DB 006833, PG 00871 1.11 AC.
68. LEARY, CHRISTOPHER R LEARY, SHARON L PIN: 1832602646 DB 012850, PG 01160 0.86 AC.
69. FAIRLAKE COMMUNITY ASSOCIATION PIN: 1832610591 DB 016932, PG 00579 8.65 AC.
70. GRAFF, JOSEPH N GRAFF, BARBARA A PIN: 1832614001 DB 017097, PG 01191 0.69 AC.
71. DINGBAUM, THOMAS W DINGBAUM, JUDITH ANNE PIN: 1832605934 DB 007917, PG 00070 0.69 AC.
72. MOFFATTE, IAN M MOFFATTE, MICHELLE L PIN: 1832606833 DB 016164, PG 01583 0.69 AC.
73. JACKSON, DAVID E PIN: 1832607746 DB 007273, PG 00186 0.69 AC.
74. CARLE, JACQUELINE D PIN: 1832608775 DB 017342, PG 01960 0.69 AC.
75. HORNER, WESLEY HORNER, MIKAYLA PIN: 1832609761 DB 018368, PG 01295 0.69 AC.
76. GERLITZ, KYLE A TRUSTEE GERLITZ, ANN M TRUSTEE PIN: 1832700611 DB 018153, PG 01396 0.69 AC.
77. HORNBUCKLE, CASSANDRA HORNBUCKLE, KENFRN PIN: 1832700540 DB 016163, PG 00500 0.69 AC.
78. KENNEDY, JANET A PIN: 1832700368 DB 15-E, PG 1815 0.69 AC.
79. YAROSH, DANIEL YAROSH, LORI PIN: 1832700288 DB 015023, PG 01164 0.69 AC.
80. BAGWELL, CAITLIN ELIZABETH PIN: 1832700196 DB 017418, PG 01644 0.69 AC.
81. PORTER, RYAN S PORTER, JESSICA E PIN: 1832700073 DB 015618, PG 01860 0.72 AC.
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85. MAYO, RICHARD E MAYO, DEDRE LYNN PIN: 1832703074 DB 005850, PG 00855 0.69 AC.
86. JOHNSON, RAYMOND JR PIN: 1832703175 DB 016464, PG 00905 0.69 AC.
87. WU, THUAN WU, MINH LUU PIN: 1832703268 DB 006648, PG 00731 0.69 AC.
88. CARLETON, BETH A CARLETON, JOHN M PIN: 1832703441 DB 017957, PG 00350 0.69 AC.
89. LERNER, MICHELLE GOLDBERG PIN: 1832703518 DB 00644, PG 00644 0.69 AC.
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91. HARKLEY, JOSEPH LEE HARKLEY, MARA J PIN: 1832702850 DB 014916, PG 01240 0.73 AC.
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93. VAN, ORDEN JOHN E VAN, ORDEN AMARILIS PIN: 1832707851 DB 015884, PG 02301 1.15 AC.
94. KUMAR, DHRUVA KUMAR, USHA PIN: 1832709714 DB 007590, PG 00661 1.23 AC.
95. MOSELEY, THEDRIC JACKSON MOSELEY, KAREN HARRIS PIN: 1832800697 DB 017863, PG 02357 2.06 AC.
96. PACKETT, MITCHELL G PACKETT, ANNE APIN: 1832803702 DB 008362, PG 02159 3.63 AC.

DEMOLITION LEGEND

TREE	TREE OR OTHER VEGETATION TO BE REMOVED
W/G/T/P	UNDERGROUND UTILITY TO BE REMOVED
	AREA TO BE REMOVED (SIDEWALK, CURB AND GUTTER, STRUCTURES, ASPHALT, CONCRETE PAVING, ETC.)

NOTE: SEE PLAN FOR DETAILED DEMOLITION PROCEDURES, SEQUENCING AND SPECIFICATIONS.

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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Durham, NC 27713

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CLIENT

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YOUNGSVILLE, NC 27596-9698

GREEN TIMBER FOUNDATION
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YOUNGSVILLE, NC 27596-9698

CONTACT:
JAMES ADAMS
jmas@millridgeco.com
PHONE: 919. 556. 5418

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Daniel
William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO.	DATE

PLAN INFORMATION

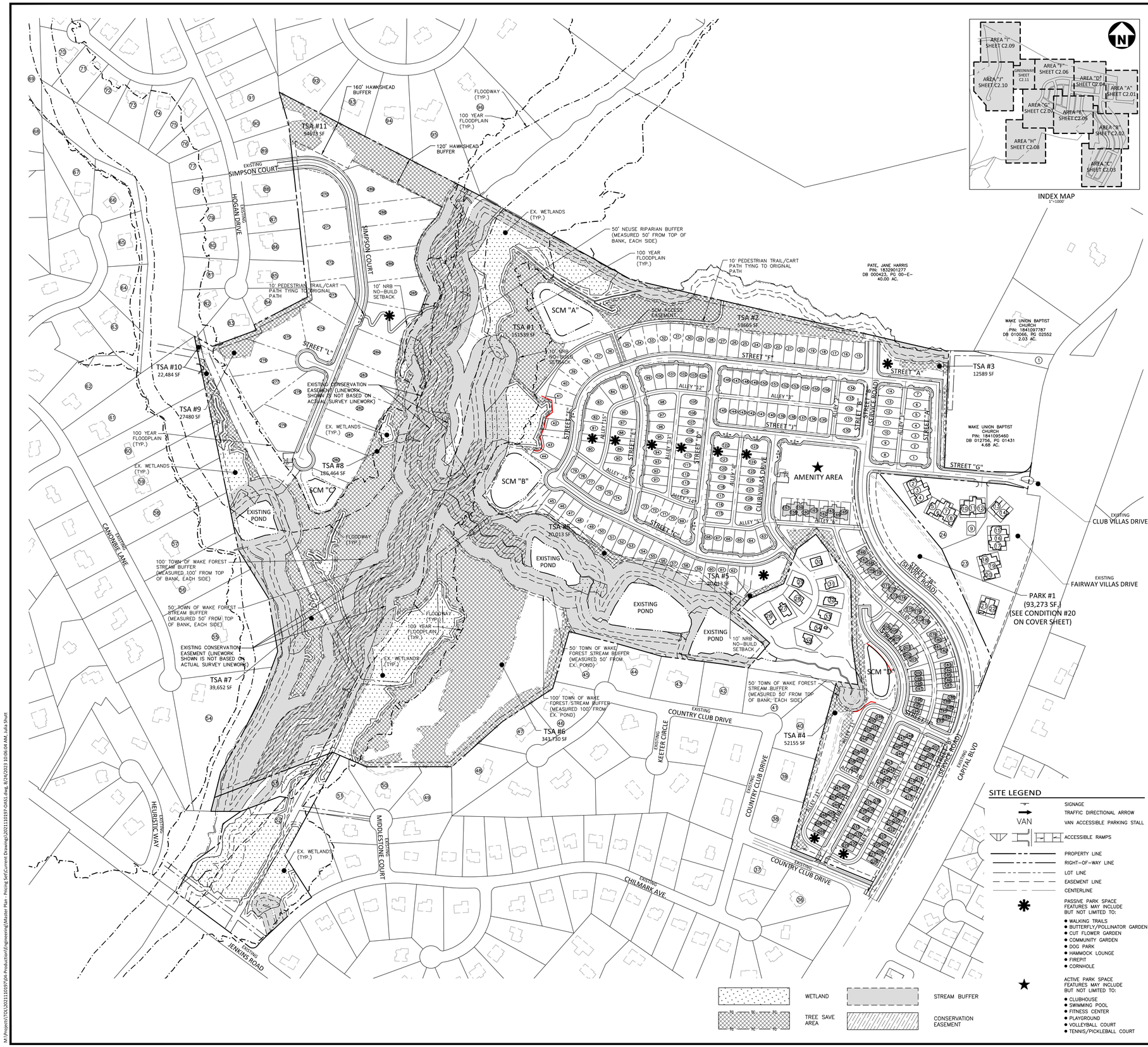
PROJECT NO.	2021110197
FILENAME	2021110197-DM1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=200'
DATE	08. 25. 2023

SHEET

OVERALL DEMOLITION PLAN

C1.03

M:\Projects\TOL\2021110197\04-Production\Engineering\Master Plan - Pricing Set\Current Drawings\2021110197-DM1.dwg, 8/24/2023 3:23:07 PM, Julia Shutt



ADJACENT PROPERTY OWNERS

1. WAKE UNION BAPTIST CHURCH PIN: 1841097615 DB 010066, PG 02552 0.26 AC.
2. HORTON, ROBIN RANDALL SR HORTON, MARY HOLLAND PIN: 1841092100 DB 016834, PG 00534 0.08 AC.
3. FINNEGAN, JOSEPH T FINNEGAN, LESLEY E PIN: 1841092027 DB 015001, PG 02043 0.06 AC.
4. CARTER, TERRY W CARTER, SUSAN S PIN: 1841092033 DB 015849, PG 01361 0.08 AC.
5. BRUNKHORST, WILLIAM PIN: 1841082989 DB 14-E, PG 3763 0.07 AC.
6. DOMINICK, JOHN M DOMINICK, BETSY S PIN: 1841083918 DB 016125, PG 00408 0.06 AC.
7. GRADY, DOUGLAS H GRADY, MARTHA S PIN: 1841083947 DB 009563, PG 00022 0.06 AC.
8. CORBETT, MICHAEL P CORBETT, VIRGINIA L PIN: 1841083975 DB 011992, PG 02542 0.07 AC.
9. OAKMARK DEVELOPMENT CO LLC PIN: 1841084950 DB 008579, PG 00285 0.08 AC.
10. BYRNE, THOMAS J JR BYRNE, MARY COLLINS PIN: 1841084928 DB 013727, PG 02265 0.07 AC.
11. PRUITT, DELORES PIN: 1841084969 DB 009228, PG 00583 0.06 AC.
12. ROUSSEAU, CHERYLL E PIN: 1841084999 0.08 AC.
13. NEISES, GAIL ELAINE PIN: 1841085969 DB 017776, PG 00544 0.08 AC.
14. HEATH, CHARLES LARRY HEATH, MARY EDITH PIN: 1841086908 DB 016073, PG 01026 0.08 AC.
15. WALSH, DONNA L PIN: 1841085879 DB 010897, PG 00588 0.09 AC.
16. BONE, MALCOLM BONE, ELIZABETH PIN: 1841085875 DB 013245, PG 01171 0.06 AC.
17. LOVING, JOHN C LOVING, LENNIS F PIN: 1841085872 DB 010355, PG 00066 0.08 AC.
18. MATZKEVICH, DYANNE M PIN: 1841085736 DB 017937, PG 02774 0.09 AC.
19. ROGGE, BEVERLY J ETRUSTEE GAIL E AND BEVERLY J ROGGE TRUST PIN: 1841085743 DB 016159, PG 02584 0.06 AC.
20. VOLLMER, CHARLES B VOLLMER, STELLA PIN: 1841085649 DB 014287, PG 00672 0.08 AC.
21. MAIOLO, THOMAS PIN: 1841085516 DB 017711, PG 02381 0.08 AC.
22. ZELVIS, MICHELE HOFFMAN PIN: 1841085545 DB 016929, PG 00340 0.08 AC.
23. FAIRWAY VILLAS AT WF GOLF CLUB PIN: 1841085635 DB 010962, PG 00817 2.87 AC.
24. FAIRWAY VILLAS AT WF GOLF CLUB & TOWNHOMES OWNERS ASSOC INC PIN: 1841094004 DB 009050, PG 00136 1.39 AC.
25. CLUBHOUSE VILLAS AT WAKE FOREST GOLF CLUB HOA, INC PIN: 1831986381 DB 016814, PG 02513 3.17 AC.
26. BIELIK, EDWARD A PACE, KAYLA N PIN: 1831985552 DB 017423, PG 02305 0.19 AC.
27. ZHAO, BAIRU PIN: 1831986524 DB 017010, PG 01441 0.18 AC.
28. HIGGINS, JOHN W III PIN: 1831986589 DB 017055, PG 00072 0.19 AC.
29. REITMANN, ROBERT PIN: 1831986696 DB 017165, PG 00638 0.16 AC.
30. GOK, KEN Y AYUN, H. LIM PIN: 1831987775 DB 016844, PG 00697 0.18 AC.
31. RAMSARAN, MICHAEL RAMSARAN, CHARMAINE PIN: 1831988635 DB 015098, PG 00453 0.15 AC.
32. JALLORINA, CLAUDE H HABON, LORNA D PIN: 1831988538 DB 017656, PG 00904 0.17 AC.
33. SIMS, YVONNE M PIN: 1831988511 DB 017009, PG 02679 0.17 AC.
34. KING, JOHN C JR KING, NETANIS E PIN: 1831987466 DB 016902, PG 01921 0.18 AC.
35. RUPSKY, MARK J RUPSKY, PENNY L PIN: 1831987430 DB 016903, PG 02026 0.17 AC.
36. CIMA, DAVID A CIMA, CINDY PIN: 1831977217 DB 013668, PG 02375 1.25 AC.
37. GOSSETT, LINDA M PIN: 1831975411 DB 016391, PG 00784 0.70 AC.
38. REDMAN, J MICHEAL PIN: 1831975681 DB 013569, PG 01957 0.91 AC.
39. BOWERS, JAMES S BOWERS, DELIA B PIN: 1831976841 DB 008747, PG 00299 0.91 AC.
40. FICHERA, JOHN L. FICHERA, WENDY M PIN: 1831987003 DB 010374, PG 02097 1.20 AC.
41. BARR, ARNOLD L BARR, CHORENE L PIN: 1831985177 DB 002596, PG 00773 1.14 AC.
42. GRIMMETT, ANDREW O WRIGHT, ANGELA M PIN: 1831983138 DB 017994, PG 01725 0.91 AC.
43. FREEMAN, JAMES LOUIS JR FREEMAN, JOAN OUTLAND PIN: 1831981262 DB 010889, PG 00559 0.90 AC.
44. LESTER, JEFFREY A LESTER, JO ANNE D PIN: 1831889265 DB 010527, PG 01658 0.88 AC.
45. UPTON, KEVIN C UPTON, MITZI M PIN: 1831897351 DB 007686, PG 00928 1.13 AC.
46. WILLIAMS, PATRICK EUGENE WILLIAMS, CHELSEA FAIRCLOTH PIN: 1831886151 DB 018244, PG 00964 0.92 AC.
47. JOYNER, SAMUEL H JOYNER, PATRICIA S PIN: 1831884051 DB 016867, PG 02193 0.93 AC.
48. FISHER, C P JR PIN: 1831873802 DB 002417, PG 00449 1.30 AC.
49. PERRY, MICHAEL K PERRY, LEE E B PIN: 1831870765 DB 008212, PG 02270 1.10 AC.
50. MICCHIA, JOSEPH M JR MAYO, DEDIRE LYNN TRUSTEE MICCHIA, GINA L TRUSTEE PIN: 1831778748 DB 016880, PG 02215 0.95 AC.
51. KOON, JOEL A KOON, SONJA M PIN: 1831776783 DB 015688, PG 01957 0.96 AC.
52. ADAMS FRY DEVELOPMENTS LLC PIN: 1831772476 DB 007407, PG 00319 5.70 AC.
53. ADAMS FRY DEVELOPMENTS LLC PIN: 1831773725 DB 007465, PG 00637 1.10 AC.
54. CONLEY, JOHN T CONLEY, LYNN G PIN: 1831780694 DB 006180, PG 00702 3.43 AC.
55. EBERLE, JOHN C EBERLE, SUSAN R PIN: 1831781425 DB 015507, PG 00718 3.80 AC.
56. MCVAY, GLEN A. MCVAY, KIMBERLY PIN: 1831780618 DB 015909, PG 01151 1.76 AC.
57. MASSEY, GEORGE DENNIS MASSEY, CHIKAKO S PIN: 1831689865 DB 017878, PG 01999 1.92 AC.
58. O'DELL, MARK A O'DELL, BETH M PIN: 1831699001 DB 007918, PG 00377 1.81 AC.
59. POWELL, ANNE H PIN: 1831698166 DB 012820, PG 00944 1.86 AC.
60. WENNINGER, STEPHAN FRIEDRICH WENNINGER, SARAH LESLIE PIN: 1831698311 DB 015044, PG 01065 2.12 AC.
61. DURHAM, MICHAEL J DURHAM, CAROL I PIN: 1831697456 DB 014730, PG 00924 2.78 AC.
62. MEYER, ROGER P MEYER, KATHLEEN F PIN: 1831695532 DB 006223, PG 00200 1.63 AC.
63. BEASLEY, DARYL BERNARD BEASLEY, CUBE T PIN: 1831696861 DB 017181, PG 02551 1.04 AC.
64. SUCHER, AARON SUCHER, SOU PIN: 1831697924 DB 014805, PG 01066 0.92 AC.
65. HODGES, THOMAS R HODGES, SUSAN C PIN: 1832607117 DB 016741, PG 01362 0.94 AC.
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96. PACKETT, MITCHELL G PACKETT, ANNE APIN: 1832803702 DB 008362, PG 02159 3.63 AC.

SITE LEGEND

- SIGNAGE
- TRAFFIC DIRECTIONAL ARROW
- VAN — VAN ACCESSIBLE PARKING STALL
- ACCESSIBLE RAMPS
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- PASSIVE PARK SPACE FEATURES MAY INCLUDE BUT NOT LIMITED TO:
  - WALKING TRAILS
  - BUTTERFLY/POLLINATOR GARDEN
  - CUT FLOWER GARDEN
  - COMMUNITY GARDEN
  - DOG PARK
  - HAMMOCK LOUNGE
  - FIREPIT
  - CORNHOLE
- ACTIVE PARK SPACE FEATURES MAY INCLUDE BUT NOT LIMITED TO:
  - CLUBHOUSE
  - SWIMMING POOL
  - FITNESS CENTER
  - PLAYGROUND
  - VOLLEYBALL COURT
  - TENNIS/PICKLEBALL COURT

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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jmas@millridgeco.com
PHONE: 919. 556. 5418

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Daniel
William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO.	DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-OAS1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=200'
DATE	08. 25. 2023

SHEET

OVERALL SITE PLAN

C2.00

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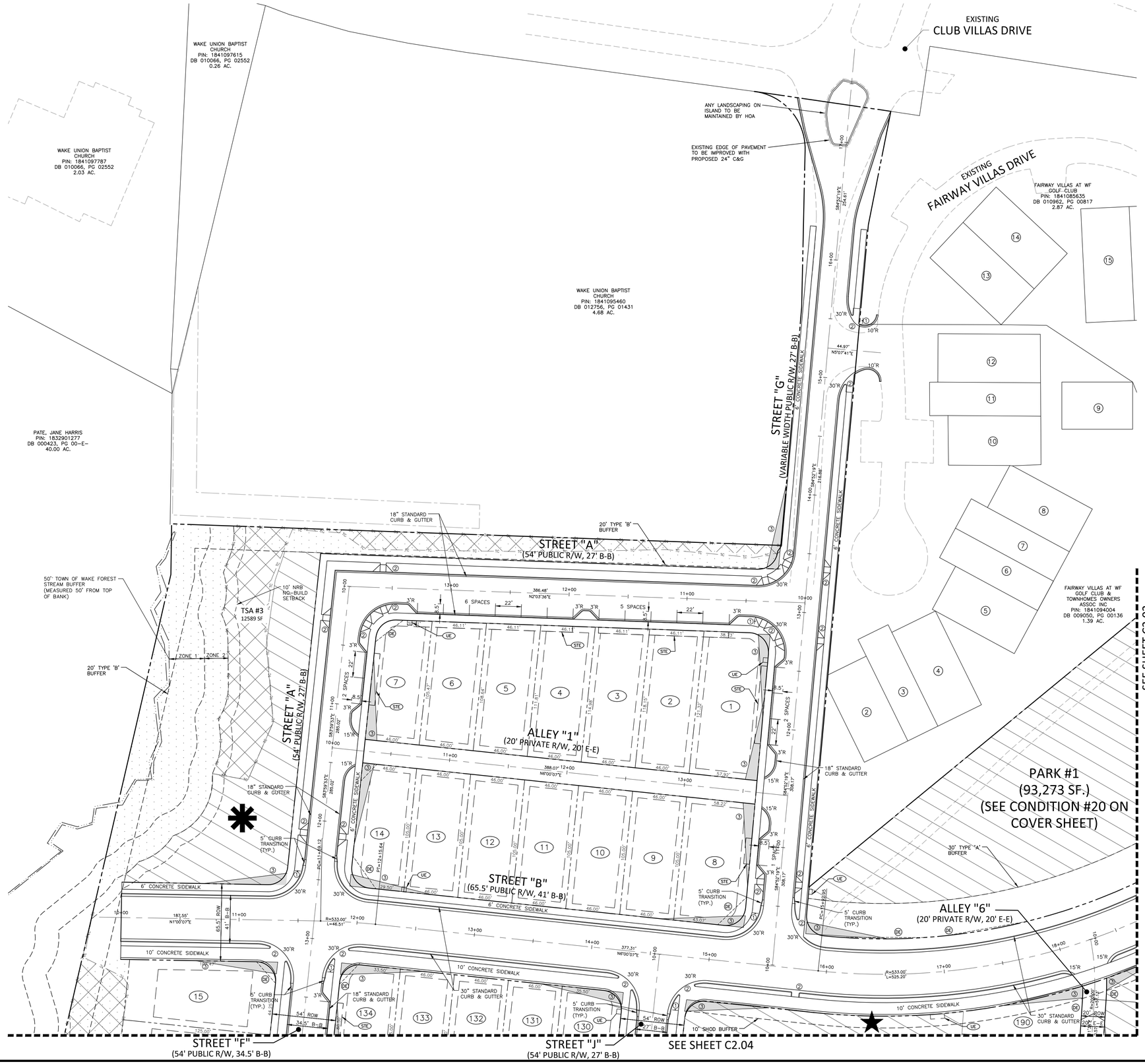

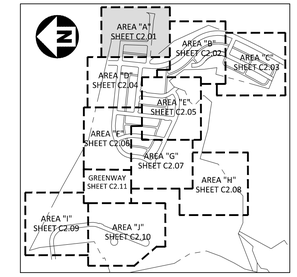

INDEX MAP
1"=1000'

SITE LEGEND

- SIGNAGE
- TRAFFIC DIRECTIONAL ARROW
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- ACCESSIBLE RAMPS
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- CONSERVATION EASEMENT

PASSIVE PARK SPACE FEATURES MAY INCLUDE BUT NOT LIMITED TO:

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- SWIMMING POOL
- FITNESS CENTER
- PLAYGROUND
- VOLLEYBALL COURT
- TENNIS/PICKLEBALL COURT

KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Daniel
William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-S1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

SITE PLAN
AREA "A"
C2.01

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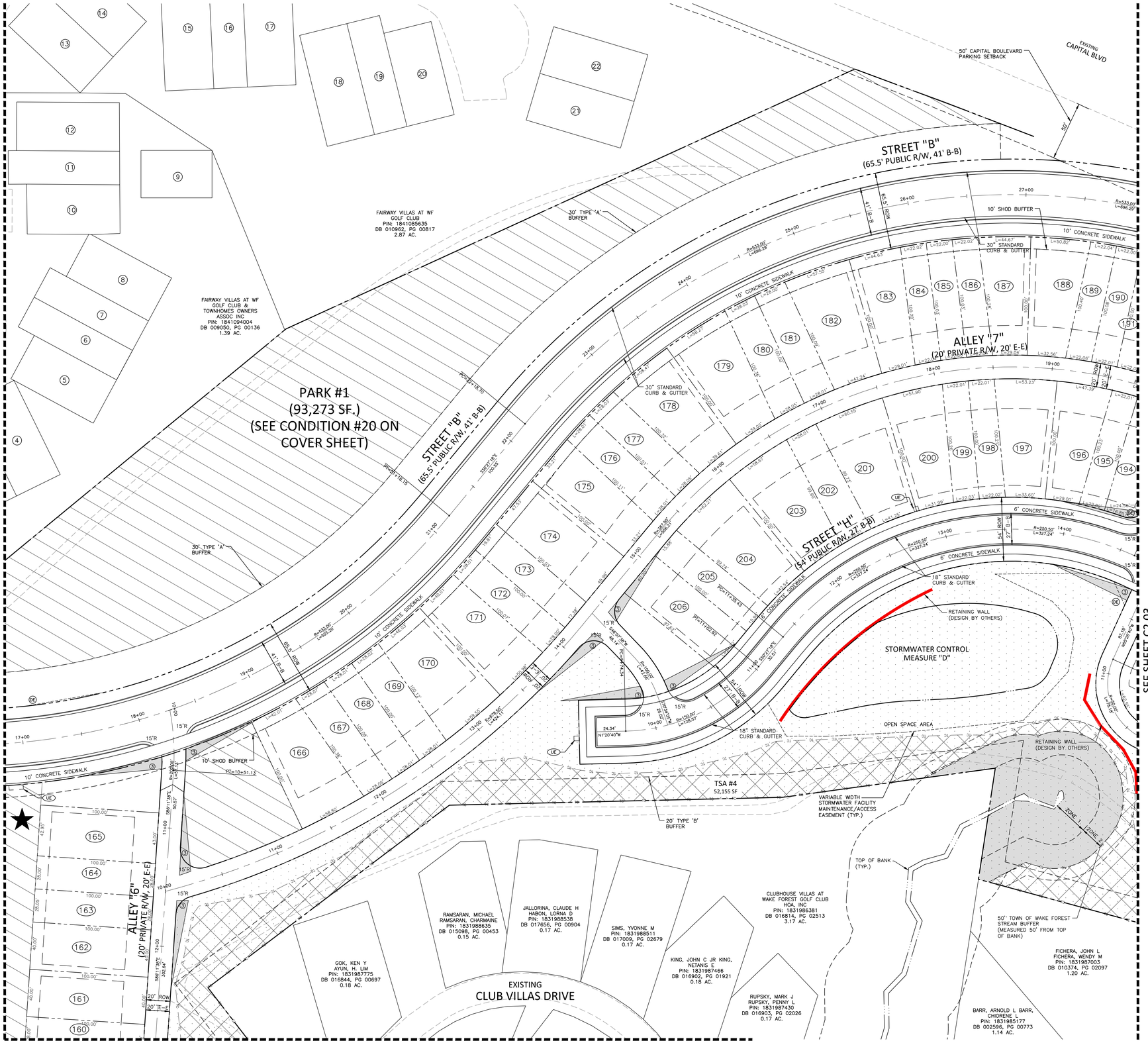

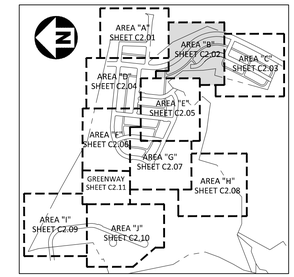

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3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- SDE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

MCADAMS
The John R. McAdams Company, Inc.
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Durham, NC 27713

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fax 919. 361. 2269
license number: C-0293, C-187

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CLIENT

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YOUNGSVILLE, NC 27596-9698

GREEN TIMBER FOUNDATION
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

CONTACT:
JAMES ADAMS
jmas@millridgeco.com
PHONE: 919. 556. 5418

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-S1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

SITE PLAN
AREA "B"
C2.02

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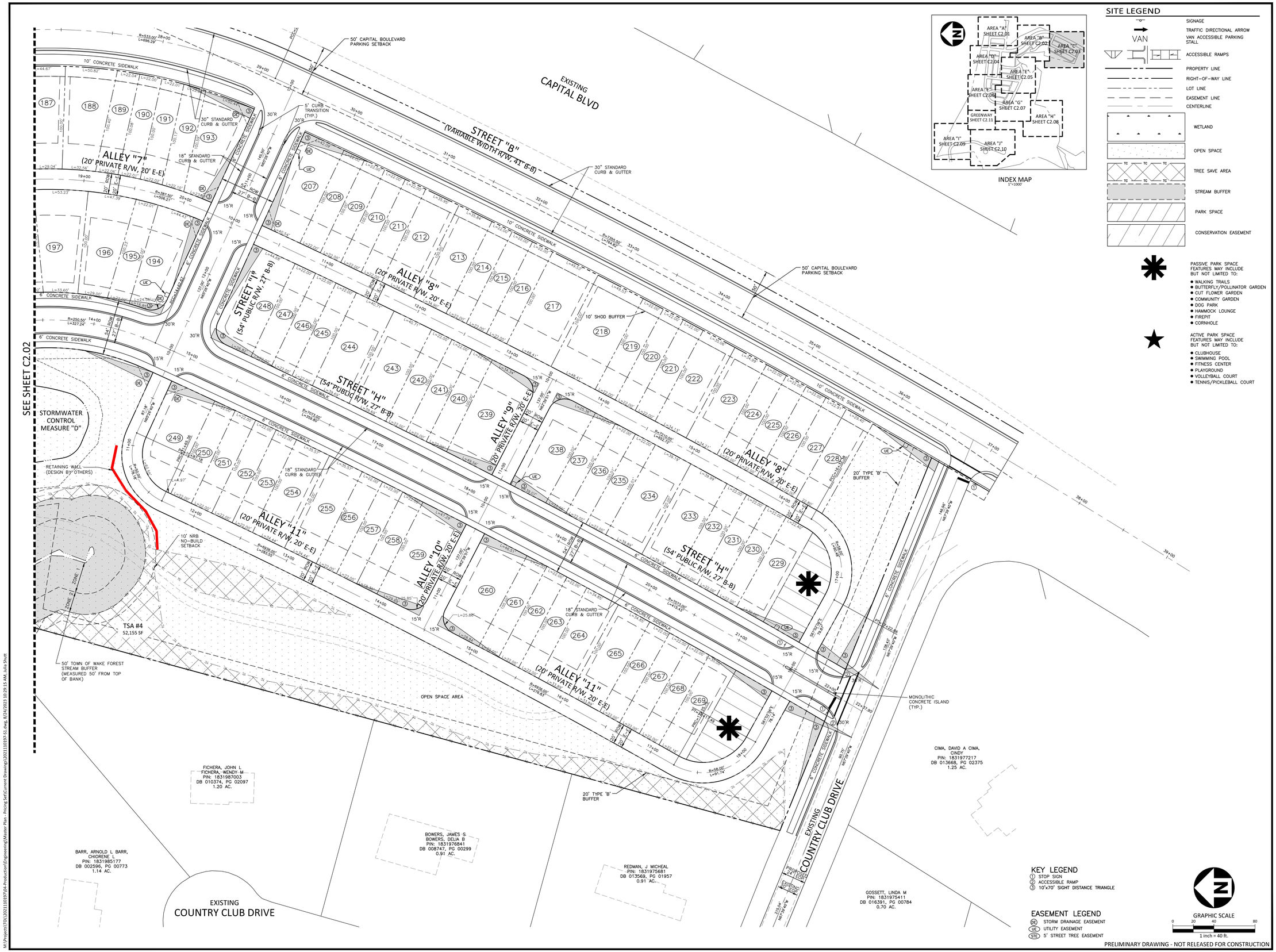

SITE LEGEND

- SIGNAGE
- TRAFFIC DIRECTIONAL ARROW
- VAN ACCESSIBLE PARKING STALL
- ACCESSIBLE RAMPS
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- CONSERVATION EASEMENT

PASSIVE PARK SPACE FEATURES MAY INCLUDE BUT NOT LIMITED TO:

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- CUT FLOWER GARDEN
- COMMUNITY GARDEN
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SHEET

SITE PLAN
AREA "C"

C2.03

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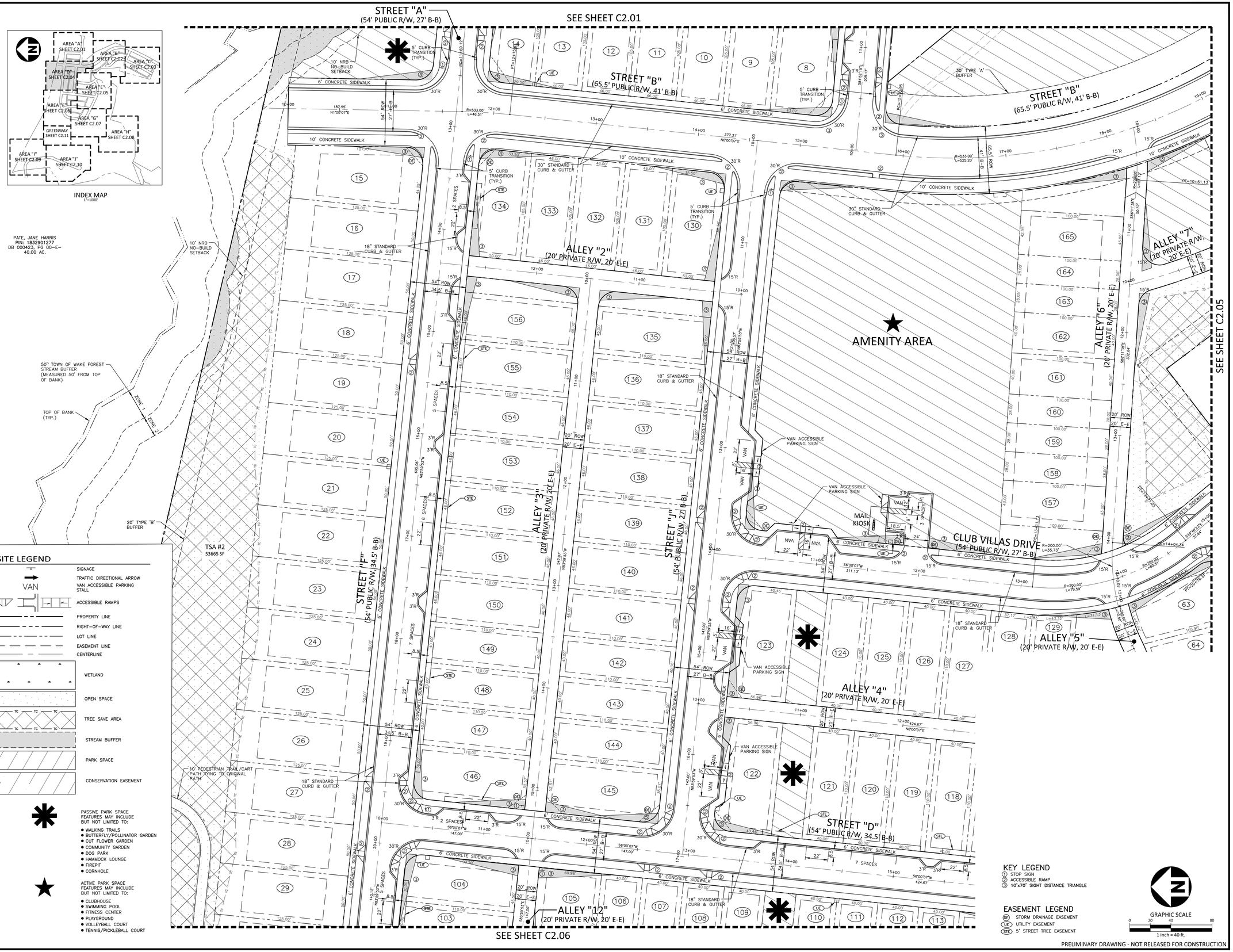

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SHEET

SITE PLAN
AREA "D"

C2.04

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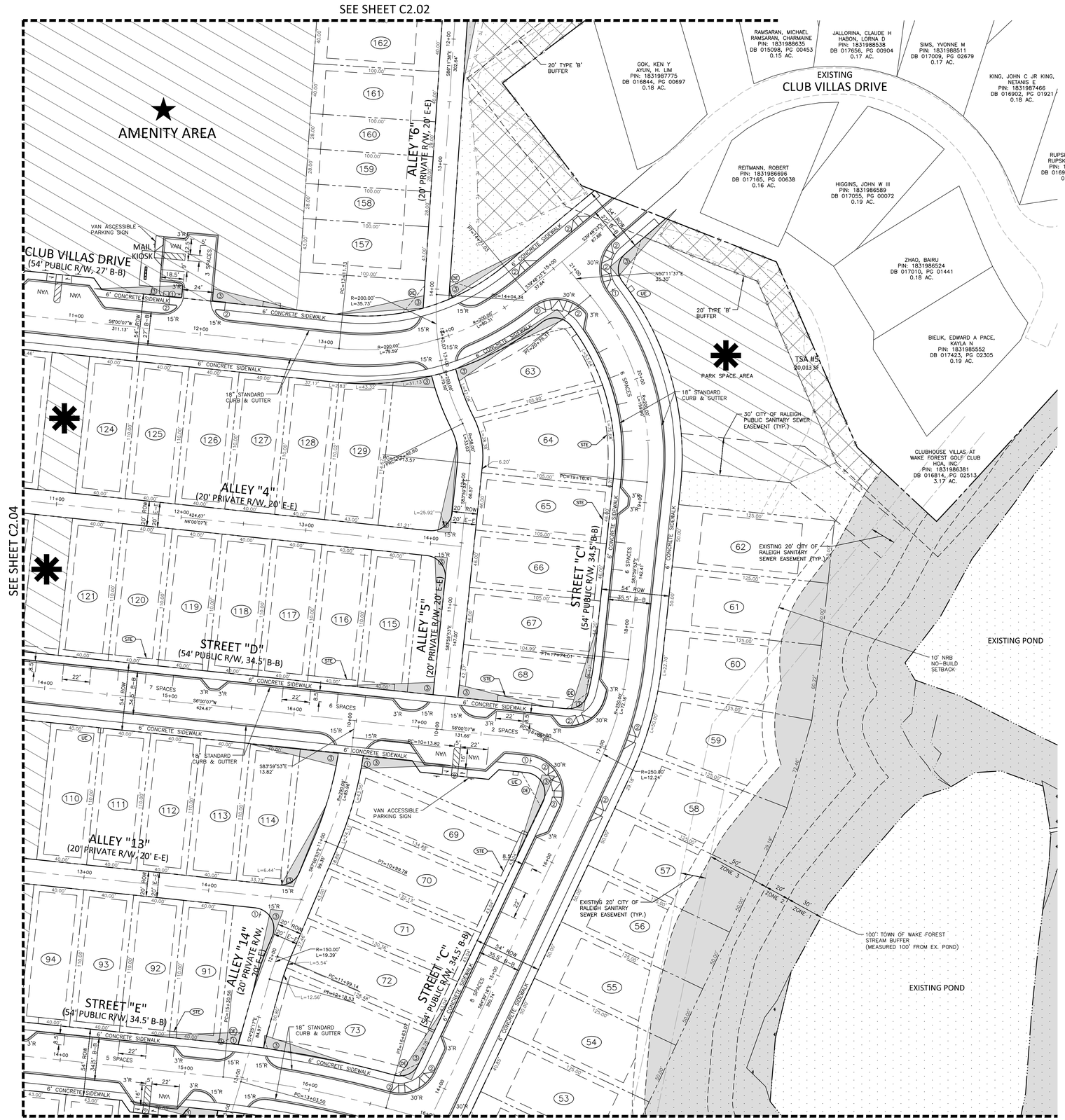

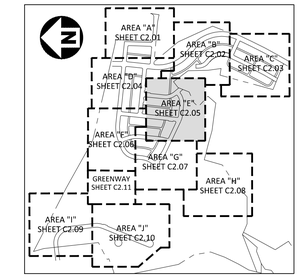

INDEX MAP
1"=1000'

SITE LEGEND

- SIGNAGE
- TRAFFIC DIRECTIONAL ARROW
- VAN ACCESSIBLE PARKING STALL
- ACCESSIBLE RAMPS
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- CONSERVATION EASEMENT

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- BUTTERFLY/POLLINATOR GARDEN
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- COMMUNITY GARDEN
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- FIREPIT
- CORNHOLE

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- FITNESS CENTER
- PLAYGROUND
- VOLLEYBALL COURT
- TENNIS/PICKLEBALL COURT

KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- SE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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SHEET

SITE PLAN
AREA "E"
C2.05

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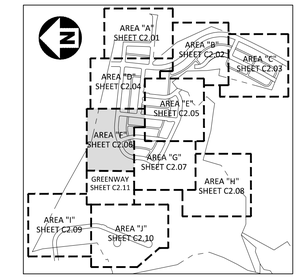

INDEX MAP
1"=1000'

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- TRAFFIC DIRECTIONAL ARROW
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- STREAM BUFFER
- PARK SPACE
- CONSERVATION EASEMENT
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  - FIREPIT
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KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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DATE	08. 25. 2023

SHEET

SITE PLAN
AREA "F"
C2.06

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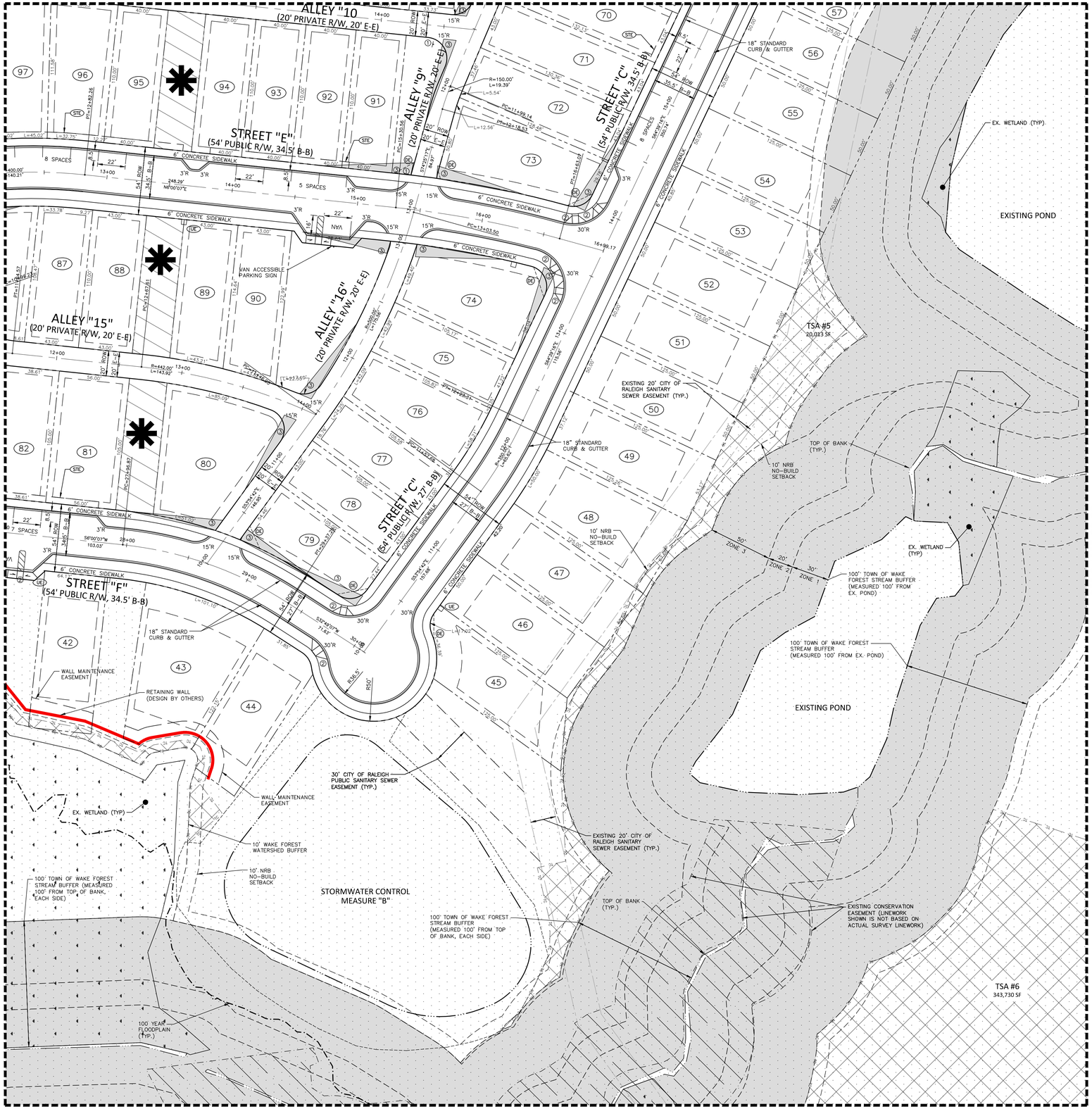
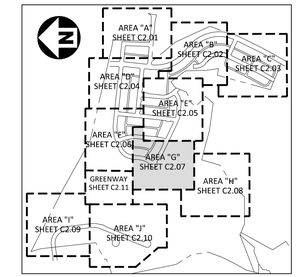


SEE SHEET C2.06

SEE SHEET C2.08

SEE SHEET C2.10



INDEX MAP
1"=1000'

SITE LEGEND

- SIGNAGE
- TRAFFIC DIRECTIONAL ARROW
- VAN — VAN ACCESSIBLE PARKING STALL
- ACCESSIBLE RAMPS
- PROPERTY LINE
- RIGHT-OF-WAY LINE
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KEY LEGEND

1. STOP SIGN
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3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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DATE	08. 25. 2023

SHEET

SITE PLAN
AREA "G"

C2.07

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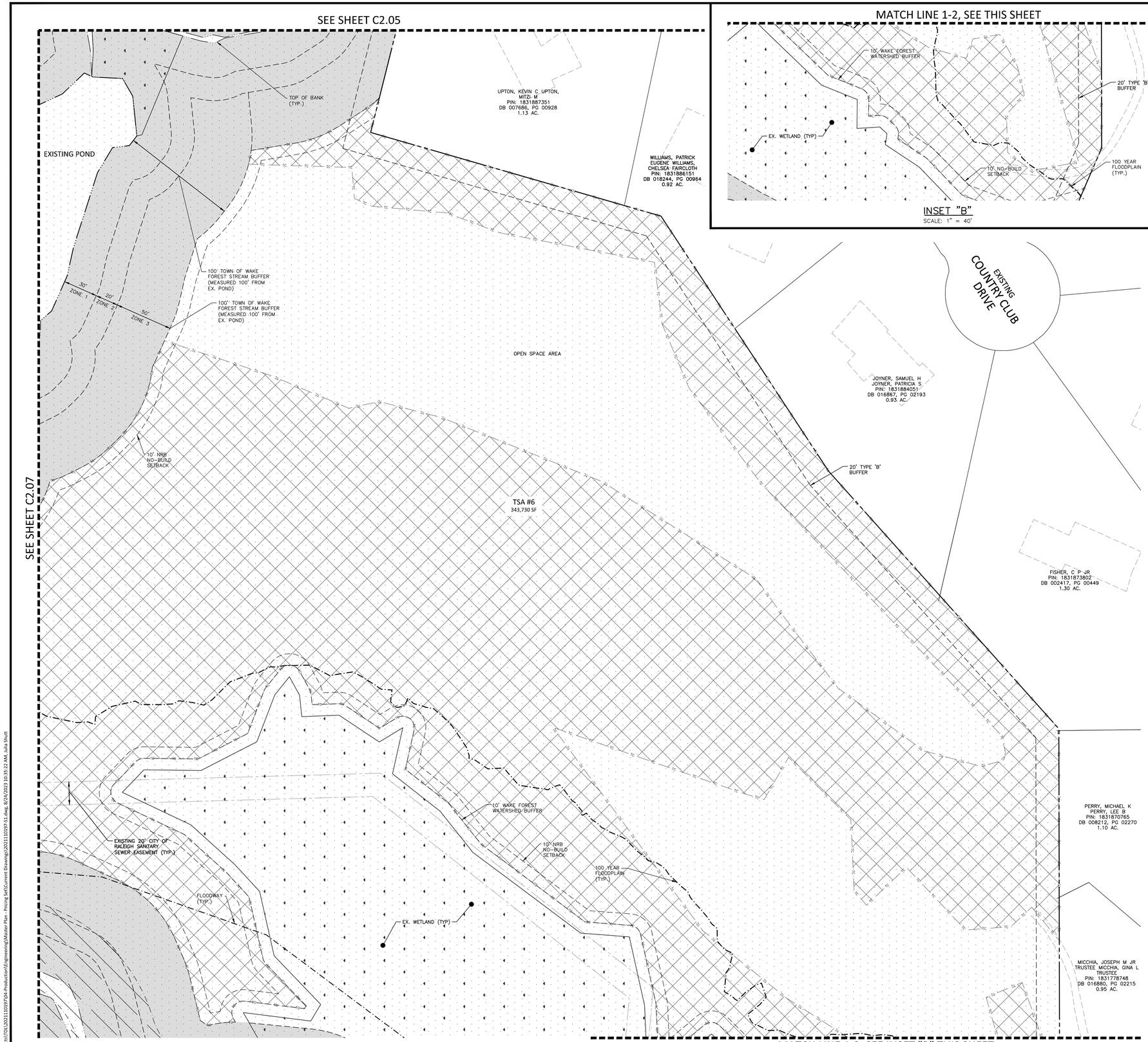

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SHEET

SITE PLAN AREA "H"

C2.08

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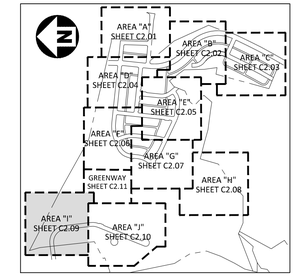

INDEX MAP
1"=1000'

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SHEET

SITE PLAN
AREA "I"
C2.09

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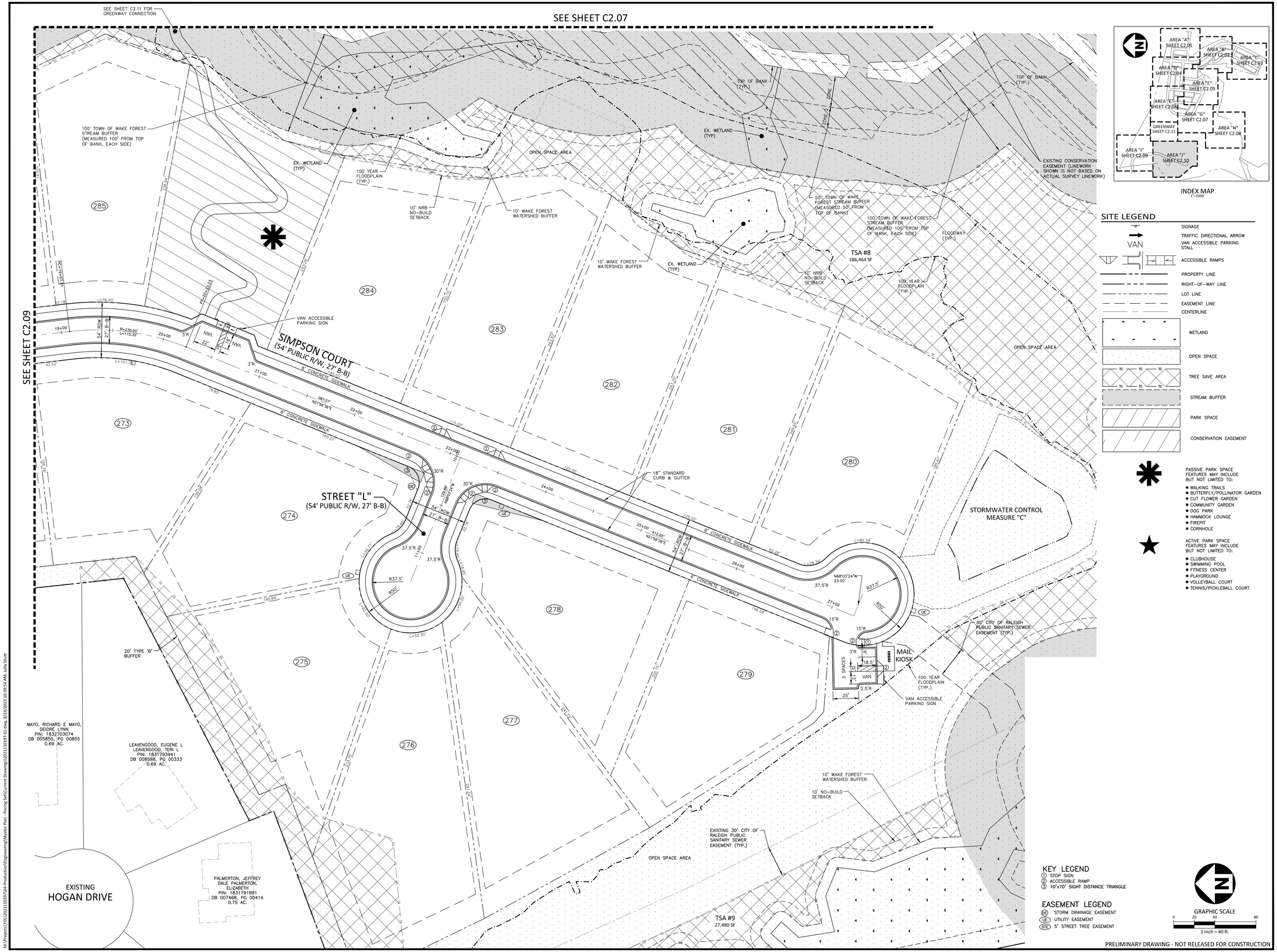

INDEX MAP
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SHEET

SITE PLAN
AREA "J"

C2.10

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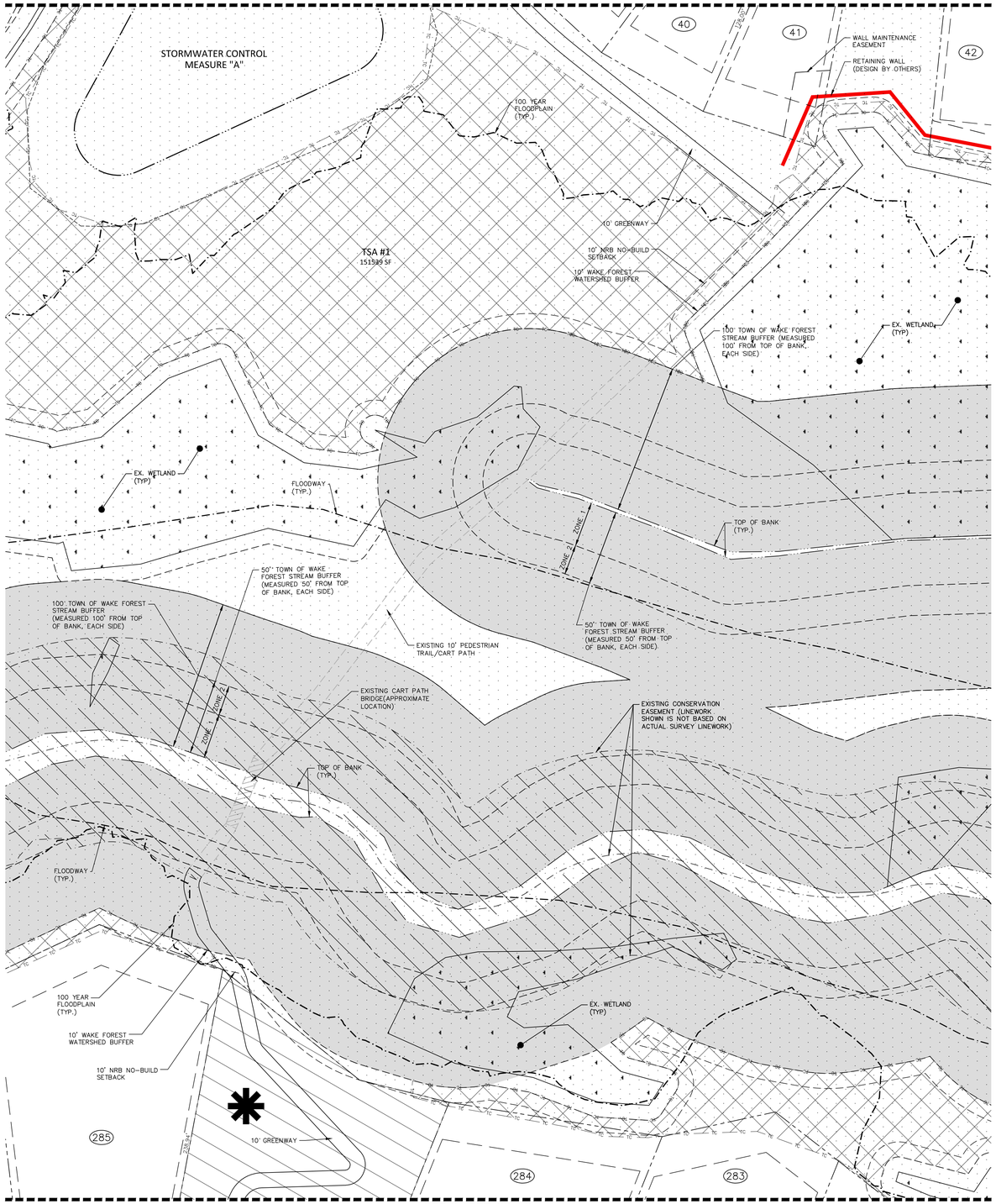

SEE SHEET C2.10

INDEX MAP
1"=1000'

SITE LEGEND

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- TRAFFIC DIRECTIONAL ARROW
- VAN — VAN ACCESSIBLE PARKING STALL
- ACCESSIBLE RAMPS
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- CONSERVATION EASEMENT

PASSIVE PARK SPACE FEATURES MAY INCLUDE BUT NOT LIMITED TO:

- WALKING TRAILS
- BUTTERFLY/POLLINATOR GARDEN
- CUT FLOWER GARDEN
- COMMUNITY GARDEN
- DOG PARK
- HAMMOCK LOUNGE
- FIREPIT
- CORNHOLE

ACTIVE PARK SPACE FEATURES MAY INCLUDE BUT NOT LIMITED TO:

- CLUBHOUSE
- SWIMMING POOL
- FITNESS CENTER
- PLAYGROUND
- VOLLEYBALL COURT
- TENNIS/PICKLEBALL COURT

KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

MCADAMS
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CONTACT:
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jmas@millridgeco.com
PHONE: 919. 556. 5418

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Dani

William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=todaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-S1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

SITE PLAN
GREENWAY
C2.11

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ADJACENT PROPERTY OWNERS

1. WAKE UNION BAPTIST CHURCH PIN: 1841097615 DB 010066, PG 02552 0.26 AC.
2. HORTON, ROBIN RANDALL SR HORTON, MARY HOLLAND PIN: 1841092100 DB 016834, PG 00534 0.08 AC.
3. FINNEGAN, JOSEPH T FINNEGAN, LESLEY E PIN: 1841092027 DB 015001, PG 02043 0.06 AC.
4. CARTER, TERRY W CARTER, SUSAN S PIN: 1841092033 DB 015849, PG 01361 0.08 AC.
5. BRUNKHORST, WILLIAM PIN: 1841082989 DB 14-E, PG 3763 0.07 AC.
6. DOMINICK, JOHN M DOMINICK, BETSY S PIN: 1841083918 DB 016125, PG 00408 0.06 AC.
7. GRADY, DOUGLAS H GRADY, MARTHA S PIN: 1841083947 DB 009563, PG 00022 0.06 AC.
8. CORBETT, MICHAEL P CORBETT, VIRGINIA L PIN: 1841083975 DB 011992, PG 02542 0.07 AC.
9. OAKMARK DEVELOPMENT CO LLC PIN: 1841084950 DB 008579, PG 00285 0.08 AC.
10. BYRNE, THOMAS J JR BYRNE, MARY COLLINS PIN: 1841084928 DB 013727, PG 02265 0.07 AC.
11. PRUITT, DELORES PIN: 1841084969 DB 009228, PG 00583 0.06 AC.
12. ROUSSEAU, CHERYLL E PIN: 1841084999 0.08 AC.
13. NEISES, GAIL ELAINE PIN: 1841085969 DB 017776, PG 00544 0.08 AC.
14. HEATH, CHARLES LARRY HEATH, MARY EDITH PIN: 1841086908 DB 016073, PG 01026 0.08 AC.
15. WALSH, DONNA L PIN: 1841085879 DB 010897, PG 00588 0.09 AC.
16. BONE, MALCOLM BONE, ELIZABETH PIN: 1841085875 DB 013245, PG 01171 0.06 AC.
17. LOVING, JOHN C LOVING, LENNIS F PIN: 1841085872 DB 010355, PG 00066 0.08 AC.
18. MATZKEVICH, DYANNE M PIN: 1841085736 DB 017937, PG 02774 0.09 AC.
19. ROGGE, BEVERLY J ETAL TRUSTEE GAIL E AND BEVERLY J ROGGE TRUST PIN: 1841085743 DB 016159, PG 02584 0.06 AC.
20. VOLLMER, CHARLES B VOLLMER, STELLA PIN: 1841085649 DB 014287, PG 00672 0.08 AC.
21. MAIOLO, THOMAS PIN: 1841085516 DB 017711, PG 02381 0.08 AC.
22. ZELVIS, MICHELE HOFFMAN PIN: 1841085545 DB 016926, PG 00340 0.08 AC.
23. FAIRWAY VILLAS AT WF GOLF CLUB PIN: 1841085635 DB 010962, PG 00817 2.87 AC.
24. FAIRWAY VILLAS AT WF GOLF CLUB & TOWNHOMES OWNERS ASSOC INC. PIN: 1841094004 DB 009050, PG 00136 1.39 AC.
25. CLUBHOUSE VILLAS AT WAKE FOREST GOLF CLUB HOA, INC PIN: 1831986381 DB 016814, PG 02513 3.17 AC.
26. BIELIK, EDWARD A PACE, KAYLA N PIN: 1831985552 DB 017423, PG 02305 0.19 AC.
27. ZHAO, BAIRU PIN: 1831986524 DB 017010, PG 01441 0.18 AC.
28. HIGGINS, JOHN W III PIN: 1831986589 DB 017055, PG 00072 0.19 AC.
29. REITMANN, ROBERT PIN: 1831986696 DB 017165, PG 00638 0.16 AC.
30. GOK, KEN Y AYON, H. LIM PIN: 1831987775 DB 016844, PG 00697 0.18 AC.
31. RAMSARAN, MICHAEL RAMSARAN, CHARMAINE PIN: 1831988635 DB 015098, PG 00453 0.15 AC.
32. JALLORINA, CLAUDE H HABON, LORNA D PIN: 1831988538 DB 017656, PG 00904 0.17 AC.
33. SIMS, YVONNE M PIN: 1831988511 DB 017009, PG 02679 0.17 AC.
34. KING, JOHN C JR KING, NETANIS E PIN: 1831987466 DB 016902, PG 01921 0.18 AC.
35. RUPSKY, MARK J RUPSKY, PENNY L PIN: 1831987430 DB 016903, PG 02026 0.17 AC.
36. CIMA, DAVID A CIMA, CINDY PIN: 1831977217 DB 013668, PG 02375 1.25 AC.
37. GOSSETT, LINDA M PIN: 1831975411 DB 016391, PG 00784 0.70 AC.
38. REDMAN, J MICHEAL PIN: 1831975681 DB 013569, PG 01957 0.91 AC.
39. BOWERS, JAMES S BOWERS, DELIA B PIN: 1831976841 DB 008747, PG 00299 0.91 AC.
40. FICHERA, JOHN L. FICHERA, WENDY M PIN: 1831987003 DB 010374, PG 02097 1.20 AC.
41. BARR, ARNOLD L BARR, CHORENE L PIN: 1831985177 DB 002596, PG 00773 1.14 AC.
42. GRIMMETT, ANDREW O WRIGHT, ANGELA M PIN: 1831983138 DB 017994, PG 01725 0.91 AC.
43. FREEMAN, JAMES LOUIS JR FREEMAN, JOAN OUTLAND PIN: 1831981262 DB 010889, PG 00559 0.90 AC.
44. LESTER, JEFFREY A LESTER, JO ANNE D PIN: 1831889265 DB 010527, PG 01658 0.88 AC.
45. UPTON, KEVIN C UPTON, MITZI M PIN: 1831887351 DB 007686, PG 00928 1.13 AC.
46. WILLIAMS, PATRICK EUGENE WILLIAMS, CHELSEA FARGLOTH PIN: 1831886151 DB 018244, PG 00964 0.92 AC.
47. JOYNER, SAMUEL H JOYNER, PATRICIA S PIN: 1831884051 DB 016867, PG 02193 0.93 AC.
48. FISHER, C P JR PIN: 1831873802 DB 002417, PG 00449 1.30 AC.
49. PERRY, MICHAEL K PERRY, LEE B PIN: 1831870765 DB 008212, PG 02270 1.10 AC.
50. MICCHIA, JOSEPH M JR TRUSTEE MICCHIA, GINA L TRUSTEE PIN: 1831778748 DB 016880, PG 02215 0.95 AC.
51. KOON, JOEL A KOON, SONJA M PIN: 1831776783 DB 015686, PG 01957 0.96 AC.
52. ADAMS FRY DEVELOPMENTS LLC PIN: 1831772476 DB 007407, PG 00319 5.70 AC.
53. ADAMS FRY DEVELOPMENTS LLC PIN: 1831773725 DB 007465, PG 00637 1.10 AC.
54. CONLEY, JOHN T CONLEY, LYNN G PIN: 1831780094 DB 006180, PG 00702 3.43 AC.
55. EBERLE, JOHN C EBERLE, SUSAN R PIN: 1831781425 DB 015507, PG 00718 3.80 AC.
56. MCVAY, GLEN A. MCVAY, KIMBERLY PIN: 1831780618 DB 015909, PG 01151 1.76 AC.
57. MASSEY, GEORGE DENNIS MASSEY, CHIAKKO S PIN: 1831689865 DB 017878, PG 01999 1.92 AC.
58. O'DELL, MARK A O'DELL, BETH M PIN: 1831699001 DB 007918, PG 00377 1.81 AC.
59. POWELL, ANNE H PIN: 1831698166 DB 012820, PG 00944 1.96 AC.
60. WENNINGER, STEPHAN FRIEDRICH WENNINGER, SARAH LESLIE PIN: 1831698311 DB 015044, PG 01065 2.12 AC.
61. DURHAM, MICHAEL J DURHAM, CAROL I PIN: 1831697456 DB 014730, PG 00924 2.78 AC.
62. MEYER, ROGER P MEYER, KATHLEEN F PIN: 1831695532 DB 006223, PG 00200 1.63 AC.
63. BEASLEY, DARYL BERNARD BEASLEY, CURE T PIN: 1831696861 DB 017181, PG 02551 1.04 AC.
64. SUCHER, AARON SUCHER, SOUL PIN: 1831697924 DB 014805, PG 01066 0.92 AC.
65. HODGES, THOMAS R HODGES, SUSAN C PIN: 1832607117 DB 016741, PG 01362 0.94 AC.
66. BARKLEY, HUBERT MERRILL III BARKLEY, MONICA NABORS PIN: 1832606377 DB 017355, PG 01588 0.98 AC.
67. GIORDANO, GLENN E GIORDANO, JOHNNA D PIN: 1832605408 DB 006833, PG 00871 1.11 AC.
68. LEARY, CHRISTOPHER R LEARY, SHARON L PIN: 1832602646 DB 012850, PG 01160 0.86 AC.
69. FAIRLAKE COMMUNITY ASSOCIATION PIN: 1832610591 DB 016932, PG 00579 8.65 AC.
70. GRAFF, JOSEPH N GRAFF, BARBARA A PIN: 1832814001 DB 017097, PG 01191 0.69 AC.
71. DINGBAUM, THOMAS W DINGBAUM, JUDITH ANNE PIN: 1832605934 DB 007917, PG 00070 0.69 AC.
72. MOFFATTE, IAN M MOFFATTE, MICHELLE L PIN: 1832606833 DB 016164, PG 01583 0.69 AC.
73. JACKSON, DAVID E PIN: 1832607746 DB 007273, PG 00186 0.69 AC.
74. CARLE, JACQUELINE D PIN: 1832608775 DB 017342, PG 01960 0.69 AC.
75. HORNER, WESLEY HORNER, MIKAYLA PIN: 1832609761 DB 018368, PG 01295 0.69 AC.
76. GERLITZ, KYLE A TRUSTEE GERLITZ, ANN M TRUSTEE PIN: 1832700611 DB 018153, PG 01396 0.69 AC.
77. HORNBUCKLE, CASSANDRA HORNBUCKLE, KENFIN PIN: 1832700540 DB 016163, PG 00500 0.69 AC.
78. KENNEDY, JANET A PIN: 1832700368 DB 15-E, PG 1815 0.69 AC.
79. YAROSH, DANIEL YAROSH, LORI PIN: 1832700288 DB 015023, PG 01164 0.69 AC.
80. BAGWELL, CAITLIN ELIZABETH PIN: 1832700196 DB 017418, PG 01644 0.69 AC.
81. PORTER, RYAN S PORTER, JESSICA E PIN: 1832700073 DB 015618, PG 01860 0.72 AC.
82. SAPP, ANDREW J SAPP, JO ANN PIN: 1831790960 DB 005582, PG 00544 0.71 AC.
83. PALMERTON, JEFFREY DALE PALMERTON, ELIZABETH PIN: 1831791891 DB 007468, PG 00414 0.75 AC.
84. LEAVENGOOD, EUGENE L. LEAVENGOOD, TERI L PIN: 1831792941 DB 008598, PG 00333 0.69 AC.
85. MAYO, RICHARD E MAYO, DEDRE LYNN PIN: 1832703074 DB 005850, PG 00855 0.69 AC.
86. JOHNSON, RAYMOND JR PIN: 1832703175 DB 016464, PG 00905 0.69 AC.
87. WU, THUAN WU, MINH LUU PIN: 1832703268 DB 006648, PG 00731 0.69 AC.
88. CARLETON, BETH A CARLETON, JOHN M PIN: 1832703441 DB 017957, PG 00350 0.69 AC.
89. LERNER, MICHELLE GOLDBERG PIN: 1832703518 DB 00644, PG 00644 0.69 AC.
90. WALLACE, MARK FRANKLIN WALLACE, NICOLE J PIN: 1832703700 DB 018282, PG 02793 0.69 AC.
91. HARKLEY, JOSEPH LEE HARKLEY, MARIA J PIN: 1832702850 DB 014916, PG 01240 0.73 AC.
92. OSTERGARD, RICHARD A OSTERGARD, YONG S PIN: 1832706809 DB 016272, PG 01652 1.30 AC.
93. VAN, ORDEN JOHN E VAN, ORDEN AMARILIS PIN: 1832707851 DB 015984, PG 02301 1.15 AC.
94. KUMAR, DHRUVA KUMAR, USHA PIN: 1832709714 DB 007590, PG 00661 1.23 AC.
95. MOSELEY, THEDRIC JACKSON MOSELEY, KAREN HARRIS PIN: 1832800697 DB 017863, PG 02357 2.06 AC.
96. PACKETT, MITCHELL G PACKETT, ANNE APIN: 1832803702 DB 008362, PG 02159 3.63 AC.

GRADING LEGEND

- FLARED END SECTION
- ENDWALL SECTION
- CATCH BASIN
- DROP INLET
- STORM SERVICE INLET
- STORM SERVICE ROOF-DRAIN
- JUNCTION BOX
- STORM DRAINAGE
- TP — TP — TP — TREE PROTECTION FENCE
- LD — LD — LIMITS OF DISTURBANCE
- WOODED AREA
- 250 MAJOR CONTOUR
- 252 MINOR CONTOUR
- 250 EXISTING MAJOR CONTOUR
- 252 EXISTING MINOR CONTOUR
- EASEMENT LINE
- ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)
- RETAINING WALL

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Daniel
William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=rodaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO.	DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-OAG1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=200'
DATE	08. 25. 2023

SHEET

OVERALL GRADING AND STORM DRAINAGE PLAN

C3.00

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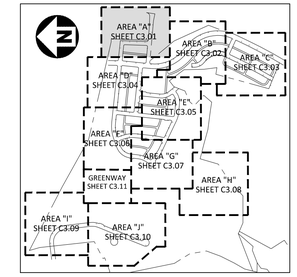

INDEX MAP
1"=1000'

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — STREET TREE EASEMENT

GRADING LEGEND

- FLARED END SECTION
- ENDWALL SECTION
- CATCH BASIN
- DROP INLET
- STORM SERVICE INLET
- STORM SERVICE ROOF-DRAIN
- JUNCTION BOX
- DRAINAGE FLOW ARROW
- LINE BREAK SYMBOL
- 250.50 / 250.00 — TOP & BOTTOM CURB ELEVATIONS
- TW=223.00 / BW=213.00 — TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION (NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
- + 250.60 — SPOT ELEVATION
- STORM DRAINAGE
- STORM SERVICE LINE
- RD — RD — RD — ROOF DRAIN, 8" ADS NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
- TP — TP — TP — TREE PROTECTION FENCE
- LD — LD — LD — LIMITS OF DISTURBANCE
- WOODED AREA
- 250 — MAJOR CONTOUR
- 252 — MINOR CONTOUR
- 250 — EXISTING MAJOR CONTOUR
- 252 — EXISTING MINOR CONTOUR
- EASEMENT LINE
- ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)
- RETAINING WALL

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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W.T. O'Daniel

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cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

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CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

GRADING AND STORM DRAINAGE PLAN AREA "A"

C3.01

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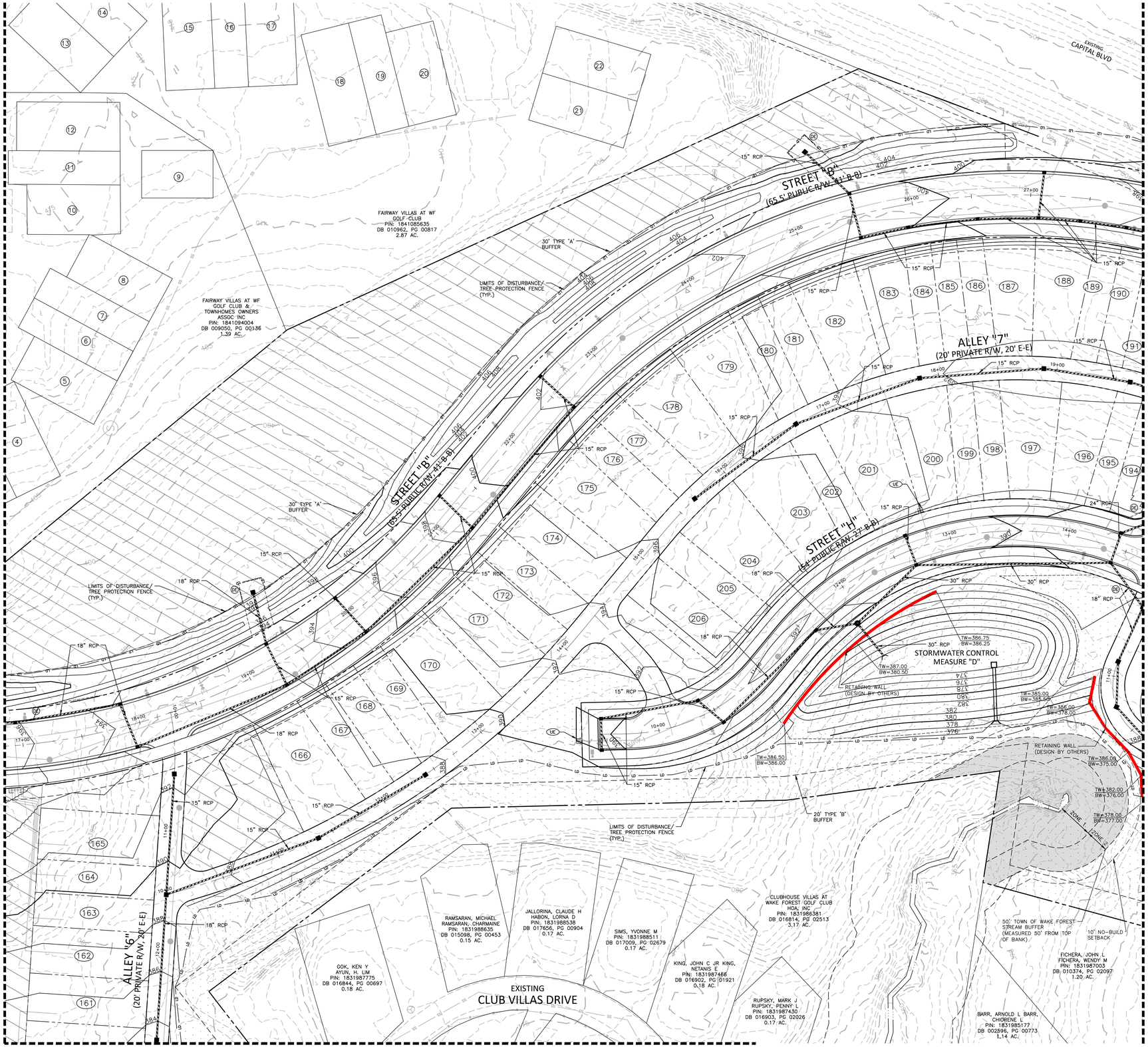

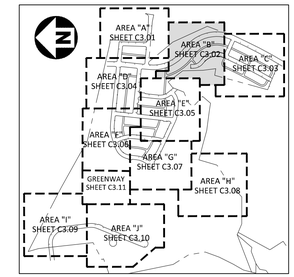

INDEX MAP
1"=1000'

EASEMENT LEGEND

- DE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE STREET TREE EASEMENT

GRADING LEGEND

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- ENDWALL SECTION
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- STORM SERVICE LINE
- RD — ROOF DRAIN, 8" ADS NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
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- LD — LIMITS OF DISTURBANCE
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- 250 — MAJOR CONTOUR
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- EASEMENT LINE
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NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Daniel

William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-G1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

GRADING AND STORM DRAINAGE PLAN AREA "B"

C3.02

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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EASEMENT LEGEND

- (DE) STORM DRAINAGE EASEMENT
- (UE) UTILITY EASEMENT
- (STE) STREET TREE EASEMENT

GRADING LEGEND

	FLARED END SECTION
	ENDWALL SECTION
	CATCH BASIN
	DROP INLET
	STORM SERVICE INLET
	STORM SERVICE ROOF–DRAIN
	JUNCTION BOX
	DRAINAGE FLOW ARROW
	LINE BREAK SYMBOL
250.50 / 250.00	TOP & BOTTOM CURB ELEVATIONS
TW=223.00 / BW=213.00	TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION (NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
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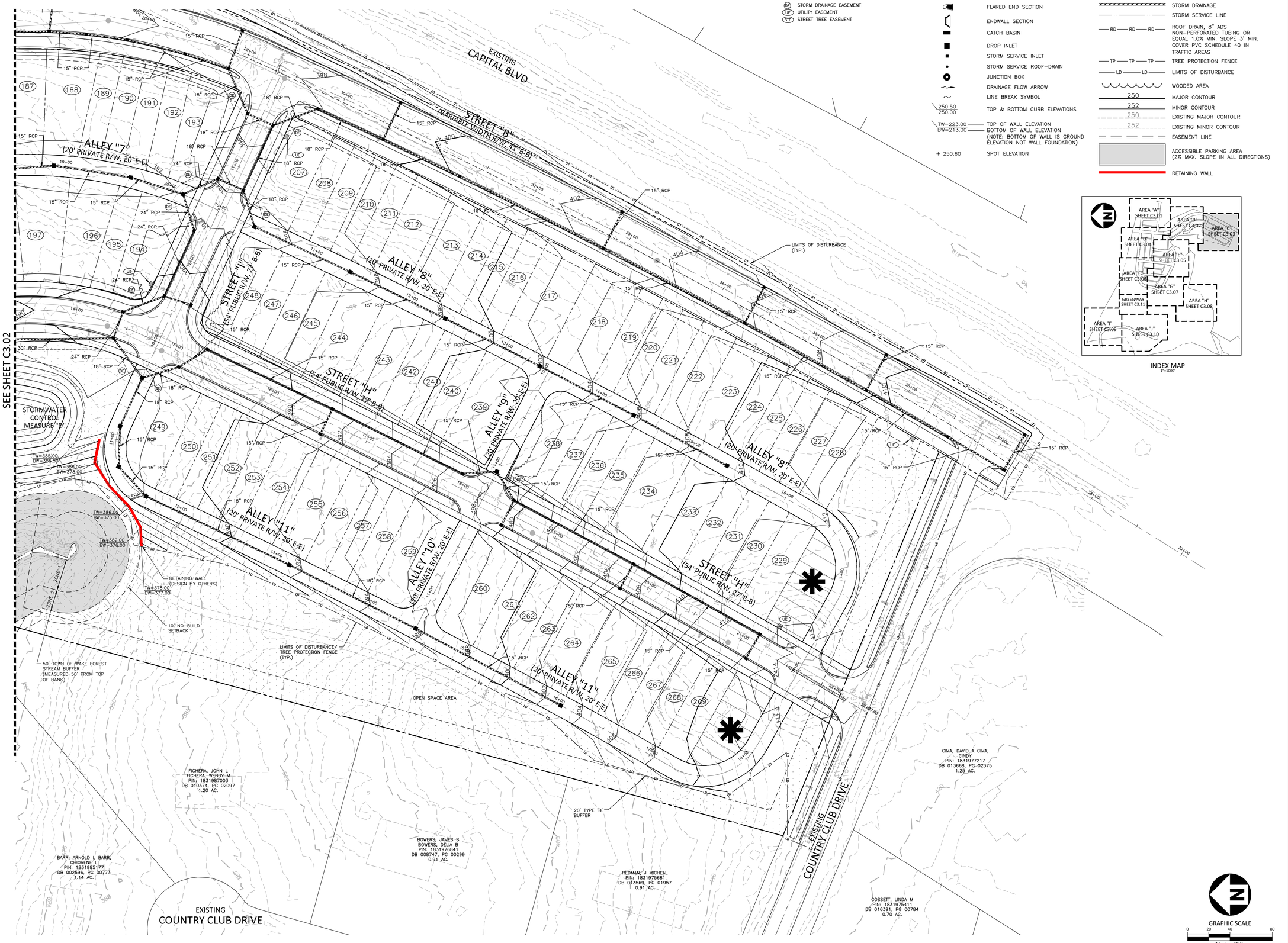
	STORM DRAINAGE
	STORM SERVICE LINE
—RD—RD—RD—	ROOF DRAIN, 8" ADS NON–PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3" MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
—TP—TP—TP—	TREE PROTECTION FENCE
—LD—LD—	LIMITS OF DISTURBANCE
	WOODED AREA
250	MAJOR CONTOUR
252	MINOR CONTOUR
250	EXISTING MAJOR CONTOUR
252	EXISTING MINOR CONTOUR
	EASEMENT LINE
	ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)
	RETAINING WALL



INDEX MAP
1"=1000'

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Daniel

William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=rodaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-G1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

GRADING AND STORM DRAINAGE PLAN AREA "C"

C3.03

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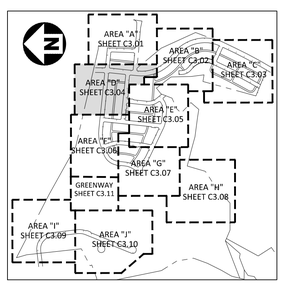

INDEX MAP
1"=1000'

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — STREET TREE EASEMENT

GRADING LEGEND

- FLARED END SECTION
- ENDWALL SECTION
- CATCH BASIN
- DROP INLET
- STORM SERVICE INLET
- STORM SERVICE ROOF-DRAIN
- JUNCTION BOX
- DRAINAGE FLOW ARROW
- LINE BREAK SYMBOL
- 250.50 / 250.00 — TOP & BOTTOM CURB ELEVATIONS
- TW=223.00 / BW=213.00 — TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION (NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
- + 250.60 — SPOT ELEVATION
- STORM DRAINAGE
- STORM SERVICE LINE
- RD — RD — RD — ROOF DRAIN, 8" ADS NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
- TP — TP — TP — TREE PROTECTION FENCE
- LD — LD — LIMITS OF DISTURBANCE
- WOODED AREA
- 250 — MAJOR CONTOUR
- 252 — MINOR CONTOUR
- 250 — EXISTING MAJOR CONTOUR
- 252 — EXISTING MINOR CONTOUR
- EASEMENT LINE
- ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)
- RETAINING WALL

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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REVISIONS

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PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-G1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

GRADING AND STORM DRAINAGE PLAN AREA "D"

C3.04

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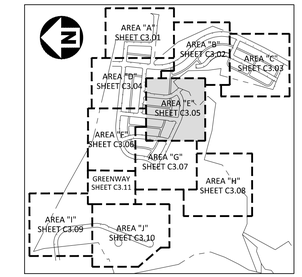
SEE SHEET C3.02

SEE SHEET C3.04

SEE SHEET C3.07



INDEX MAP
1"=1000'

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- UE — UTILITY EASEMENT
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GRADING LEGEND

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- RETAINING WALL

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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William T O'Daniel
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2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

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SHEET

GRADING AND STORM DRAINAGE PLAN AREA "E"

C3.05

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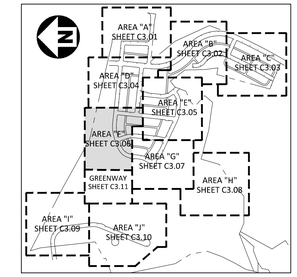

INDEX MAP
1"=1000'

EASEMENT LEGEND

- DE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE STREET TREE EASEMENT

GRADING LEGEND

	FLARED END SECTION
	ENDWALL SECTION
	CATCH BASIN
	DROP INLET
	STORM SERVICE INLET
	STORM SERVICE ROOF-DRAIN
	JUNCTION BOX
	DRAINAGE FLOW ARROW
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TP TP TP	TREE PROTECTION FENCE
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	WOODED AREA
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252	MINOR CONTOUR
250	EXISTING MAJOR CONTOUR
252	EXISTING MINOR CONTOUR
	EASEMENT LINE
	ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)
	RETAINING WALL

GRAPHIC SCALE
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1 inch = 40 ft.

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REVISIONS

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PLAN INFORMATION

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SHEET

GRADING AND STORM DRAINAGE PLAN AREA "F"

C3.06

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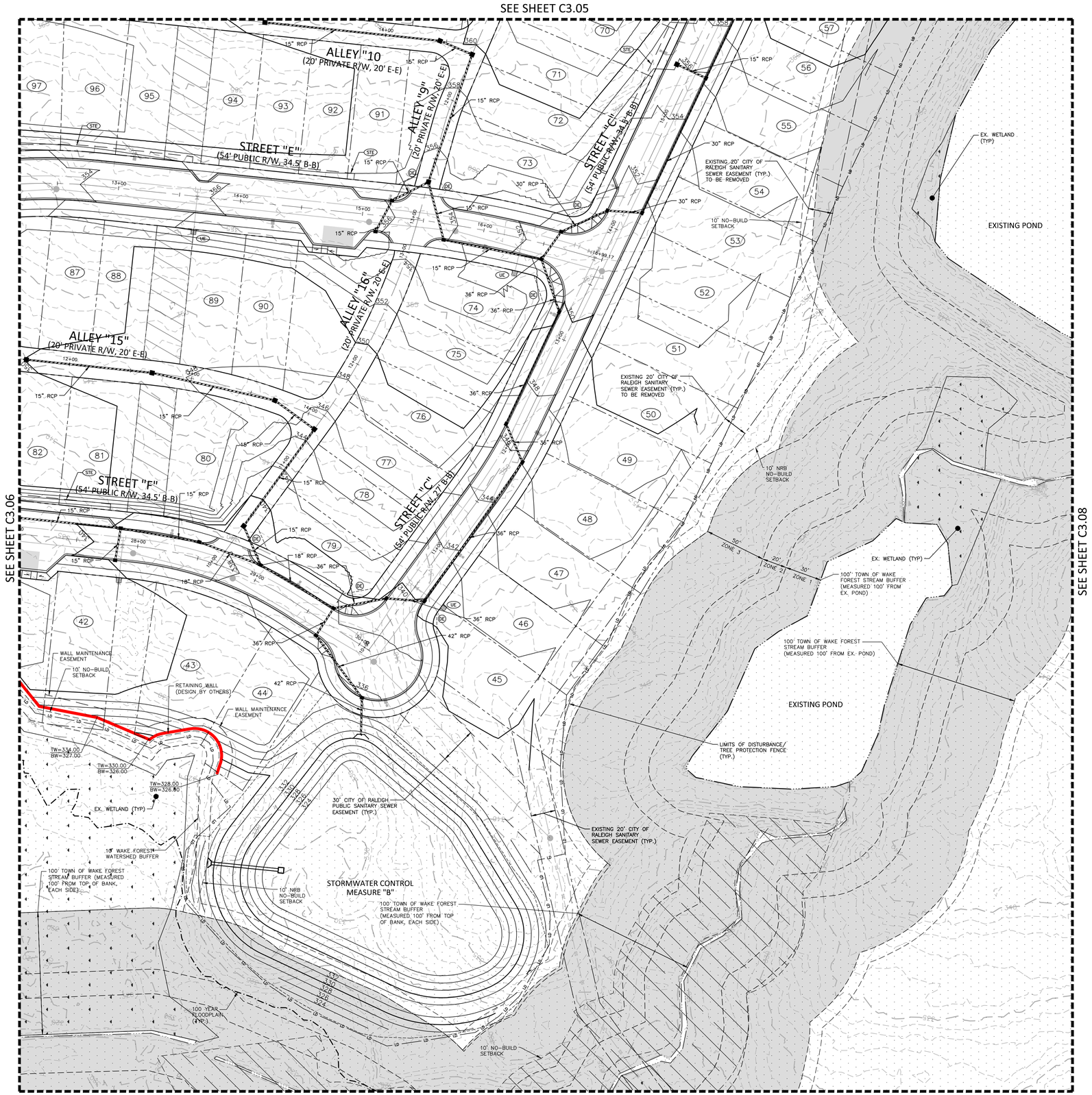

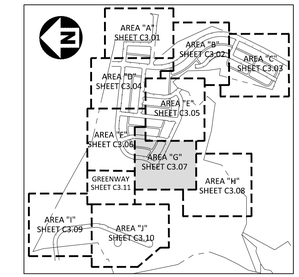

INDEX MAP
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EASEMENT LEGEND

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GRADING LEGEND

	FLARED END SECTION
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GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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2023.08.24 16:41:33 -04'00'

REVISIONS

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PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-G1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

GRADING AND STORM DRAINAGE PLAN AREA "G"

C3.07

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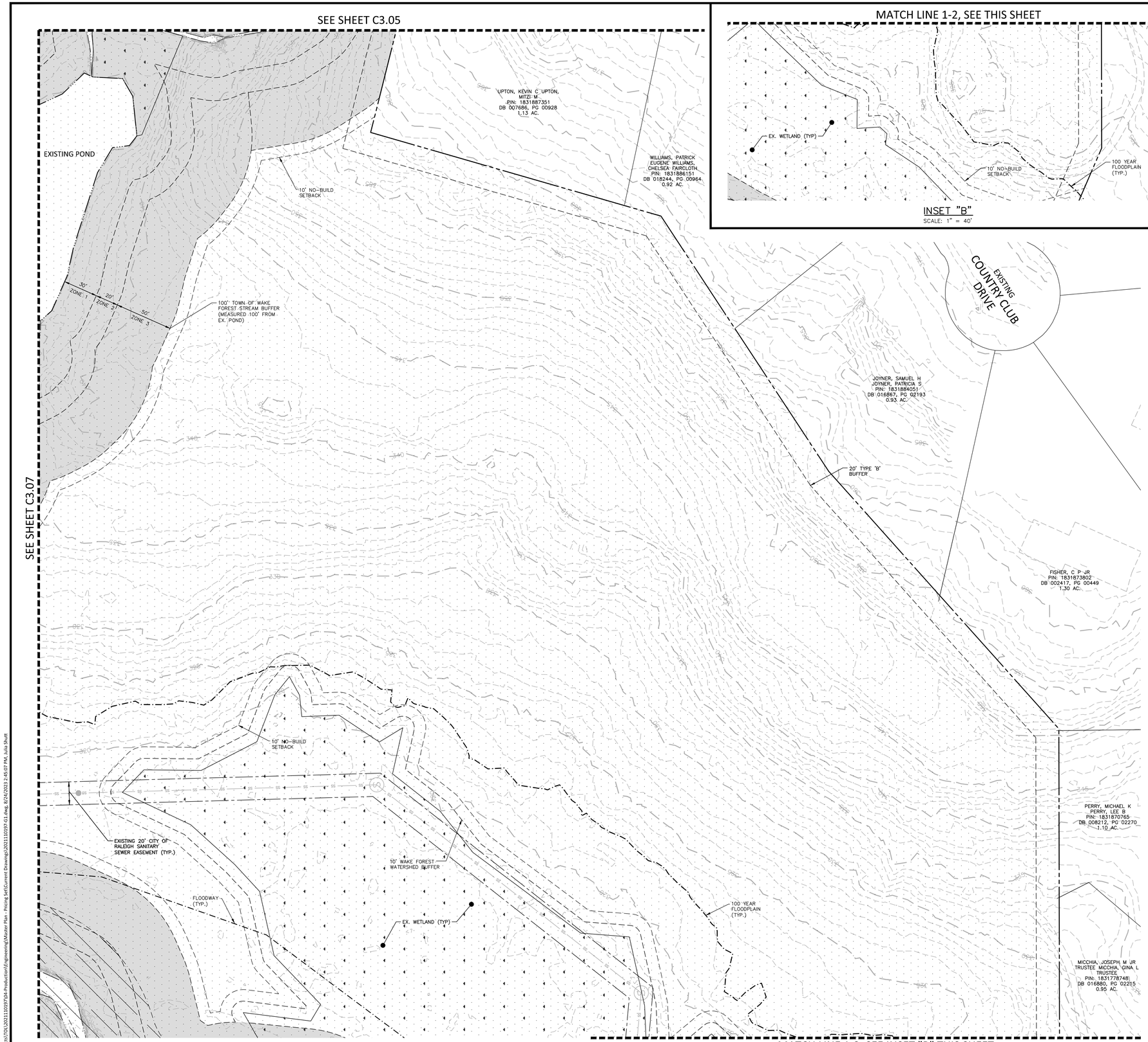

INSET "B"
SCALE: 1" = 40'

INDEX MAP
1"=1000'

EASEMENT LEGEND

- SD STORM DRAINAGE EASEMENT
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GRADING LEGEND

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REVISIONS

NO. DATE

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CHECKED BY	WTO
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SCALE	1"=40'
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SHEET

GRADING AND STORM DRAINAGE PLAN AREA "H"

C3.08

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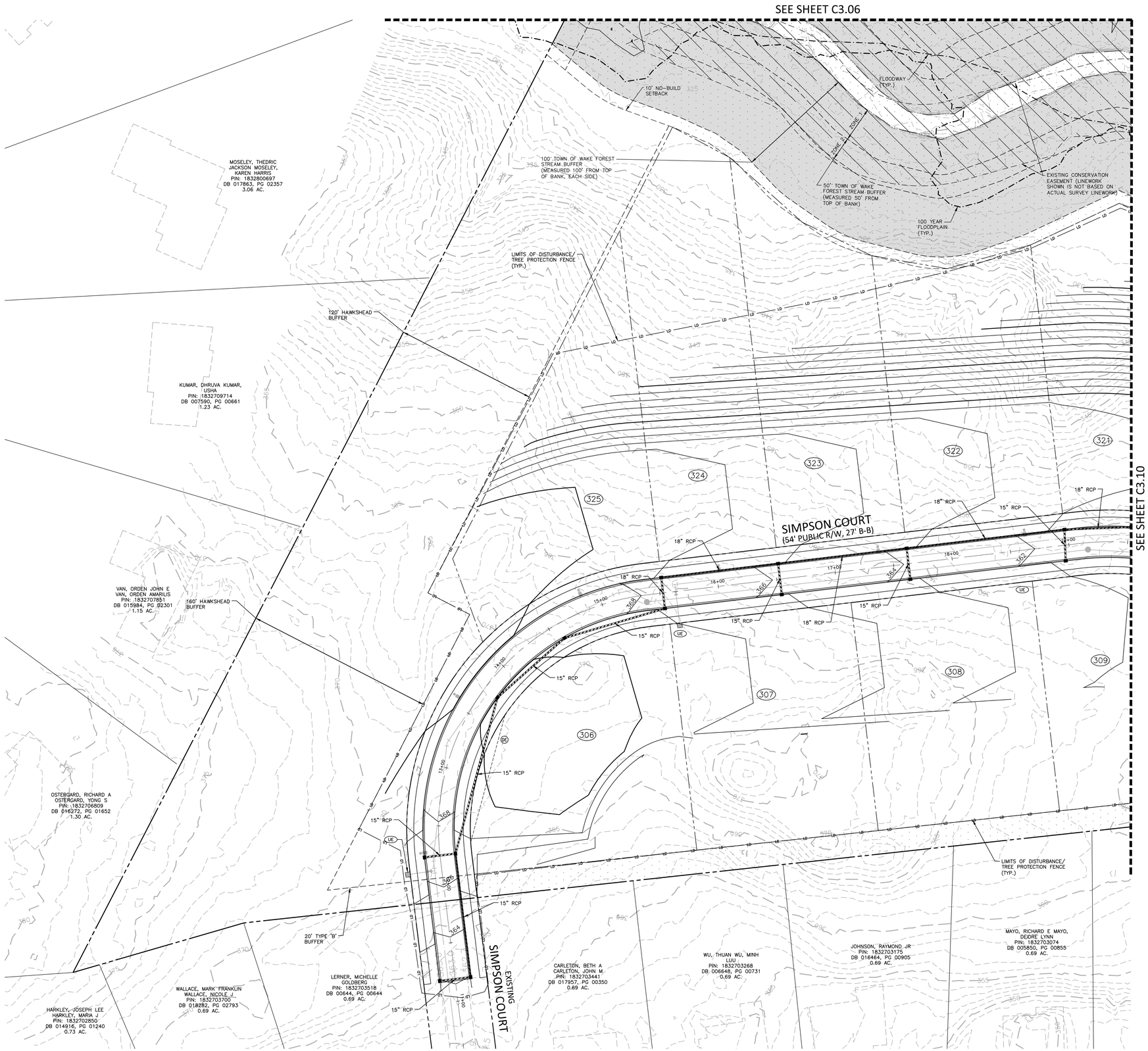

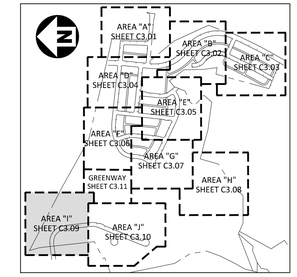

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SHEET

GRADING AND STORM DRAINAGE PLAN AREA "I"

C3.09

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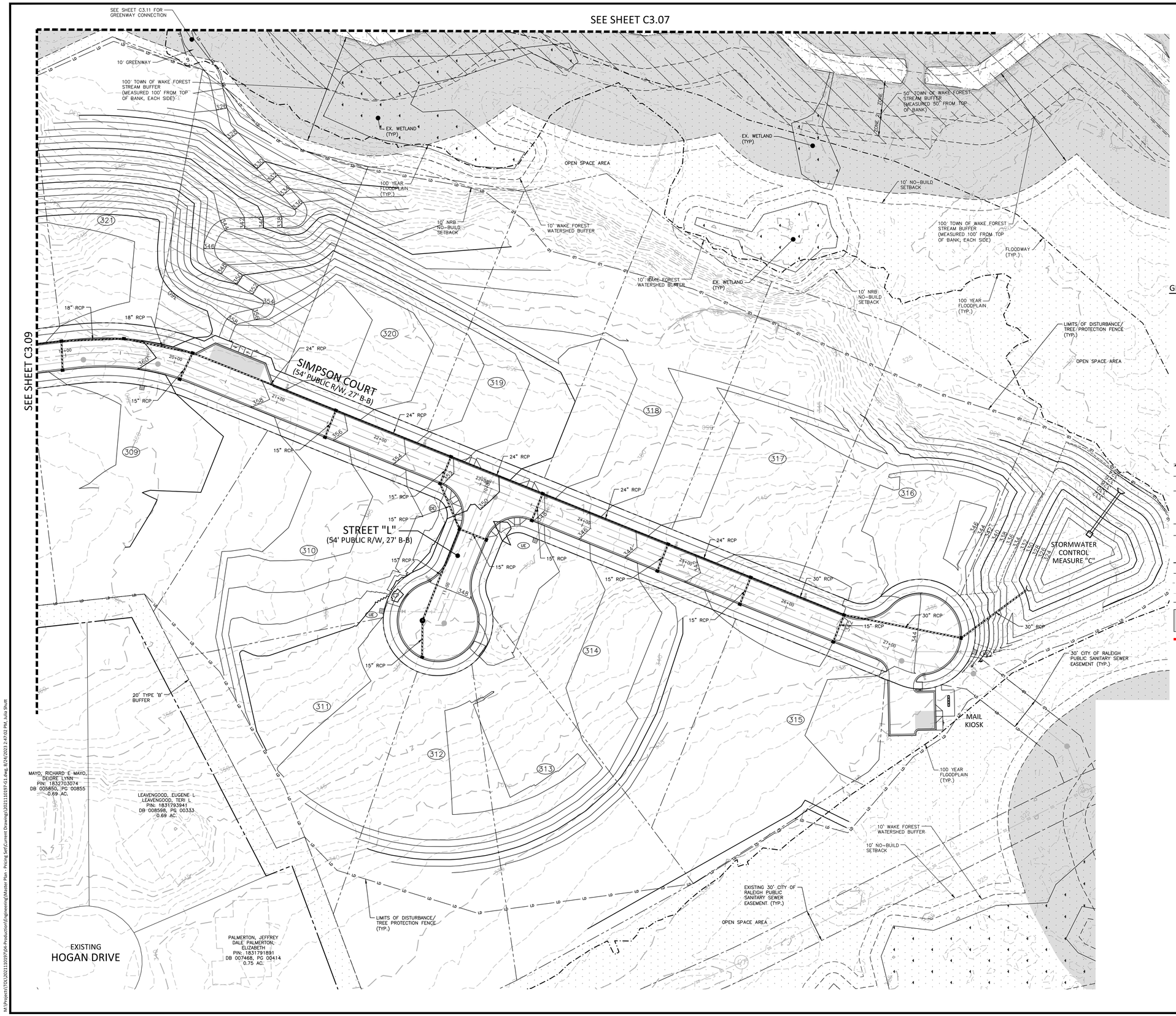

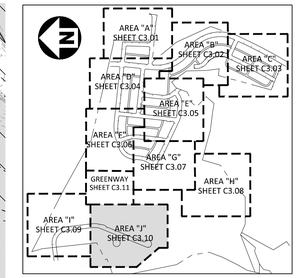

INDEX MAP
1"=1000'

EASEMENT LEGEND

- (DE) STORM DRAINAGE EASEMENT
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REVISIONS

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SHEET

GRADING AND STORM DRAINAGE PLAN AREA "J"

C3.10

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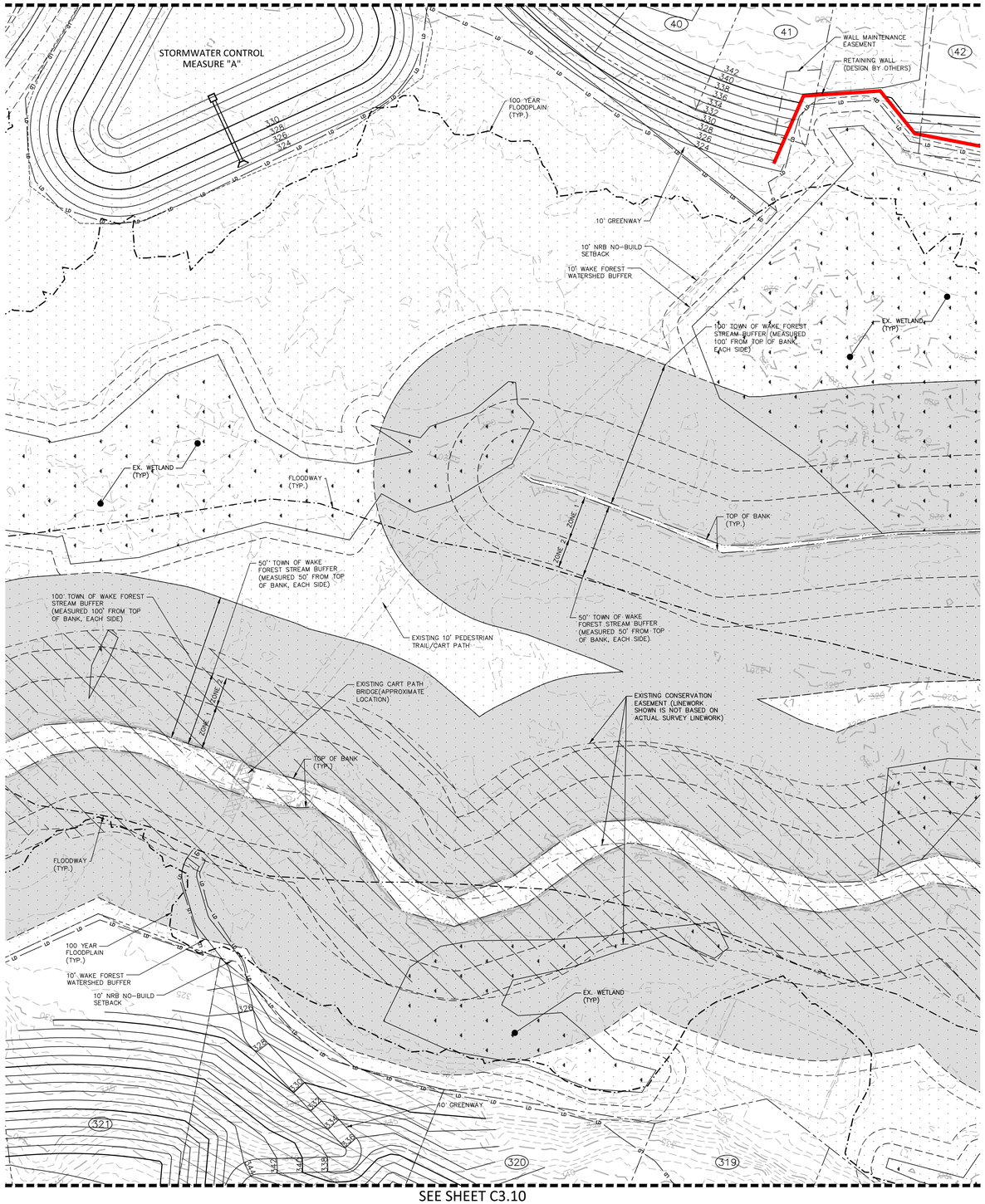

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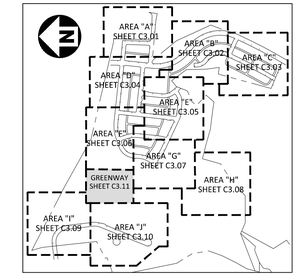

INDEX MAP
1"=1000'

GRADING LEGEND

- FLARED END SECTION
- ENDWALL SECTION
- CATCH BASIN
- DROP INLET
- STORM SERVICE INLET
- STORM SERVICE ROOF-DRAIN
- JUNCTION BOX
- DRAINAGE FLOW ARROW
- LINE BREAK SYMBOL
- 250.50 / 250.00 — TOP & BOTTOM CURB ELEVATIONS
- TW=223.00 / BW=213.00 — TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION (NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
- + 250.60 — SPOT ELEVATION
- STORM DRAINAGE
- STORM SERVICE LINE
- RD — RD — RD — ROOF DRAIN, 8" ADS NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
- TP — TP — TP — TREE PROTECTION FENCE
- LD — LD — LIMITS OF DISTURBANCE
- WOODED AREA
- 250 — MAJOR CONTOUR
- 252 — MINOR CONTOUR
- 250 — EXISTING MAJOR CONTOUR
- 252 — EXISTING MINOR CONTOUR
- EASEMENT LINE
- ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)
- RETAINING WALL

KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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JOYNER PROPERTY
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WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Daniel
William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=codaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-G1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

GRADING AND STORM DRAINAGE PLAN GREENWAY

C3.11

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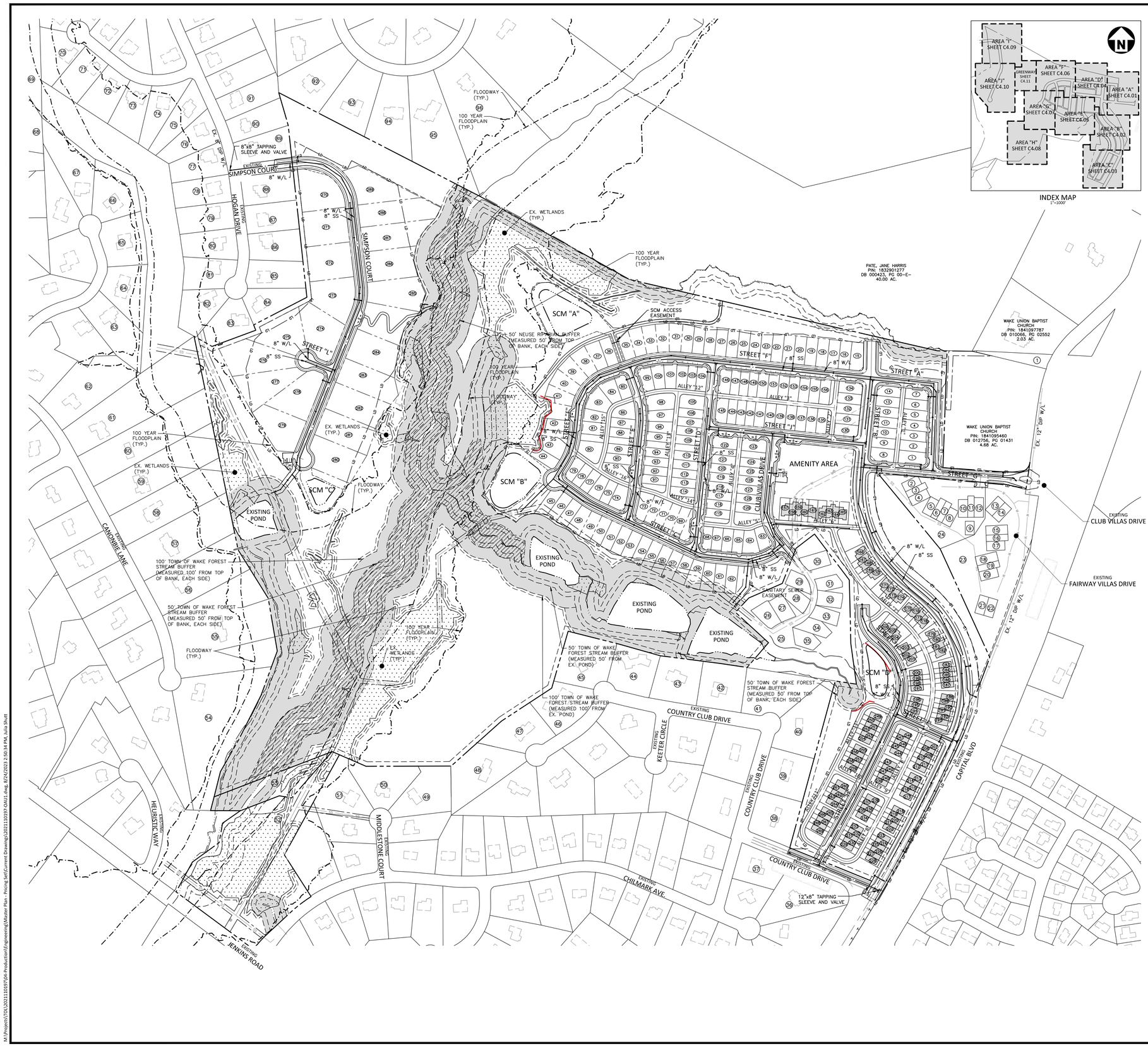

ADJACENT PROPERTY OWNERS

1. WAKE UNION BAPTIST CHURCH PIN: 1841097615 DB 010066, PG 02552 0.26 AC.
2. HORTON, ROBIN RANDALL SR HORTON, MARY HOLLAND PIN: 1841092100 DB 016834, PG 00534 0.08 AC.
3. FINNEGAN, JOSEPH T FINNEGAN, LESLEY E PIN: 1841092027 DB 015001, PG 02043 0.06 AC.
4. CARTER, TERRY W CARTER, SUSAN S PIN: 1841092033 DB 015849, PG 01361 0.08 AC.
5. BRUNKHORST, WILLIAM PIN: 1841082989 DB 14–E, PG 3763 0.07 AC.
6. DOMINICK, JOHN M DOMINICK, BETSY S PIN: 1841083918 DB 016125, PG 00408 0.06 AC.
7. GRADY, DOUGLAS H GRADY, MARTHA S PIN: 1841083947 DB 009563, PG 00022 0.06 AC.
8. CORBETT, MICHAEL P CORBETT, VIRGINIA L PIN: 1841083975 DB 011992, PG 02542 0.07 AC.
9. OAKMARK DEVELOPMENT CO LLC PIN: 1841084950 DB 008579, PG 00285 0.08 AC.
10. BYRNE, THOMAS J JR BYRNE, MARY COLLINS PIN: 1841084928 DB 013727, PG 02265 0.07 AC.
11. PRUITT, DELORES PIN: 1841084969 DB 009228, PG 00583 0.06 AC.
12. ROUSSEAU, CHERYLL E PIN: 1841084999 0.08 AC.
13. NEISES, GAIL ELAINE PIN: 1841085969 DB 017776, PG 00544 0.08 AC.
14. HEATH, CHARLES LARRY HEATH, MARY EDITH PIN: 1841086908 DB 016073, PG 01026 0.08 AC.
15. WALSH, DONNA L PIN: 1841085879 DB 010897, PG 00588 0.09 AC.
16. BONE, MALCOLM BONE, ELIZABETH PIN: 1841085875 DB 013245, PG 01171 0.06 AC.
17. LOVING, JOHN C LOVING, LENNIS F PIN: 1841085872 DB 010355, PG 00066 0.08 AC.
18. MATZKEVICH, DYANNE M PIN: 1841085736 DB 017937, PG 02774 0.09 AC.
19. ROGGE, BEVERLY J TRUSTEE GAIL E AND BEVERLY J ROGGE TRUST PIN: 1841085743 DB 016159, PG 02584 0.06 AC.
20. VOLLMER, CHARLES B VOLLMER, STELLA PIN: 1841085649 DB 014287, PG 00672 0.08 AC.
21. MAIOLO, THOMAS PIN: 1841085516 DB 017711, PG 02381 0.08 AC.
22. ZELVIS, MICHELE HOFFMAN PIN: 1841085545 DB 016929, PG 00340 0.08 AC.
23. FAIRWAY VILLAS AT WF GOLF CLUB PIN: 1841085635 DB 010962, PG 00817 2.87 AC.
24. FAIRWAY VILLAS AT WF GOLF CLUB & TOWNHOMES OWNERS ASSOC INC. PIN: 1841094004 DB 009050, PG 00136 1.39 AC.
25. CLUBHOUSE VILLAS AT WAKE FOREST GOLF CLUB HOA, INC PIN: 1831986381 DB 016814, PG 02513 3.17 AC.
26. BIELIK, EDWARD A PACE, KAYLA N PIN: 1831985552 DB 017423, PG 02305 0.19 AC.
27. ZHAO, BAIRU PIN: 1831986524 DB 017010, PG 01441 0.18 AC.
28. HIGGINS, JOHN W III PIN: 1831986589 DB 017055, PG 00072 0.19 AC.
29. REITMANN, ROBERT PIN: 1831986696 DB 017165, PG 00638 0.16 AC.
30. GOK, KEN Y AYON, H. LIM PIN: 1831987775 DB 016844, PG 00697 0.18 AC.
31. RAMSARAN, MICHAEL RAMSARAN, CHARMAINE PIN: 1831986635 DB 015098, PG 00453 0.15 AC.
32. JALLORINA, CLAUDE H HABON, LORINA D PIN: 1831988538 DB 017656, PG 00904 0.17 AC.
33. SIMS, YVONNE M PIN: 1831988511 DB 017009, PG 02679 0.17 AC.
34. KING, JOHN C JR KING, NETANIS E PIN: 1831987466 DB 016902, PG 01921 0.18 AC.
35. RUPSKY, MARK J RUPSKY, PENNY L PIN: 1831987430 DB 016903, PG 02026 0.17 AC.
36. CIMA, DAVID A CIMA, CINDY PIN: 1831977217 DB 013668, PG 02375 1.25 AC.
37. GOSSETT, LINDA M PIN: 1831975411 DB 016391, PG 00784 0.70 AC.
38. REDMAN, J MICHEAL PIN: 1831975681 DB 013569, PG 01957 0.91 AC.
39. BOWERS, JAMES S BOWERS, DELIA B PIN: 1831976841 DB 008747, PG 00299 0.91 AC.
40. FICHERA, JOHN L. FICHERA, WENDY M PIN: 1831987003 DB 010374, PG 02097 1.20 AC.
41. BARR, ARNOLD L BARR, CHORENE L PIN: 1831985177 DB 002596, PG 00773 1.14 AC.
42. GRIMMETT, ANDREW O WRIGHT, ANGELA M PIN: 1831983138 DB 017994, PG 01725 0.91 AC.
43. FREEMAN, JAMES LOUIS JR FREEMAN, JOAN OUTLAND PIN: 1831981262 DB 010889, PG 00559 0.90 AC.
44. LESTER, JEFFREY A LESTER, JO ANNE D PIN: 1831889265 DB 010527, PG 01658 0.88 AC.
45. UPTON, KEVIN C UPTON, MITZI M PIN: 1831897351 DB 007686, PG 00928 1.13 AC.
46. WILLIAMS, PATRICK EUGENE WILLIAMS, CHELSEA FAIRCLOTH PIN: 1831886151 DB 018244, PG 00964 0.92 AC.
47. JOYNER, SAMUEL H JOYNER, PATRICIA S PIN: 1831884051 DB 016867, PG 02193 0.93 AC.
48. FISHER, C P JR PIN: 1831873802 DB 002417, PG 00449 1.30 AC.
49. PERRY, MICHAEL K PERRY, LEE E B PIN: 1831870765 DB 008212, PG 02270 1.10 AC.
50. MICCHIA, JOSEPH M JR TRUSTEE MICCHIA, GINA L TRUSTEE PIN: 1831778748 DB 016880, PG 02215 0.95 AC.
51. KOON, JOEL A KOON, SONJA M PIN: 1831776783 DB 015688, PG 01957 0.96 AC.
52. ADAMS FRY DEVELOPMENTS LLC PIN: 1831772476 DB 007407, PG 00319 5.70 AC.
53. ADAMS FRY DEVELOPMENTS LLC PIN: 1831773725 DB 007465, PG 00637 1.10 AC.
54. CONLEY, JOHN T CONLEY, LYNN G PIN: 1831780094 DB 006180, PG 00702 3.43 AC.
55. EBERLE, JOHN C EBERLE, SUSAN R PIN: 1831781425 DB 015507, PG 00718 3.80 AC.
56. MCVAY, GLEN A. MCVAY, KIMBERLY PIN: 1831780618 DB 015909, PG 01151 1.76 AC.
57. MASSEY, GEORGE DENNIS MASSEY, CHIKAKO S PIN: 1831689865 DB 017878, PG 01999 1.92 AC.
58. O'DELL, MARK A O'DELL, BETH M PIN: 1831699001 DB 007918, PG 00377 1.81 AC.
59. POWELL, ANNE H PIN: 1831698166 DB 012820, PG 00944 1.96 AC.
60. WENNINGER, STEPHAN FRIEDRICH WENNINGER, SARAH LESLIE PIN: 1831698311 DB 015044, PG 01065 2.12 AC.
61. DURHAM, MICHAEL J DURHAM, CAROL I PIN: 1831697456 DB 014730, PG 00924 2.78 AC.
62. MEYER, ROGER P MEYER, KATHLEEN F PIN: 1831695532 DB 006223, PG 00200 1.63 AC.
63. BEASLEY, DARYL BERNARD BEASLEY, CURE T PIN: 1831696861 DB 017181, PG 02551 1.04 AC.
64. SUCHER, AARON SUCHER, SOU PIN: 1831697924 DB 014805, PG 01066 0.92 AC.
65. HODGES, THOMAS R HODGES, SUSAN C PIN: 1832607117 DB 016741, PG 01362 0.94 AC.
66. BARKLEY, HUBERT MERRILL III BARKLEY, MONICA NABORS PIN: 1832606377 DB 017355, PG 01588 0.98 AC.
67. GIORDANO, GLENN E GIORDANO, JOHNNA D PIN: 1832605408 DB 006833, PG 00871 1.11 AC.
68. LEARY, CHRISTOPHER R LEARY, SHARON L PIN: 1832602446 DB 012850, PG 01160 0.86 AC.
69. FAIRLAKE COMMUNITY ASSOCIATION PIN: 1832610591 DB 016932, PG 00579 8.65 AC.
70. GRAFF, JOSEPH N GRAFF, BARBARA A PIN: 1832614001 DB 017097, PG 01191 0.69 AC.
71. DINGBAUM, THOMAS W DINGBAUM, JUDITH ANNE PIN: 1832605934 DB 007917, PG 00070 0.69 AC.
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73. JACKSON, DAVID E PIN: 1832607746 DB 007273, PG 00186 0.69 AC.
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78. KENNEDY, JANET A PIN: 1832700368 DB 15–E, PG 1815 0.69 AC.
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83. PALMERTON, JEFFREY DALE PALMERTON, ELIZABETH PIN: 1831791891 DB 007468, PG 00414 0.75 AC.
84. LEAVENGOOD, EUGENE L LEAVENGOOD, TERI L PIN: 1831792941 DB 008598, PG 00333 0.69 AC.
85. MAYO, RICHARD E MAYO, DEIDRE LYNN PIN: 1832703074 DB 005850, PG 00855 0.69 AC.
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87. WU, THUAN WU, MINH LUU PIN: 1832703268 DB 006648, PG 00731 0.69 AC.
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94. KUMAR, DHRUVA KUMAR, USHA PIN: 1832709714 DB 007590, PG 00661 1.23 AC.
95. MOSELEY, THEDRIC JACKSON MOSELEY, KAREN HARRIS PIN: 1832800697 DB 017863, PG 02357 2.06 AC.
96. PACKETT, MITCHELL G PACKETT, ANNE APIN: 1832803702 DB 008362, PG 02159 3.63 AC.

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WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

William T O'Daniel
dn: cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO.	DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-OAU1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=200'
DATE	08. 25. 2023

SHEET

OVERALL UTILITY PLAN

C4.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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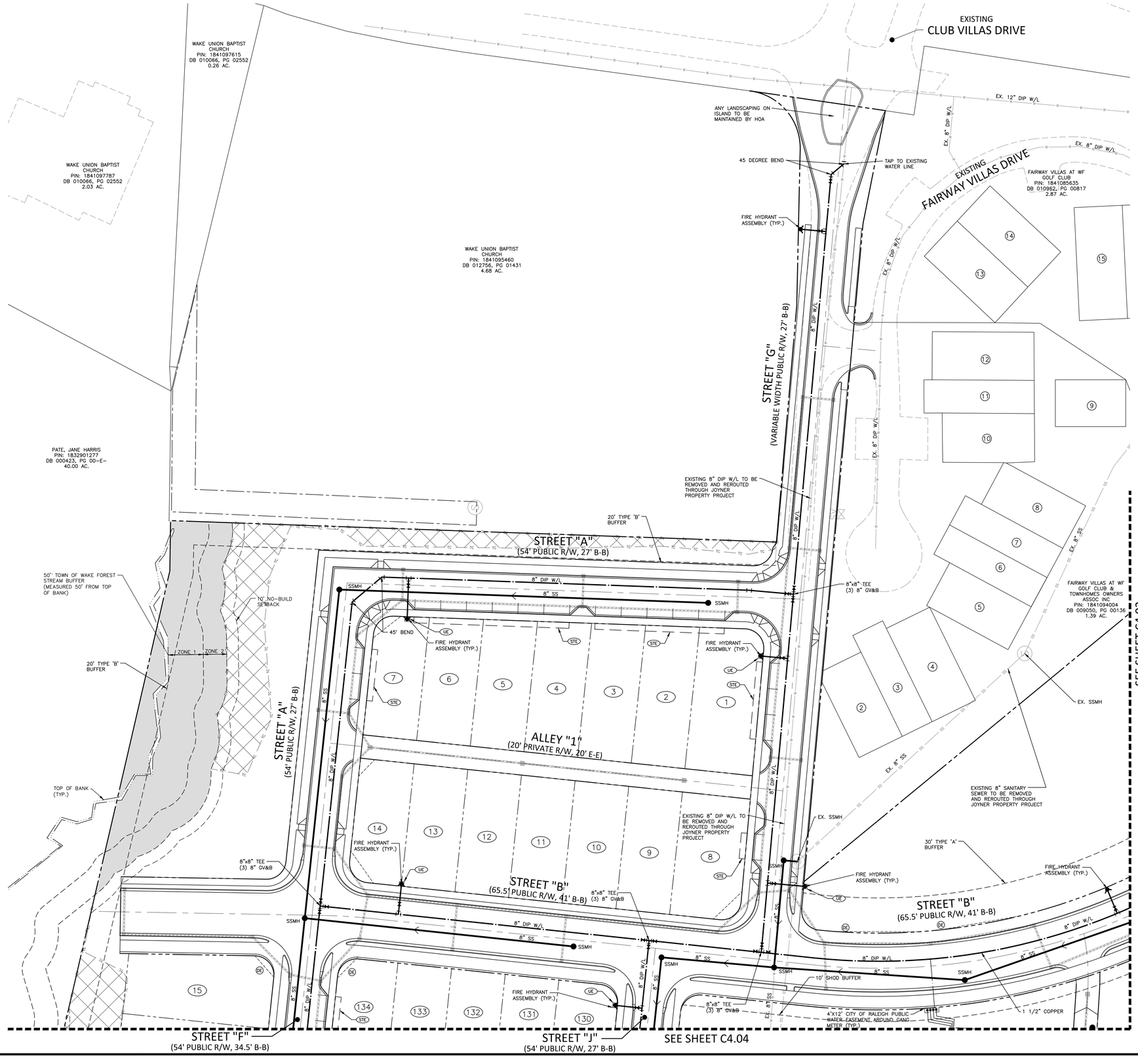

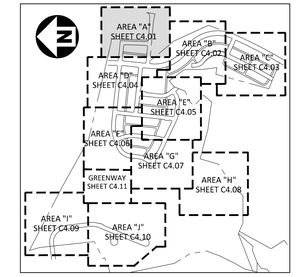

INDEX MAP
1"=1000'

EASEMENT LEGEND

- DE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE STREET TREE EASEMENT

UTILITY LEGEND

- FIRE HYDRANT ASSEMBLY
- WATER VALVE
- REDUCER
- BLOW-OFF ASSEMBLY
- SANITARY SEWER MANHOLE
- SEWER FLOW DIRECTION ARROW
- WATERLINE
- SANITARY SEWER
- EASEMENT LINE

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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SHEET

UTILITY PLAN
AREA "A"
C4.01

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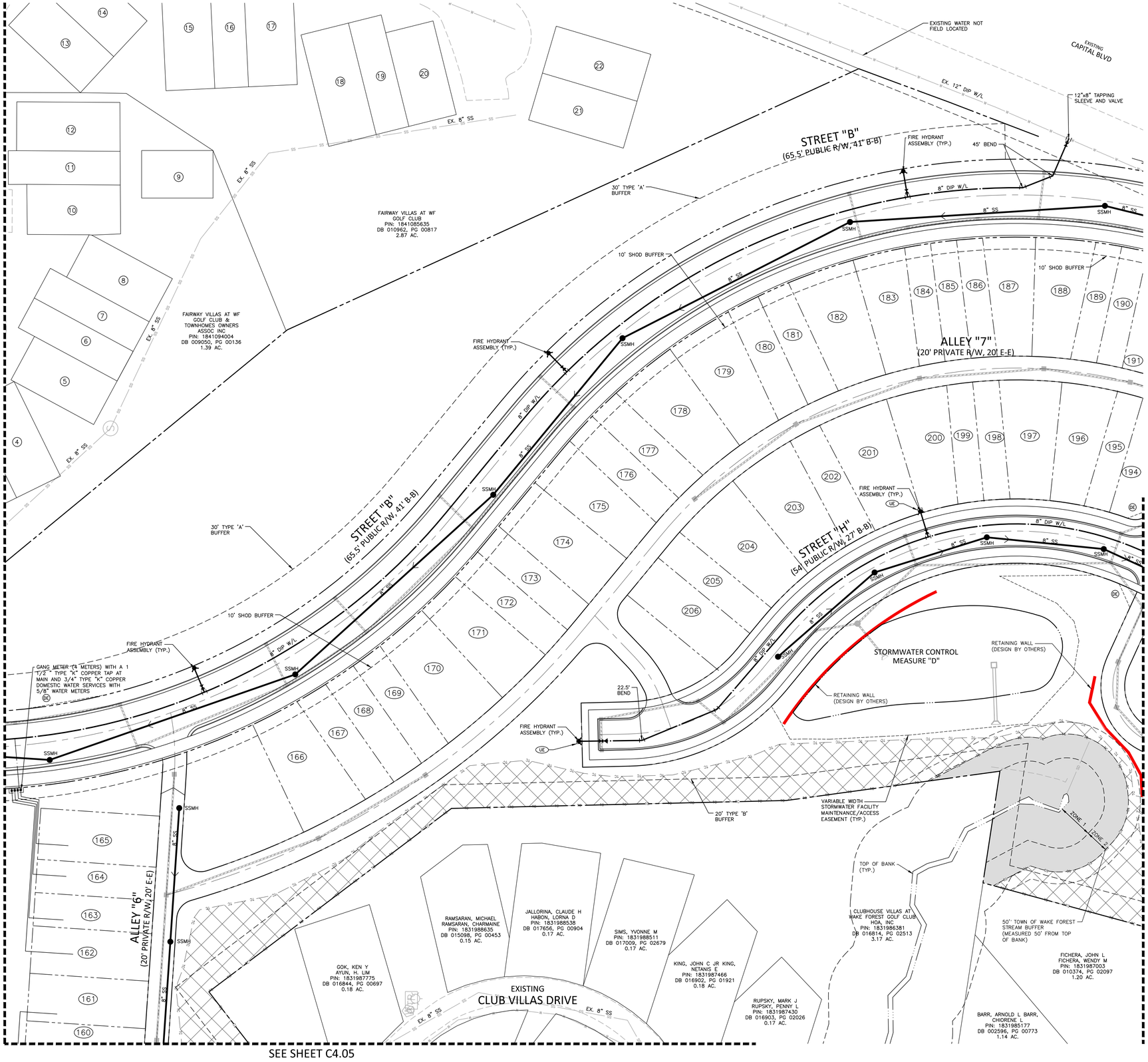

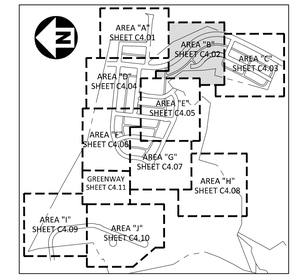

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2023.08.24 16:41:33 -04'00'

REVISIONS

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PLAN INFORMATION

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DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

UTILITY PLAN AREA "B"

C4.02

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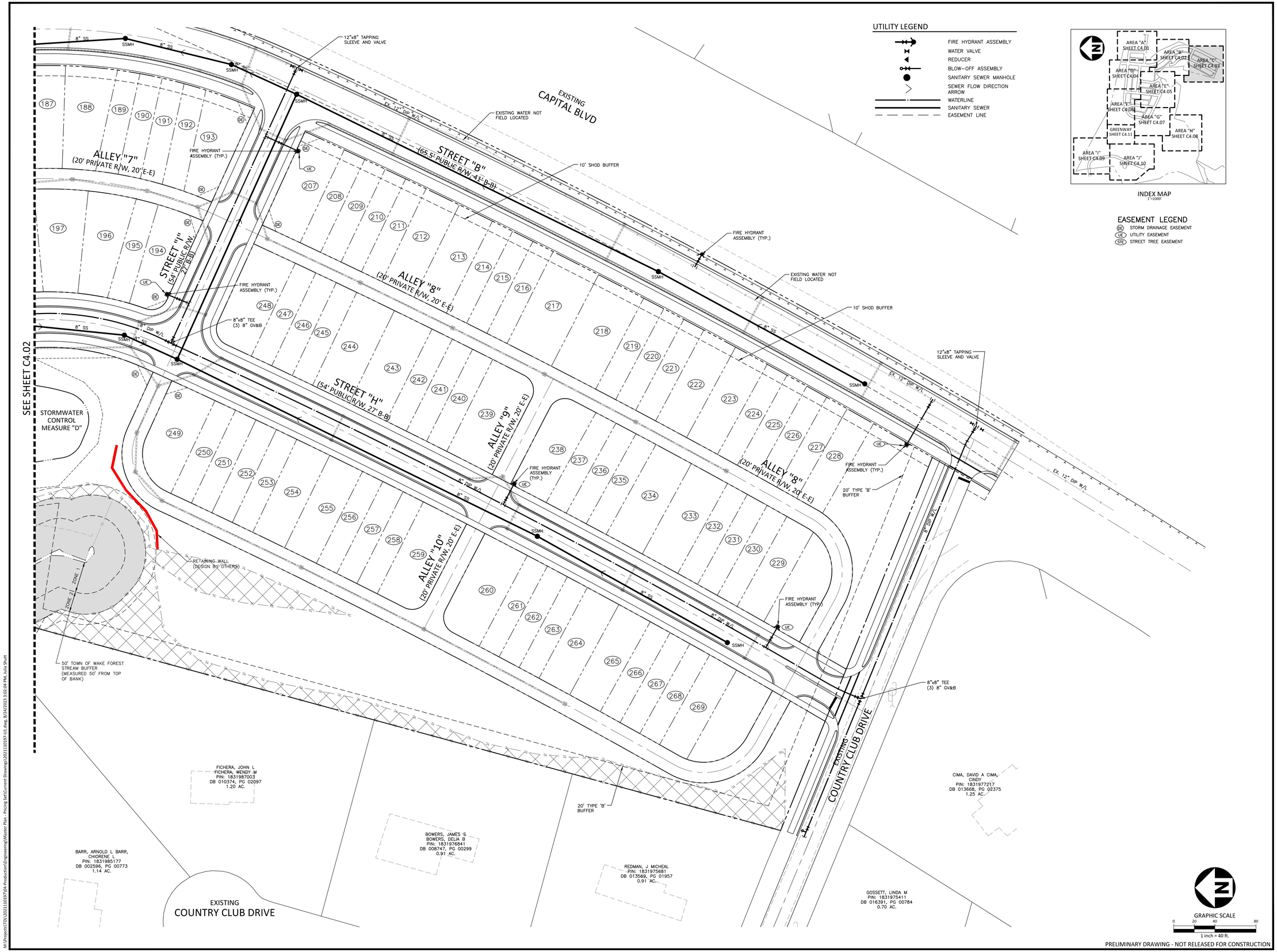

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NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

W.T. O'Daniel

William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

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SCALE	1"=40'
DATE	08. 25. 2023

SHEET

UTILITY PLAN AREA "C"

C4.03

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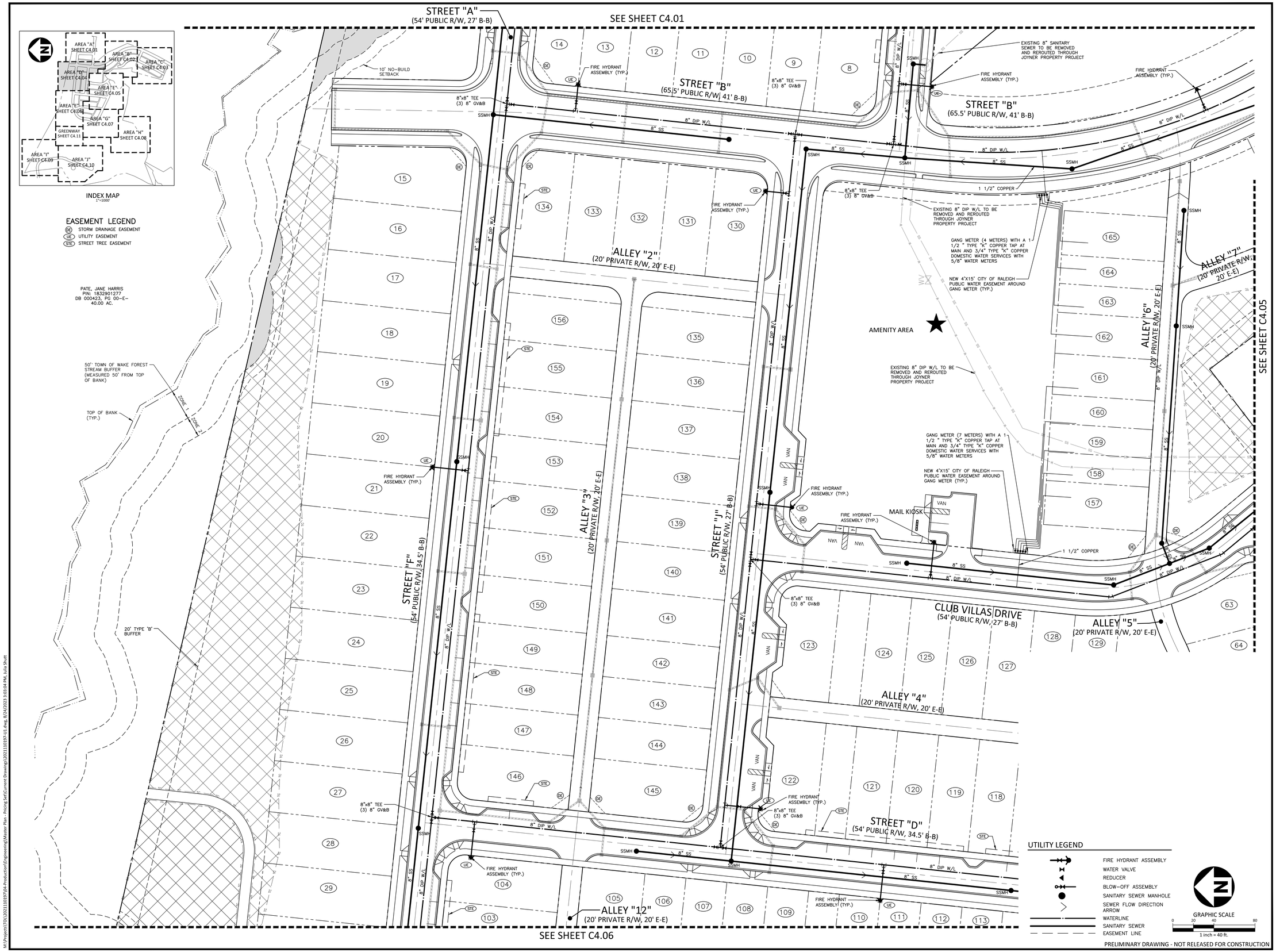

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

McADAMS

The John R. McAdams Company, Inc.
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license number: C-0293, C-187

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CLIENT

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

GREEN TIMBER FOUNDATION
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YOUNGSVILLE, NC 27596-9698

CONTACT:
JAMES ADAMS
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JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 22630 ENGINEER WILLIAM T. O'DANIEL

William T O'Daniel
cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-U1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

UTILITY PLAN
AREA "D"

C4.04

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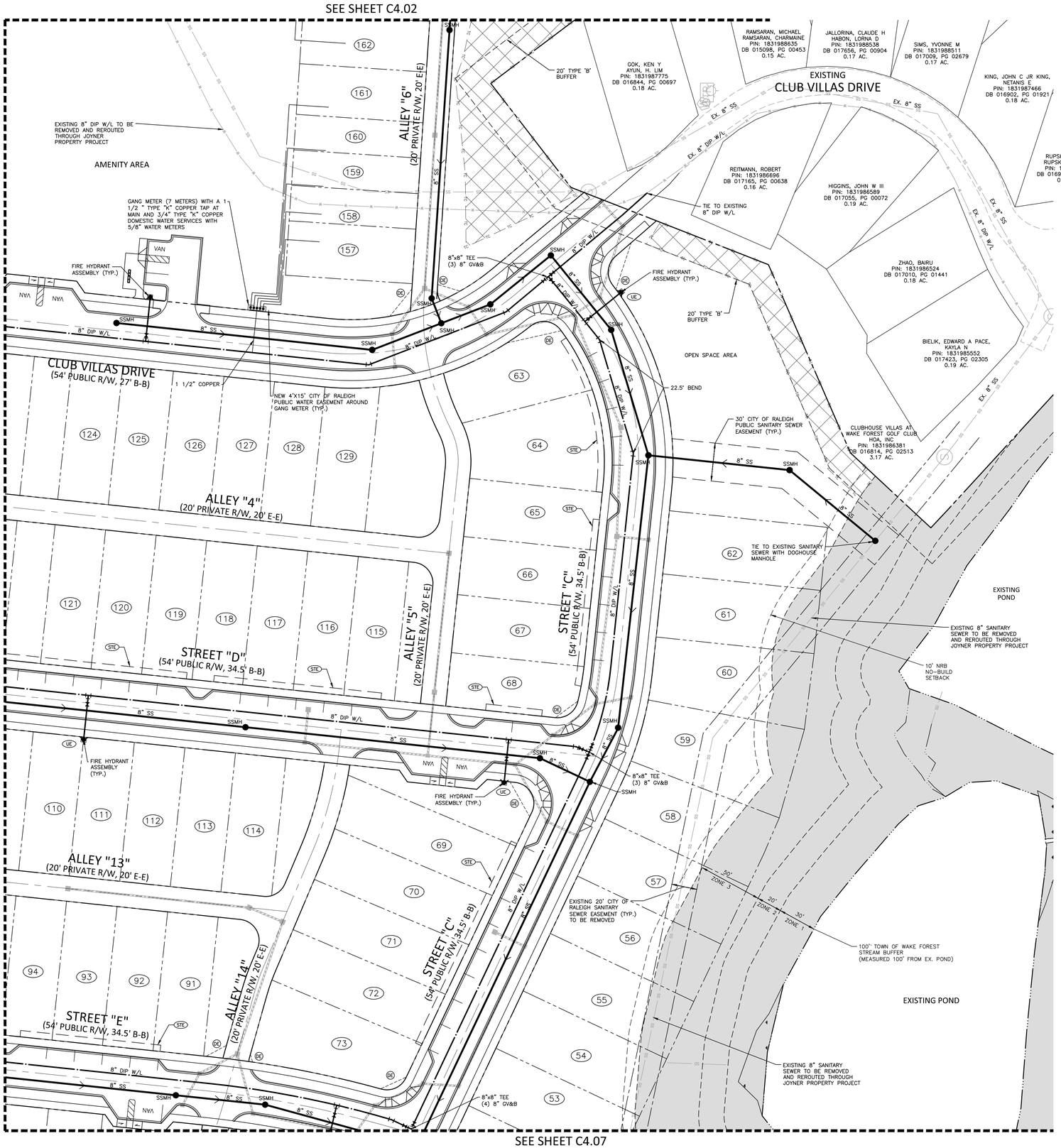

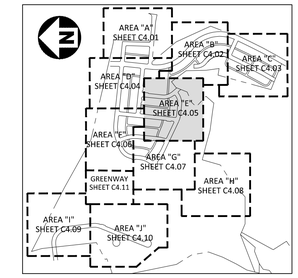

INDEX MAP
1"=1000'

EASEMENT LEGEND

- DE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE STREET TREE EASEMENT

UTILITY LEGEND

- FIRE HYDRANT ASSEMBLY
- WATER VALVE
- REDUCER
- BLOW-OFF ASSEMBLY
- SANITARY SEWER MANHOLE
- SEWER FLOW DIRECTION ARROW
- WATERLINE
- SANITARY SEWER
- EASEMENT LINE

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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cn=William T O'Daniel, c=US, o=North Carolina, email=odaniel@mcadamsco.com
2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-U1
CHECKED BY	WTO
DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

UTILITY PLAN AREA "E"

C4.05

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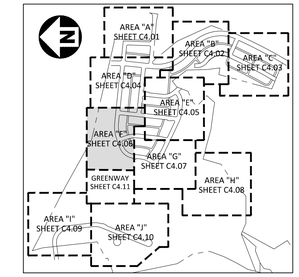

INDEX MAP
1" =1000'

EASEMENT LEGEND

- (DE) STORM DRAINAGE EASEMENT
- (UE) UTILITY EASEMENT
- (STE) STREET TREE EASEMENT

UTILITY LEGEND

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- WATERLINE
- SANITARY SEWER
- EASEMENT LINE

GRAPHIC SCALE
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DATE	08. 25. 2023

SHEET

UTILITY PLAN
AREA "F"

C4.06

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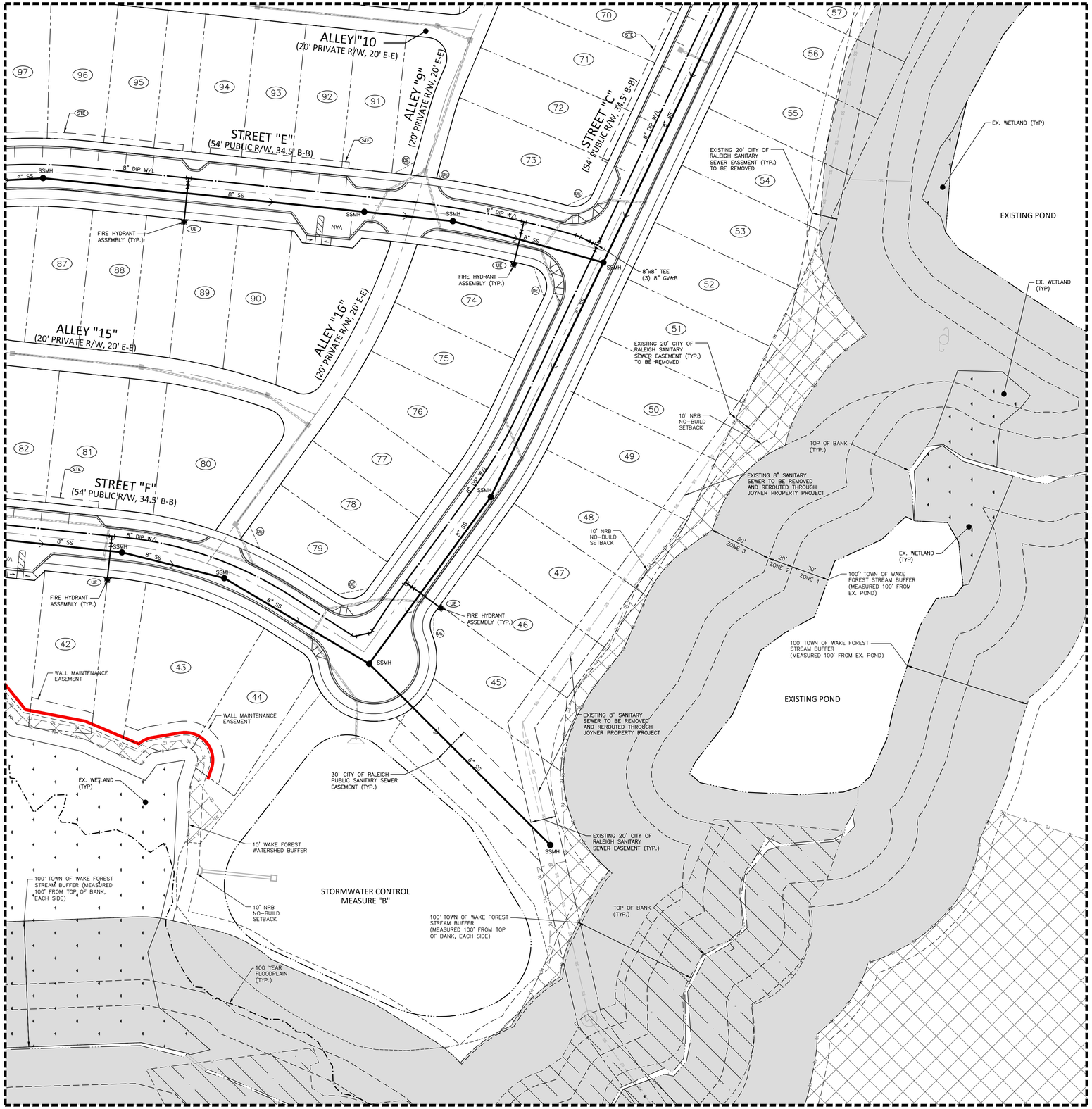
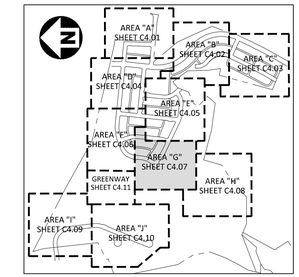
SEE SHEET C4.05

SEE SHEET C4.06

SEE SHEET C4.08

SEE SHEET C4.10





INDEX MAP
1"=1000'

EASEMENT LEGEND

- DE STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE STREET TREE EASEMENT

UTILITY LEGEND

- FIRE HYDRANT ASSEMBLY
- WATER VALVE
- REDUCER
- BLOW-OFF ASSEMBLY
- SANITARY SEWER MANHOLE
- SEWER FLOW DIRECTION ARROW
- WATERLINE
- SANITARY SEWER
- EASEMENT LINE

GRAPHIC SCALE
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1 inch = 40 ft.

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SHEET

UTILITY PLAN AREA "G"

C4.07

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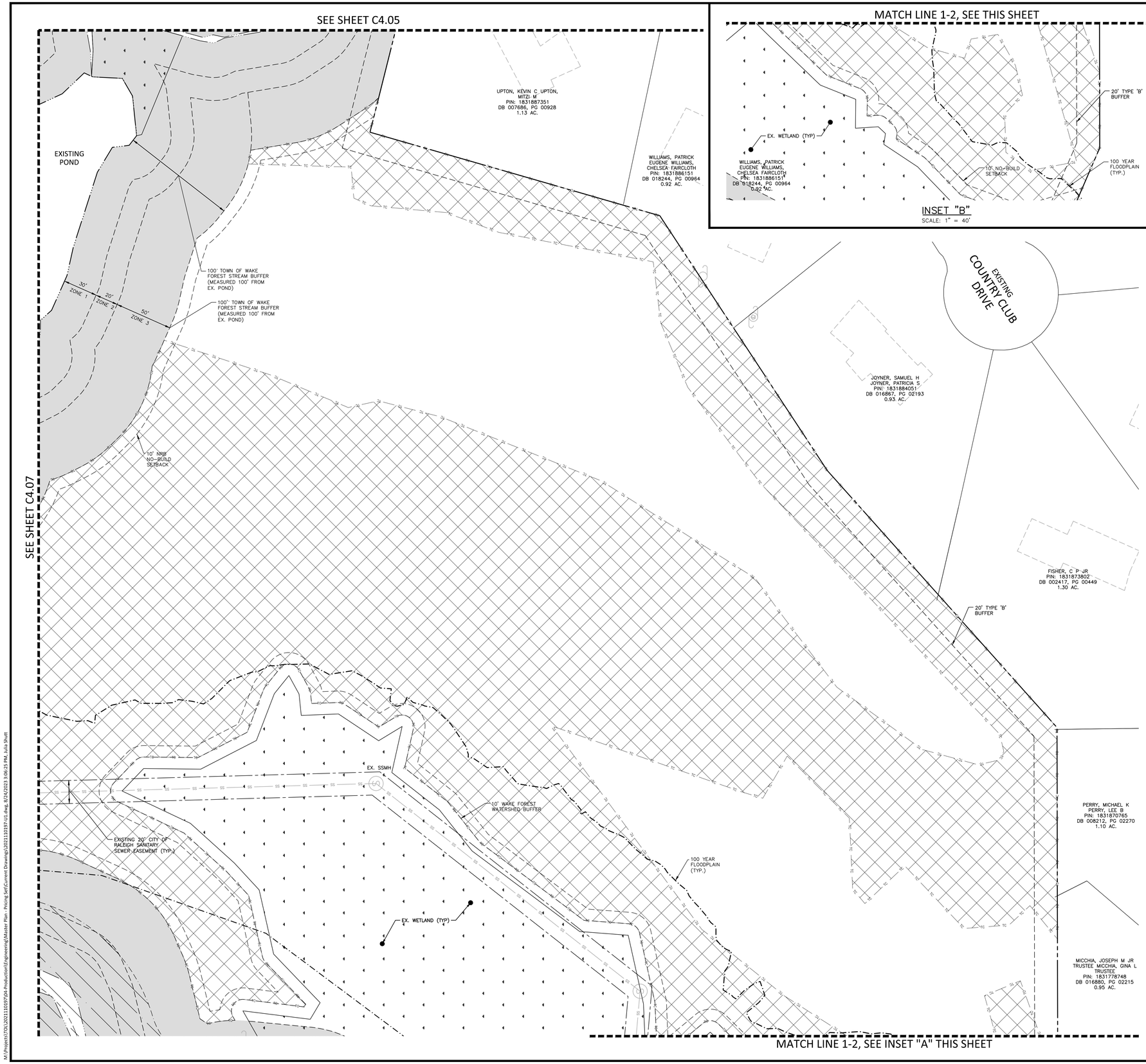

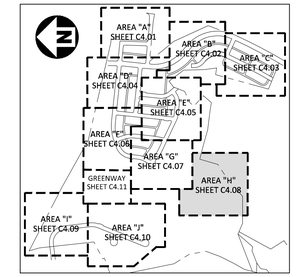

INDEX MAP
1"=1000'

EASEMENT LEGEND

- SD STORM DRAINAGE EASEMENT
- UE UTILITY EASEMENT
- STE STREET TREE EASEMENT

UTILITY LEGEND

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- WATERLINE
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- EASEMENT LINE

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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2023.08.24 16:41:33 -04'00'

REVISIONS

NO. DATE

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DATE	08. 25. 2023

SHEET

UTILITY PLAN AREA "H"

C4.08

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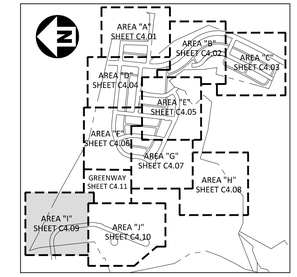

INDEX MAP
1"=1000'

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — STREET TREE EASEMENT

UTILITY LEGEND

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- EASEMENT LINE

GRAPHIC SCALE
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REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-U1
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DRAWN BY	JPM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

UTILITY PLAN
AREA "I"

C4.09

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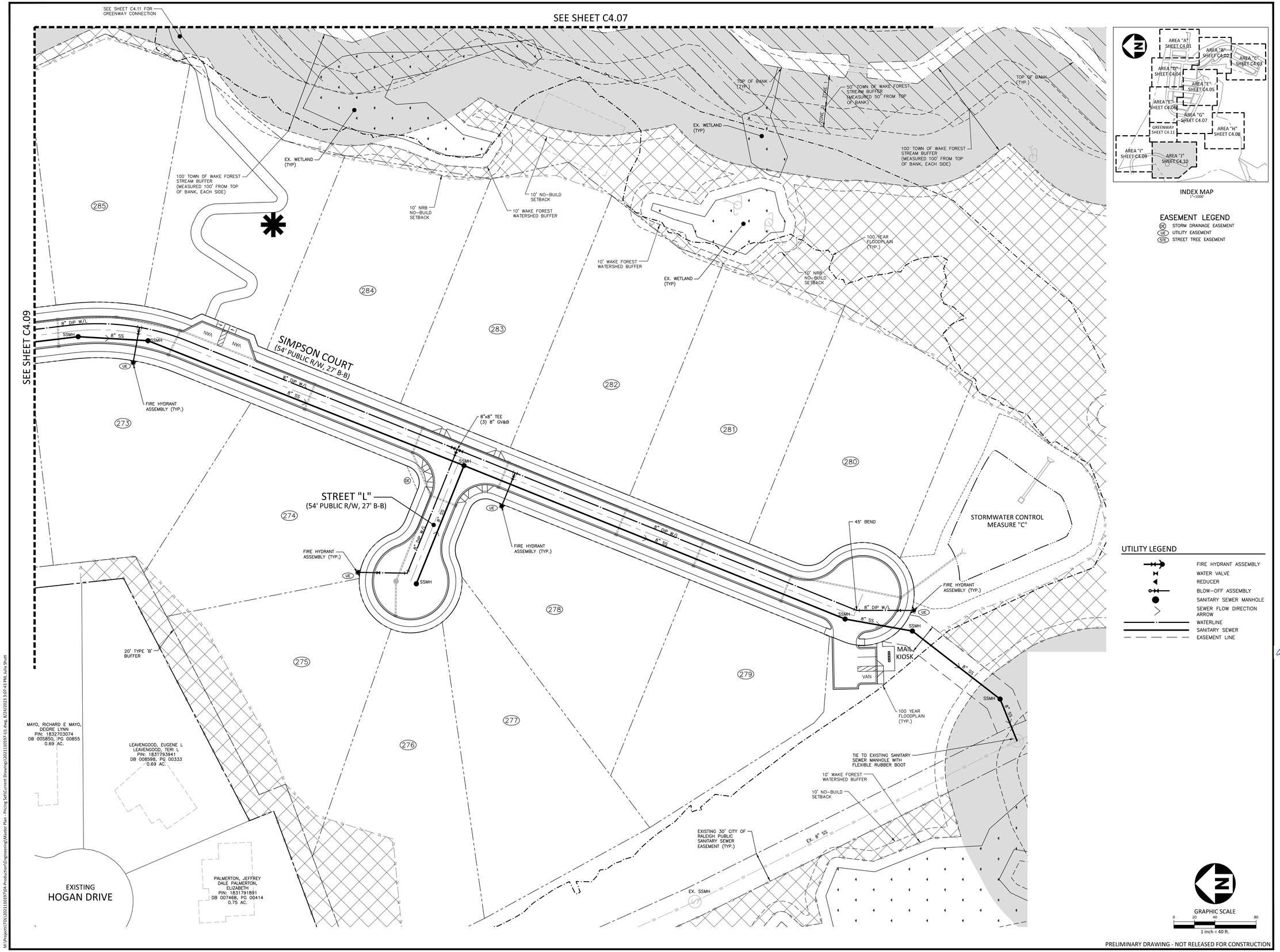

INDEX MAP
1"=1000'

EASEMENT LEGEND

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UTILITY LEGEND

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- EASEMENT LINE

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1 inch = 40 ft.

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SHEET

UTILITY PLAN
AREA "J"

C4.10

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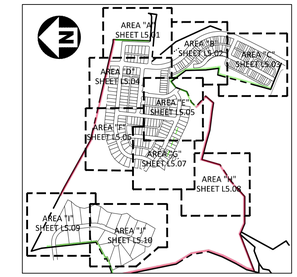
CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus toeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4

PLANT SCHEDULE

TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT1	Canopy Tree 1	Canopy Tree 1
	CNT10	Canopy Tree 10	Canopy Tree 10
	CNT11	Canopy Tree 11	Canopy Tree 11
	CNT12	Canopy Tree 12	Canopy Tree 12
	CNT13	Canopy Tree 13	Canopy Tree 13
	CNT14	Canopy Tree 14	Canopy Tree 14
	CNT15	Canopy Tree 15	Canopy Tree 15
	CNT16	Canopy Tree 16	Canopy Tree 16
	CNT2	Canopy Tree 2	Canopy Tree 2
	CNT3	Canopy Tree 3	Canopy Tree 3
	CNT4	Canopy Tree 4	Canopy Tree 4
	CNT5	Canopy Tree 5	Canopy Tree 5
	CNT6	Canopy Tree 6	Canopy Tree 6
	CNT7	Canopy Tree 7	Canopy Tree 7
	CNT8	Canopy Tree 8	Canopy Tree 8
	CNT9	Canopy Tree 9	Canopy Tree 9
SHRUBS	CODE	COMMON NAME	BOTANICAL NAME
	EVS1	Evergreen Shrub 1	Evergreen Shrub 1



INDEX MAP
1"=1000'

SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACC — ACCESSIBLE PARKING STALL
- VAN — VAN ACCESSIBLE PARKING STALL
- XX — PARKING SPACE COUNT
- TYPE A / TYPE B / TYPE C — ACCESSIBLE RAMPS
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- STREAM BUFFER
- TREE SAVE AREA
- TYPE 'A' BUFFER
- TYPE 'B' BUFFER
- STREET YARD
- TREE TO REMAIN
- 25' TYPE 'B' BUFFER
- 20' TYPE 'B' BUFFER

NOTES:

1. REFER TO SHEET C2.00 FOR ADJACENT PROPERTY LEGEND AND OWNER INFORMATION.
2. STREET TREE LOCATIONS TO BE FINALIZED AT CONSTRUCTION DRAWINGS WITH FINALIZED DRIVEWAY AND UTILITY SERVICE LOCATIONS

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-LS1
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DRAWN BY	SM
SCALE	1"=200'
DATE	08. 25. 2023

SHEET

OVERALL LANDSCAPE PLAN

L5.00

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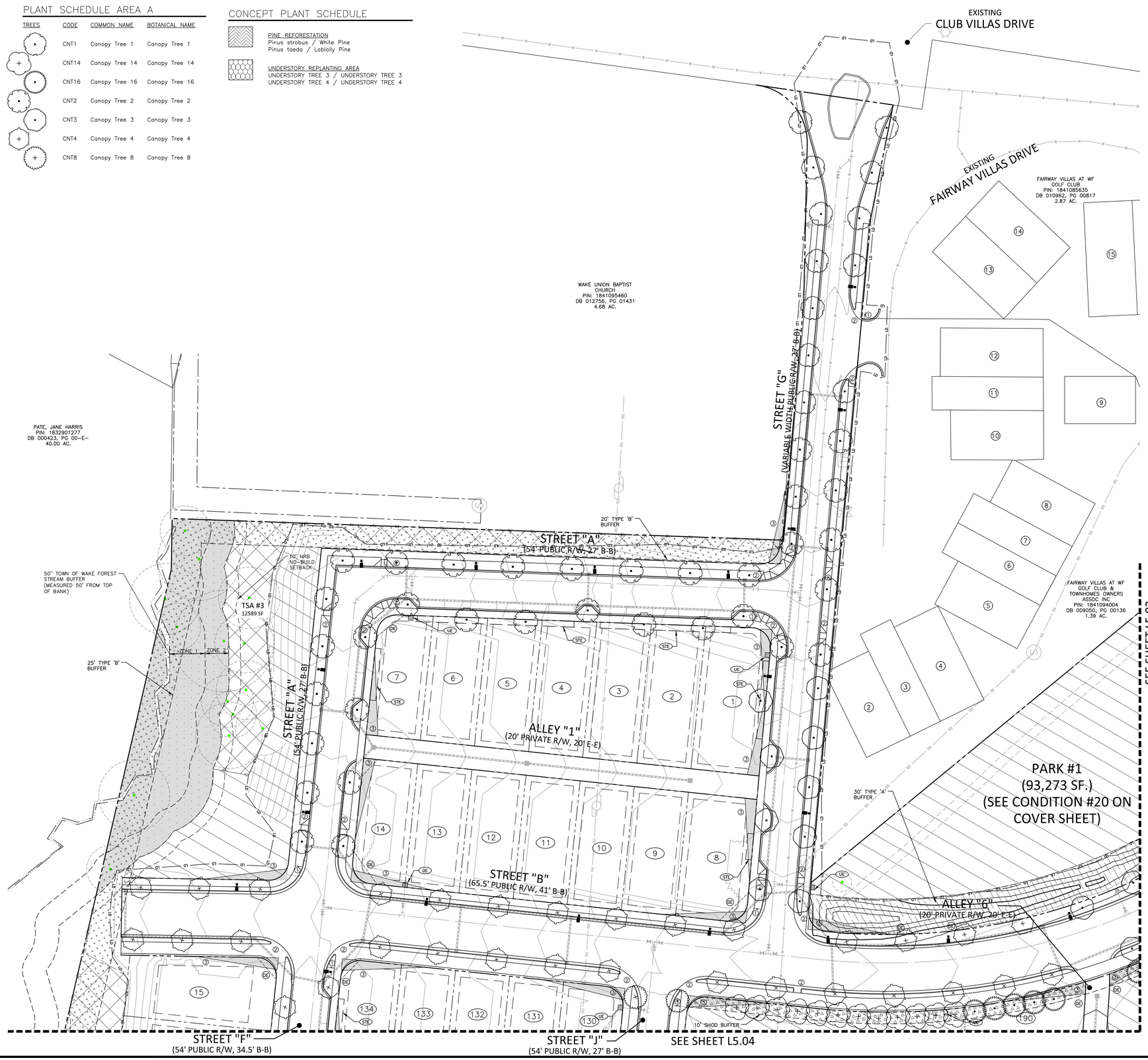
PLANT SCHEDULE AREA A

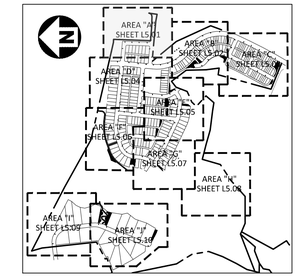
TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT1	Canopy Tree 1	Canopy Tree 1
	CNT14	Canopy Tree 14	Canopy Tree 14
	CNT16	Canopy Tree 16	Canopy Tree 16
	CNT2	Canopy Tree 2	Canopy Tree 2
	CNT3	Canopy Tree 3	Canopy Tree 3
	CNT4	Canopy Tree 4	Canopy Tree 4
	CNT8	Canopy Tree 8	Canopy Tree 8

CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus taeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4





INDEX MAP
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- TYPE A, TYPE B, TYPE C — ACCESSIBLE RAMPS
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- TYPE 'A' BUFFER
- TYPE 'B' BUFFER
- STREET YARD
- TREE TO REMAIN

KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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DRAWN BY	SM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

LANDSCAPE PLAN
AREA "A"

L5.01

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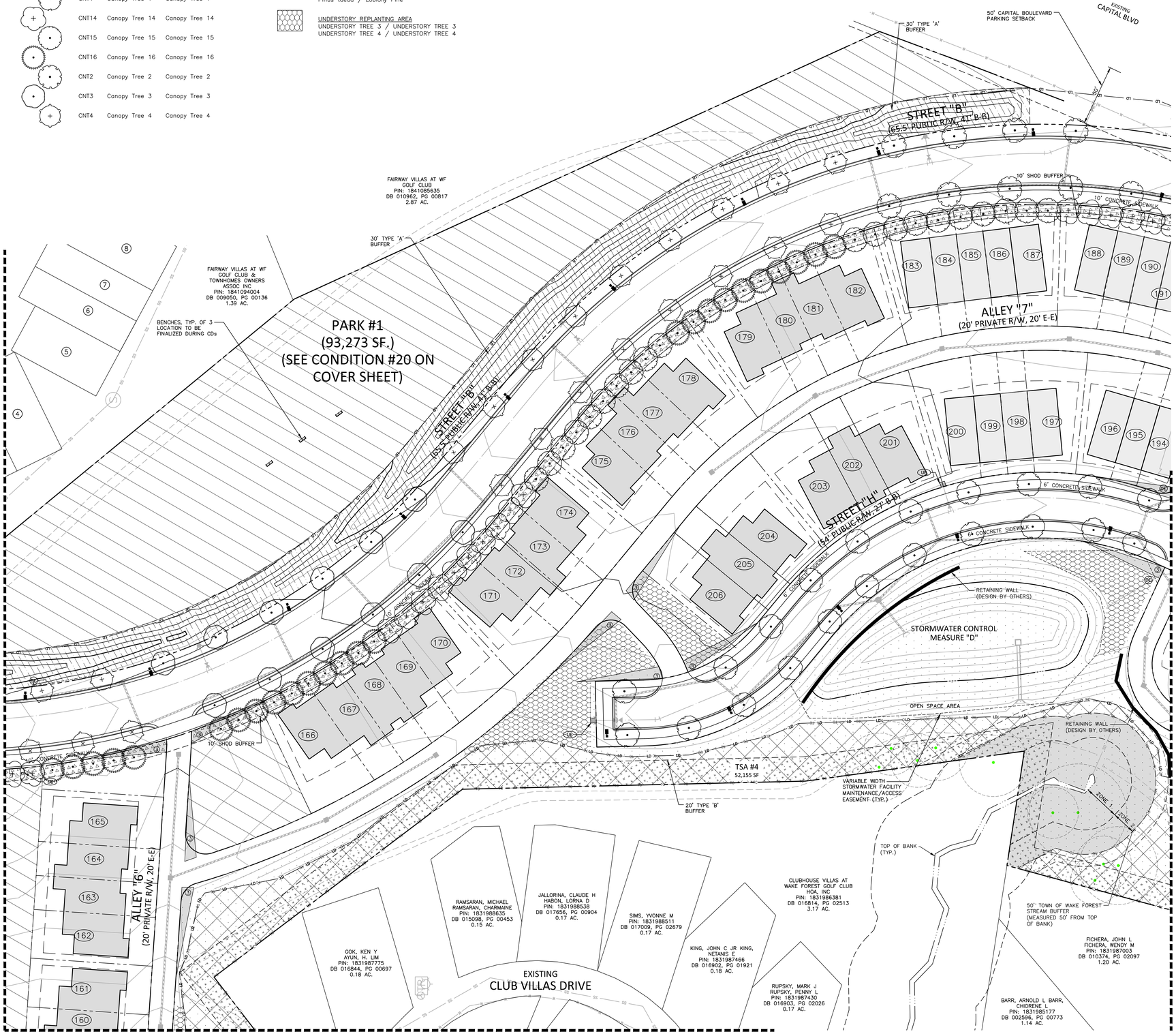
PLANT SCHEDULE AREA B

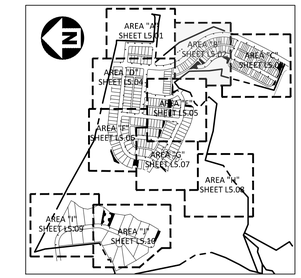
TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT1	Canopy Tree 1	Canopy Tree 1
	CNT14	Canopy Tree 14	Canopy Tree 14
	CNT15	Canopy Tree 15	Canopy Tree 15
	CNT16	Canopy Tree 16	Canopy Tree 16
	CNT2	Canopy Tree 2	Canopy Tree 2
	CNT3	Canopy Tree 3	Canopy Tree 3
	CNT4	Canopy Tree 4	Canopy Tree 4

CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus taeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4





INDEX MAP
1"=1000'

SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACC / VAN — ACCESSIBLE PARKING STALL
- VAN ACCESSIBLE PARKING STALL
- XX — PARKING SPACE COUNT
- TYPE A, TYPE B, TYPE C — ACCESSIBLE RAMPS
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- TYPE 'A' BUFFER
- TYPE 'B' BUFFER
- STREET YARD
- TREE TO REMAIN

KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

McADAMS
The John R. McAdams Company, Inc.
2905 Meridian Parkway
Durham, NC 27713

phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

www.mcadamsco.com

CLIENT

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

GREEN TIMBER FOUNDATION
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

CONTACT:
JAMES ADAMS
jmas@millridgeco.com
PHONE: 919. 556. 5418

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-LS1
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DRAWN BY	SM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

LANDSCAPE PLAN AREA "B"

L5.02

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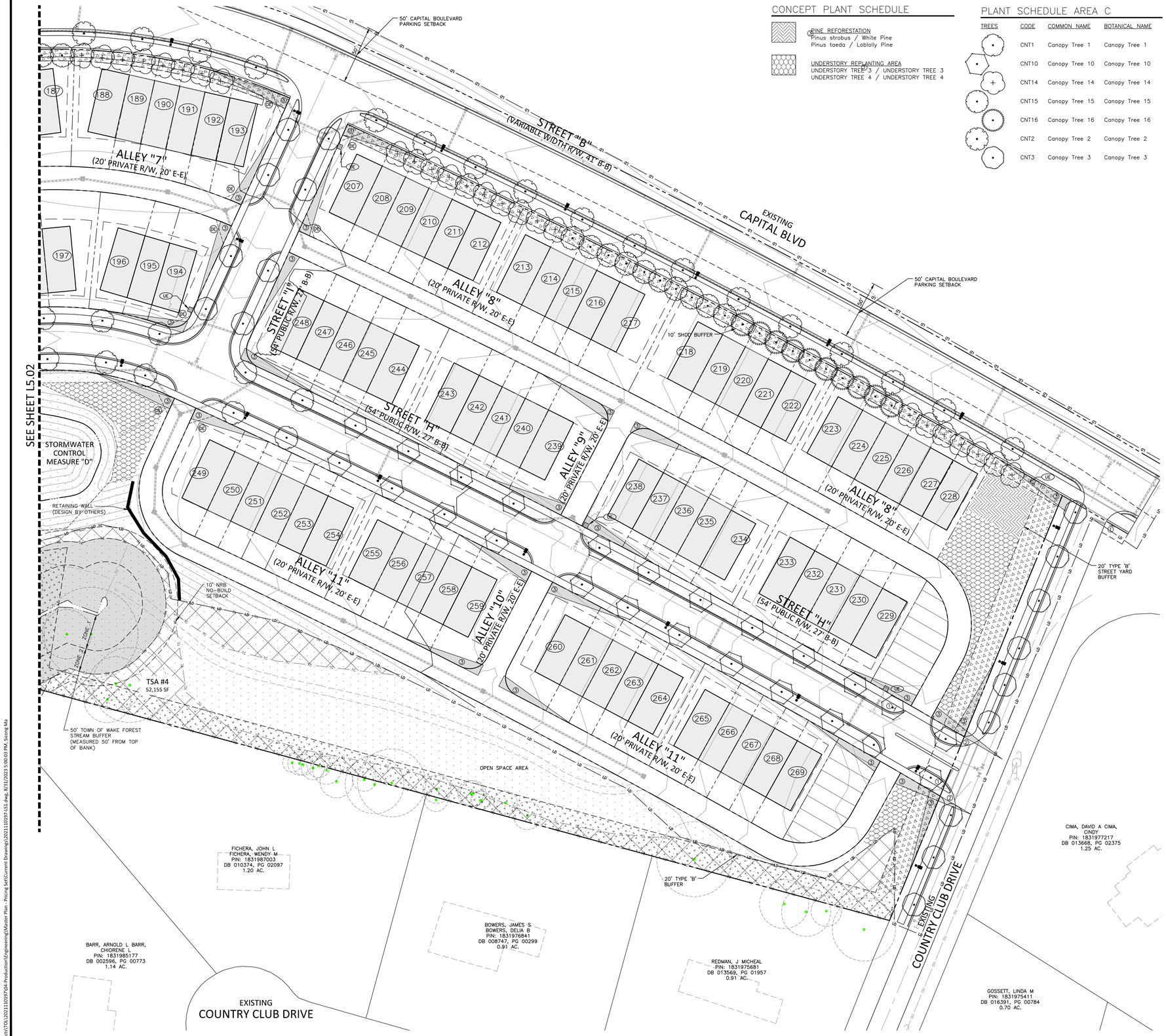


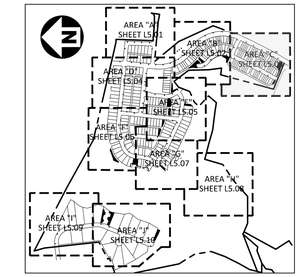
CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus taeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4

PLANT SCHEDULE AREA C

TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT1	Canopy Tree 1	Canopy Tree 1
	CNT10	Canopy Tree 10	Canopy Tree 10
	CNT14	Canopy Tree 14	Canopy Tree 14
	CNT15	Canopy Tree 15	Canopy Tree 15
	CNT16	Canopy Tree 16	Canopy Tree 16
	CNT2	Canopy Tree 2	Canopy Tree 2
	CNT3	Canopy Tree 3	Canopy Tree 3



INDEX MAP
1"=1000'

SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACC — ACCESSIBLE PARKING STALL
- VAN — VAN ACCESSIBLE PARKING STALL
- XX — PARKING SPACE COUNT
- ACCESSIBLE RAMPS (TYPE A, TYPE B, TYPE C)
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- TYPE 'A' BUFFER
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KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- SDE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
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1 inch = 40 ft.

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SCALE	1"=40'
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LANDSCAPE PLAN AREA "C"

L5.03

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INDEX MAP
1"=1000'

SITE LEGEND

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- TRAFFIC DIRECTIONAL ARROW
- ACC — ACCESSIBLE PARKING STALL
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- ACCESSIBLE ROUTE
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- PROPERTY LINE
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- LOT LINE
- EASEMENT LINE
- CENTERLINE
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- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- TYPE 'A' BUFFER
- TYPE 'B' BUFFER
- STREET YARD
- TREE TO REMAIN

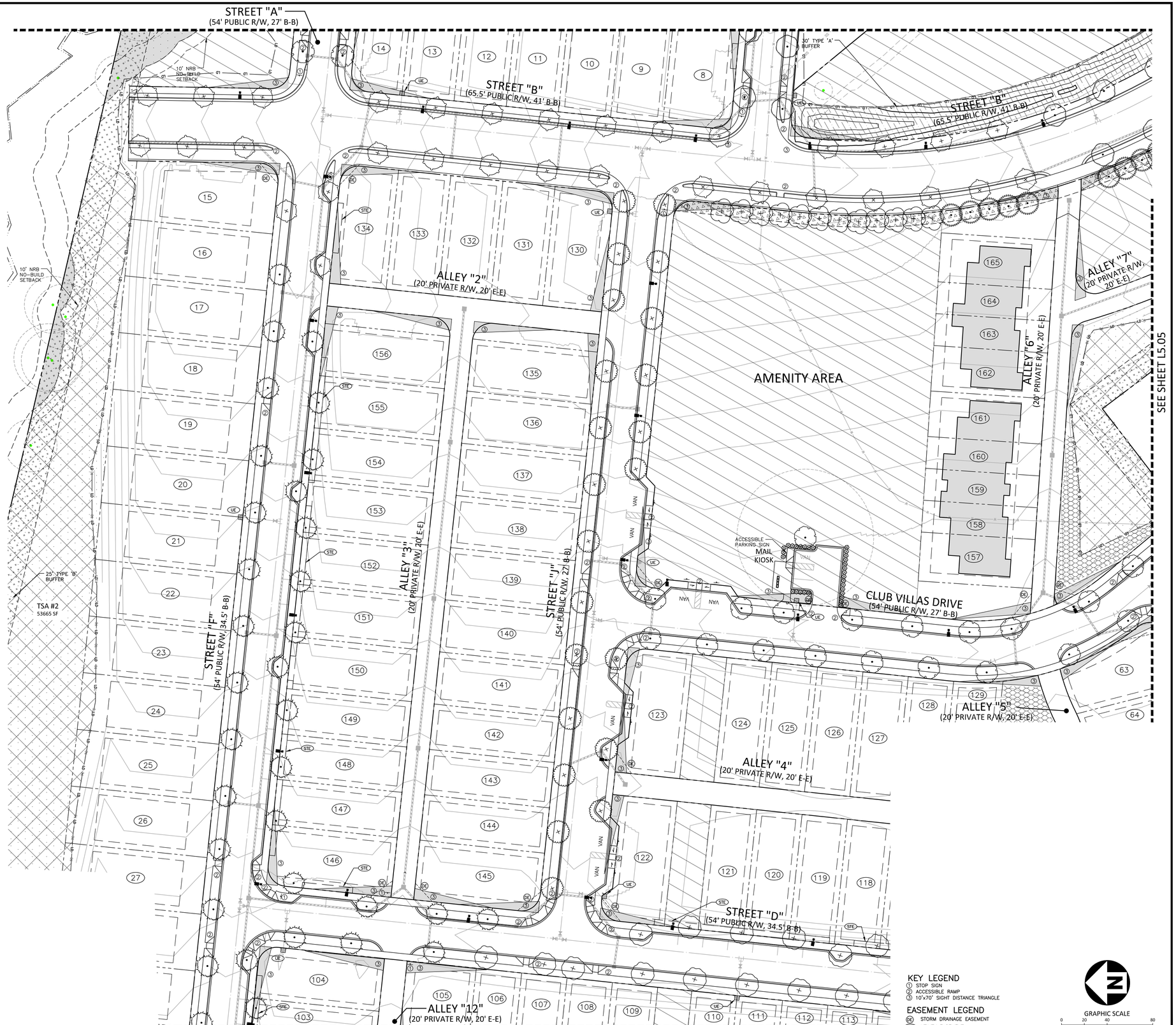
PLANT SCHEDULE AREA D

TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT14	Canopy Tree 14	Canopy Tree 14
	CNT16	Canopy Tree 16	Canopy Tree 16
	CNT2	Canopy Tree 2	Canopy Tree 2
	CNT3	Canopy Tree 3	Canopy Tree 3
	CNT4	Canopy Tree 4	Canopy Tree 4
	CNT5	Canopy Tree 5	Canopy Tree 5
	CNT7	Canopy Tree 7	Canopy Tree 7
	CNT8	Canopy Tree 8	Canopy Tree 8
	CNT9	Canopy Tree 9	Canopy Tree 9
SHRUBS	**CODE**	**COMMON NAME**	**BOTANICAL NAME**
	EVS1	Evergreen Shrub 1	Evergreen Shrub 1

CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus taeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4



KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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WAKE FOREST, NORTH CAROLINA

REVISIONS

NO. DATE

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LANDSCAPE PLAN AREA "D"

L5.04

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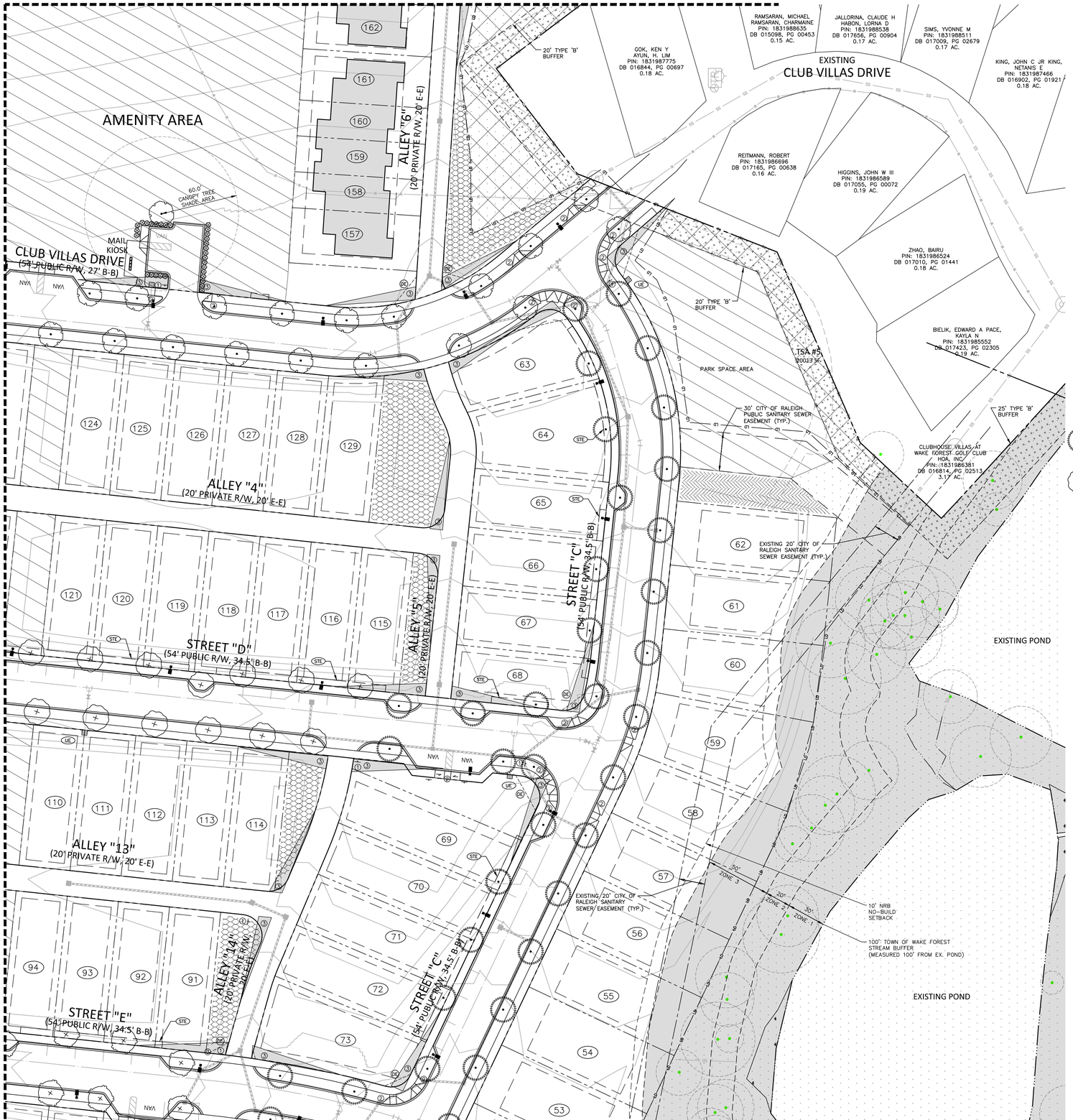

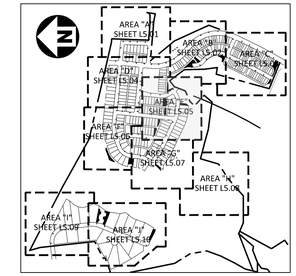

INDEX MAP
1" = 5000'

PLANT SCHEDULE AREA E

TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT11	Canopy Tree 11	Canopy Tree 11
	CNT6	Canopy Tree 6	Canopy Tree 6
	CNT7	Canopy Tree 7	Canopy Tree 7
	CNT9	Canopy Tree 9	Canopy Tree 9

SHRUBS	CODE	COMMON NAME	BOTANICAL NAME
	EVS1	Evergreen Shrub 1	Evergreen Shrub 1

CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus taeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4

SITE LEGEND

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- VAN ACCESSIBLE PARKING STALL
- (XX) — PARKING SPACE COUNT
- TYPE A, TYPE B, TYPE C — ACCESSIBLE RAMPS
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
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- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
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1 inch = 40 ft.

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SHEET

LANDSCAPE PLAN AREA "E"

L5.05

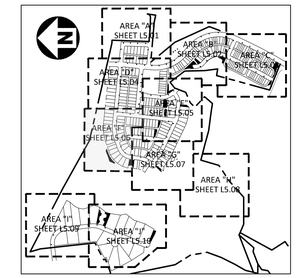
CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus taeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4

PLANT SCHEDULE AREA F

TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT11	Canopy Tree 11	Canopy Tree 11
	CNT13	Canopy Tree 13	Canopy Tree 13
	CNT5	Canopy Tree 5	Canopy Tree 5
	CNT7	Canopy Tree 7	Canopy Tree 7
	CNT8	Canopy Tree 8	Canopy Tree 8
	CNT9	Canopy Tree 9	Canopy Tree 9



INDEX MAP
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- PARK SPACE
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- TYPE 'B' BUFFER
- STREET YARD
- TREE TO REMAIN

KEY LEGEND

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2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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jmas@millridgeco.com
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MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-LS1
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LANDSCAPE PLAN AREA "F"

L5.06

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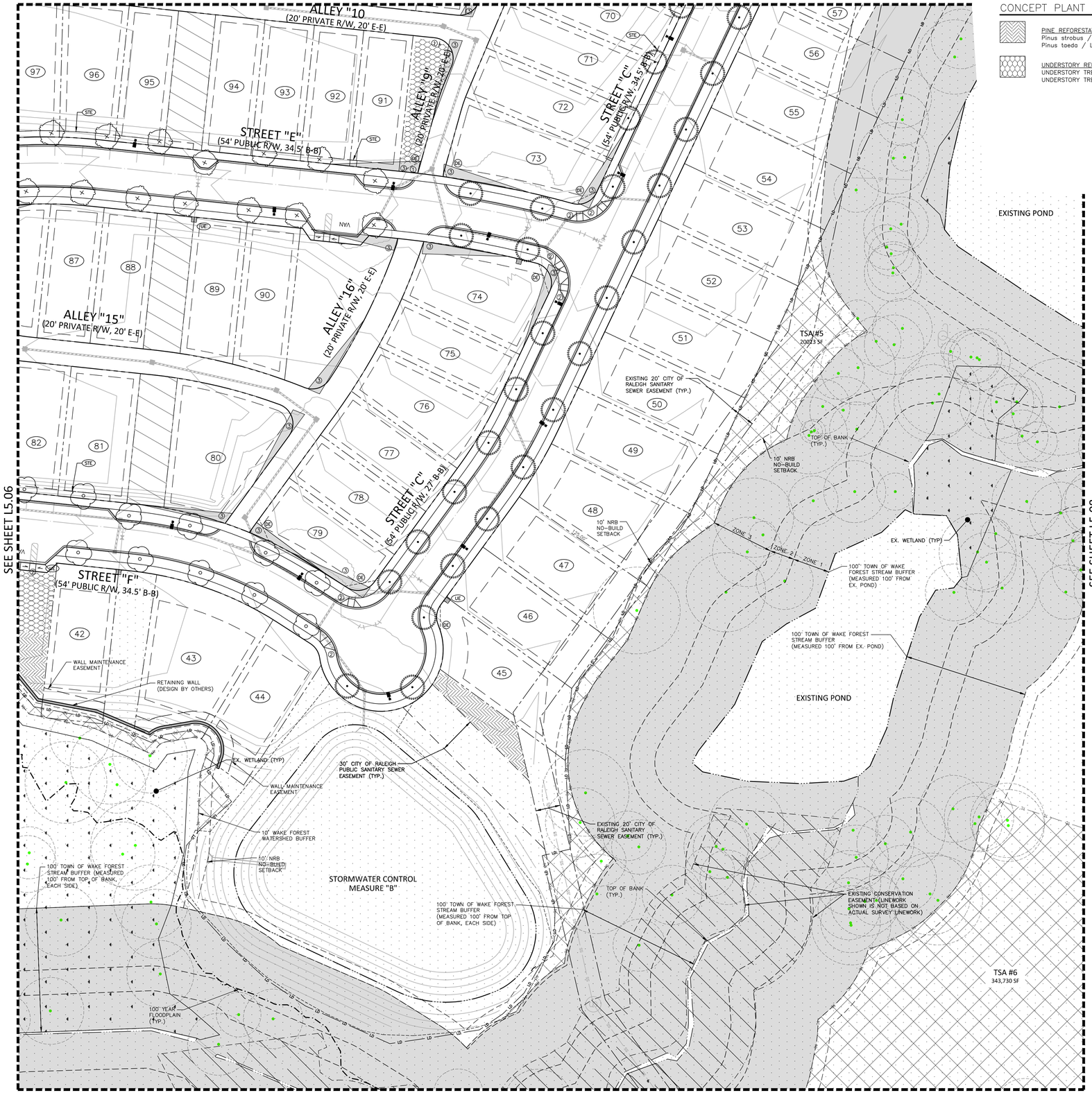
SEE SHEET L5.05

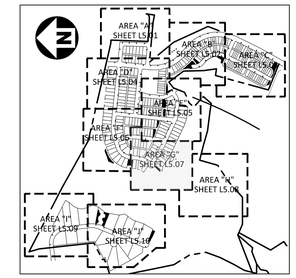


SEE SHEET L5.10

CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus taeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4



INDEX MAP
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- STREET YARD
- TREE TO REMAIN

PLANT SCHEDULE AREA G

TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT11	Canopy Tree 11	Canopy Tree 11
	CNT13	Canopy Tree 13	Canopy Tree 13
	CNT6	Canopy Tree 6	Canopy Tree 6

KEY LEGEND

1. STOP SIGN
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JOYNER PROPERTY
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CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

CAROL P. TAYLOR
NC PROFESSIONAL ENGINEER
NOV 01, 2023

REVISIONS

NO. DATE

PLAN INFORMATION

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SHEET

LANDSCAPE PLAN AREA "G"

L5.07

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SEE SHEET L5.05

SEE SHEET L5.07

EXISTING POND

TOP OF BANK (TYP.)

10' NRB NO-BUILD SETBACK

UPTON, KEVIN C UPTON, MITZI M
PIN: 1831887351
DB 007686, PG 00928
1.13 AC.

WILLIAMS, PATRICK EUGENE WILLIAMS, CHELSEA FAIRCLOTH
PIN: 1831886151
DB 018244, PG 00964
0.92 AC.

10' WAKE FOREST WATERSHED BUFFER

EXISTING COUNTRY CLUB DRIVE

100' TOWN OF WAKE FOREST STREAM BUFFER (MEASURED 100' FROM EX. POND)

100' TOWN OF WAKE FOREST STREAM BUFFER (MEASURED 100' FROM EX. POND)

30' ZONE 1 | 20' ZONE 2 | 50' ZONE 3

JOYNER, SAMUEL H JOYNER, PATRICIA S
PIN: 1831884051
DB 016867, PG 02193
0.93 AC.

10' NRB NO-BUILD SETBACK

OPEN SPACE AREA

25' TYPE 'B' BUFFER

TSA #6
343,730 SF

FISHER, C P JR
PIN: 1831873802
DB 002417, PG 00449
1.30 AC.

10' WAKE FOREST WATERSHED BUFFER

PERRY, MICHAEL K PERRY, LEE B
PIN: 1831870765
DB 008212, PG 02270
1.10 AC.

EXISTING 20' CITY OF RALEIGH SANITARY SEWER EASEMENT (TYP.)

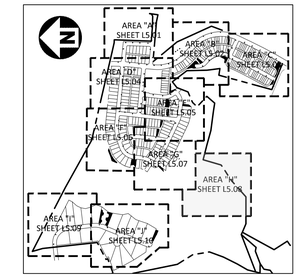
10' NRB NO-BUILD SETBACK

100 YEAR FLOODPLAIN (TYP.)

FLOODWAY (TYP.)

EX. WETLAND (TYP)

MICCHIA, JOSEPH M JR TRUSTEE MICCHIA, GINA L TRUSTEE
PIN: 1831778748
DB 016880, PG 02215
0.95 AC.



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- TREE TO REMAIN

KEY LEGEND

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2. ACCESSIBLE RAMP
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EASEMENT LEGEND

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- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

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CONTACT:
JAMES ADAMS
jmas@millridgeco.com
PHONE: 919. 556. 5418

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-LS1
CHECKED BY	MPT
DRAWN BY	SM
SCALE	1"=40'
DATE	08. 25. 2023

SHEET

LANDSCAPE PLAN
AREA "H"

L5.08

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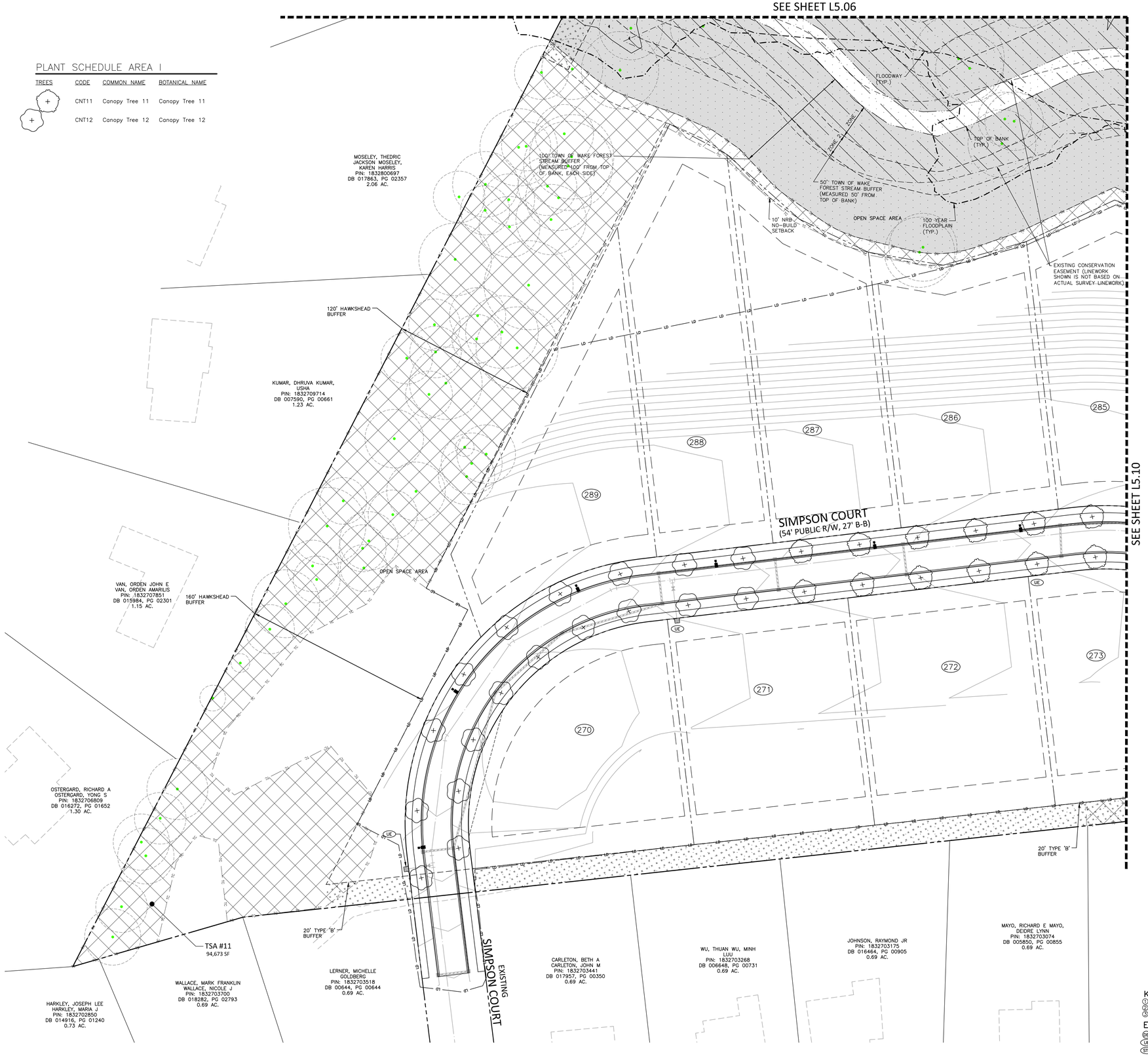
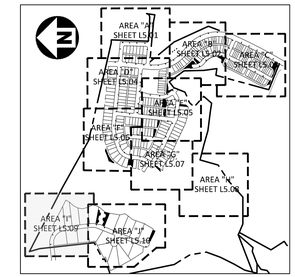
SEE SHEET L5.06

PLANT SCHEDULE AREA I

TREES	CODE	COMMON NAME	BOTANICAL NAME
+	CNT11	Canopy Tree 11	Canopy Tree 11
+	CNT12	Canopy Tree 12	Canopy Tree 12





INDEX MAP
1" = 1,000'

SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACC — ACCESSIBLE PARKING STALL
- VAN — VAN ACCESSIBLE PARKING STALL
- XX — PARKING SPACE COUNT
- TYPE A, TYPE B, TYPE C — ACCESSIBLE RAMPS
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- TYPE 'A' BUFFER
- TYPE 'B' BUFFER
- STREET YARD
- TREE TO REMAIN

KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- DE — STORM DRAINAGE EASEMENT
- UE — UTILITY EASEMENT
- STE — 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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SHEET

LANDSCAPE PLAN
AREA "I"

L5.09

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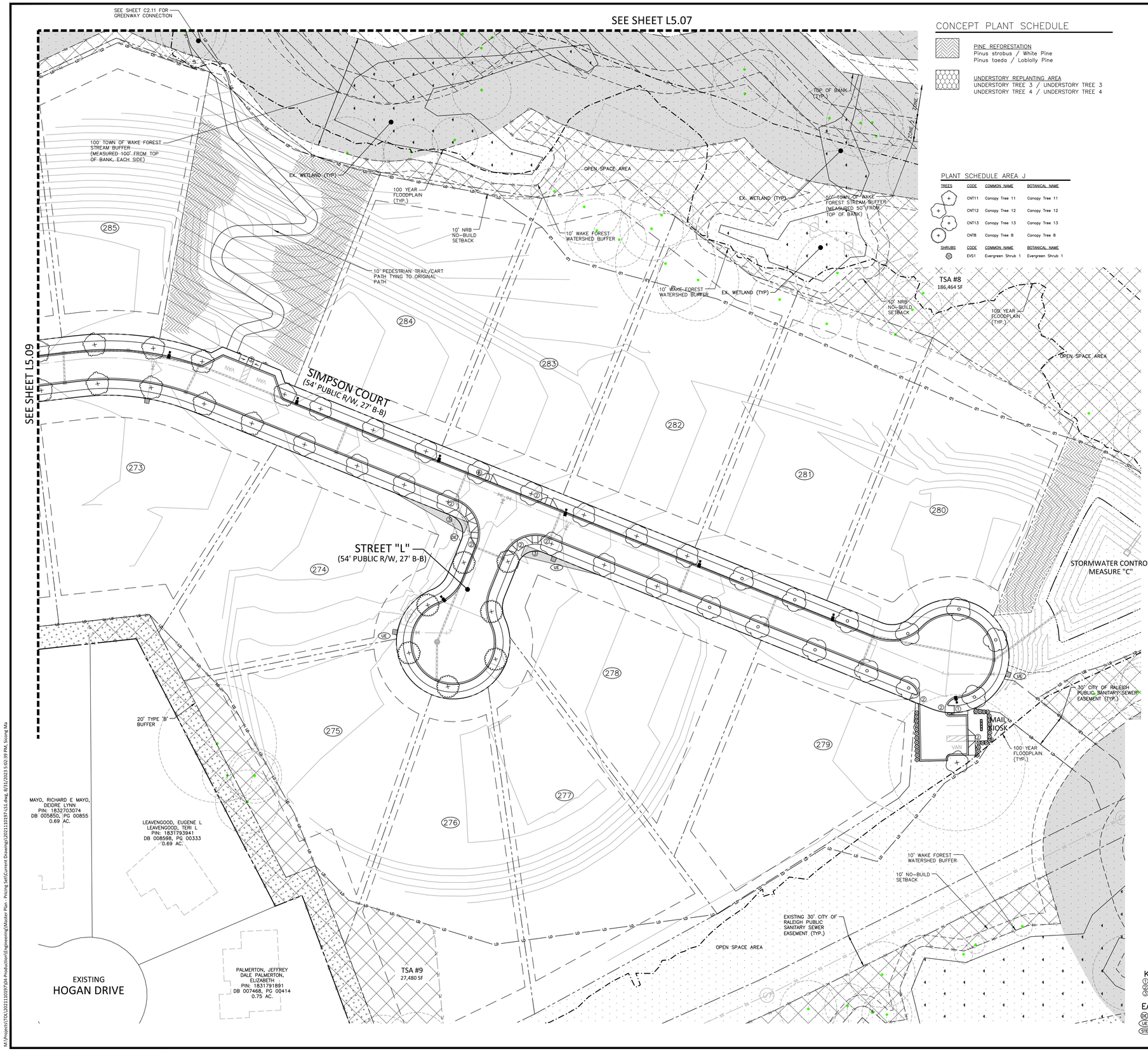


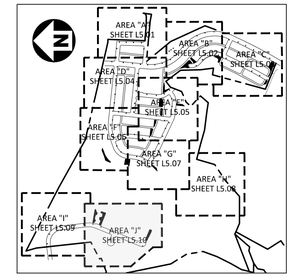
CONCEPT PLANT SCHEDULE

PINE REFORESTATION
Pinus strobus / White Pine
Pinus taeda / Loblolly Pine

UNDERSTORY REPLANTING AREA
UNDERSTORY TREE 3 / UNDERSTORY TREE 3
UNDERSTORY TREE 4 / UNDERSTORY TREE 4

PLANT SCHEDULE AREA J

TREES	CODE	COMMON NAME	BOTANICAL NAME
	CNT11	Canopy Tree 11	Canopy Tree 11
	CNT12	Canopy Tree 12	Canopy Tree 12
	CNT13	Canopy Tree 13	Canopy Tree 13
	CNT8	Canopy Tree 8	Canopy Tree 8
SHRUBS	**CODE**	**COMMON NAME**	**BOTANICAL NAME**
	EVS1	Evergreen Shrub 1	Evergreen Shrub 1



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- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
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- VAN — VAN ACCESSIBLE PARKING STALL
- (XX) — PARKING SPACE COUNT
- TYPE (A) TYPE (B) TYPE (C) — ACCESSIBLE RAMPS
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- WETLAND
- OPEN SPACE
- TREE SAVE AREA
- STREAM BUFFER
- PARK SPACE
- TYPE 'A' BUFFER
- TYPE 'B' BUFFER
- STREET YARD
- TREE TO REMAIN

KEY LEGEND

1. STOP SIGN
2. ACCESSIBLE RAMP
3. 10'x70' SIGHT DISTANCE TRIANGLE

EASEMENT LEGEND

- (DE) STORM DRAINAGE EASEMENT
- (UE) UTILITY EASEMENT
- (STE) 5' STREET TREE EASEMENT

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

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LANDSCAPE PLAN AREA "J"

L5.10

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LANDSCAPE CALCULATIONS

STREET YARD

COUNTRY CLUB DRIVE - 20' TYPE B STREET YARD — 285 LF*

EVERGREEN TREES:
REQUIRED: 6 (2/100 LF)
PROVIDED: 6*

CANOPY TREES
REQUIRED: 6 (2/100 LF)
PROVIDED: 6*

UNDERSTORY TREES
REQUIRED: 6 (2/100 LF)
PROVIDED: 6*

SHRUBS
REQUIRED: 69 (24/100 LF)
PROVIDED: 69*

SERVICE ROAD - 10' TYPE B STREET YARD — 1866 LF*

EVERGREEN TREES:
REQUIRED: 38 (2/100 LF)
PROVIDED: 38*

CANOPY TREES
REQUIRED: 19 (1/100 LF)
PROVIDED: 19*

UNDERSTORY TREES
REQUIRED: 38 (2/100 LF)
PROVIDED: 38*

SHRUBS
REQUIRED: 224 (12/100 LF)
PROVIDED: 224*

PERIMETER BUFFERS

SOUTHERN PROPERTY — 5121 LF**
20' & 25' TYPE B BUFFER

EVERGREEN TREES:
REQUIRED: 103 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

CANOPY TREES
REQUIRED: 103 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

UNDERSTORY TREES
REQUIRED: 103 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

SHRUBS
REQUIRED: 1229 (24/100 LF)
PROVIDED: EXISTING SHRUBS TO FULFILL REQUIREMENT**

EASTERN PROPERTY — 496 LF*
20' & 25' TYPE B BUFFER

EVERGREEN TREES:
REQUIRED: 10 (2/100 LF)
PROVIDED: 10*

CANOPY TREES
REQUIRED: 10 (2/100 LF)
PROVIDED: 10*

UNDERSTORY TREES
REQUIRED: 10 (2/100 LF)
PROVIDED: 10*

SHRUBS
REQUIRED: 120 (24/100 LF)
PROVIDED: 120*

EASTERN PROPERTY — 1,093 LF*
30' TYPE A BUFFER

EVERGREEN TREES:
REQUIRED: 44 (4/100 LF)
PROVIDED: 44*

CANOPY TREES
REQUIRED: 22 (2/100 LF)
PROVIDED: 22*

UNDERSTORY TREES
REQUIRED: 44 (4/100 LF)
PROVIDED: 44*

SHRUBS
REQUIRED: 394 (36/100 LF)
PROVIDED: 394*

WESTERN PROPERTY — 3626 LF**
20' & 25' TYPE B BUFFER

EVERGREEN TREES:
REQUIRED: 73 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

CANOPY TREES
REQUIRED: 73 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

UNDERSTORY TREES
REQUIRED: 73 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

SHRUBS
REQUIRED: 870 (24/100 LF)
PROVIDED: EXISTING SHRUBS TO FULFILL REQUIREMENT**

NORTHERN PROPERTY — 3100 LF**
20' & 25' TYPE B BUFFER

EVERGREEN TREES:
REQUIRED: 62 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

CANOPY TREES
REQUIRED: 62 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

UNDERSTORY TREES
REQUIRED: 62 (2/100 LF)
PROVIDED: EXISTING TREES TO FULFILL REQUIREMENT**

SHRUBS
REQUIRED: 744 (24/100 LF)
PROVIDED: EXISTING SHRUBS TO FULFILL REQUIREMENT**

*BUFFER PLANTS TO BE INSTALLED PER STANDARD BUFFER DETAILS THIS SHEET. FINAL LOCATIONS OF PLANTINGS TO BE COORDINATED WHEN ENHANCED LANDSCAPE PLANS ARE DEVELOPED
**PRESERVED VEGETATION SHALL BE UTILIZED TO MEET BUFFER STANDARDS. SUPPLEMENTAL PLANTING MAY BE REQUIRED UPON FIELD INSPECTION.

LANDSCAPE CALCULATIONS

STREET TREES

CLUB VILLAS DRIVE — 1002 LF

TREES
REQUIRED: 20 (1/50 LF)
PROVIDED: 20

STREET "A" — 1086 LF

TREES
REQUIRED: 22 (1/50 LF)
PROVIDED: 25

STREET "B" — 3410 LF

TREES
REQUIRED: 69 (1/50 LF)
PROVIDED: 69

STREET "C" — 1746 LF

TREES
REQUIRED: 36 (1/50 LF)
PROVIDED: 42

STREET "D" — 1400 LF

TREES
REQUIRED: 28 (1/50 LF)
PROVIDED: 31

STREET "E" — 1218 LF

TREES
REQUIRED: 25 (1/50 LF)
PROVIDED: 25

STREET "F" — 3200 LF

TREES
REQUIRED: 64 (1/50 LF)
PROVIDED: 65

STREET 'G' — 1400 LF

TREES
REQUIRED: 28 (1/50 LF)
PROVIDED: 30

STREET "H" — 2256 LF

TREES
REQUIRED: 46 (1/50 LF)
PROVIDED: 51

STREET "I" — 350 LF

TREES
REQUIRED: 7 (1/50 LF)
PROVIDED: 8

STREET "J" — 1086 LF

TREES
REQUIRED: 22 (1/50 LF)
PROVIDED: 24

SIMPSON COURT — 2952 LF

TREES
REQUIRED: 60 (1/50 LF)
PROVIDED: 62

STREET "L" — 194 LF

TREES
REQUIRED: 4 (1/50 LF)
PROVIDED: 7

COUNTRY CLUB DRIVE — 340 LF

TREES
REQUIRED: 9 (1/50 LF)
PROVIDED: 9

LANDSCAPE CALCULATIONS

BASELINE CANOPY COVERAGE

BASELINE CANOPY COVERAGE — 3,348,625 SF

PER UDO - A MINIMUM CANOPY COVERAGE OF 1 CANOPY TREE PER 10,000 SF OF PARCEL AREA.

NET PARCEL AREA: 5,361,965 SF
RIPARIAN AREAS: - 2,013,340 SF
3,348,625 SF

CANOPY TREES
REQUIRED: 335 (1/ 10,000 SF PARCEL AREA)

PROVIDED: 448 CANOPY TREES IN STREET TREE PLANTING
25 CANOPY TREES IN STREET YARD PLANTING
270 CANOPY TREES IN BUFFER
1435 CANOPY TREES IN TREE SAVE AREA (1 TREE PER 700 SF OF TREE SAVE AREA - 1,004,444 SF)
3,063 SPECIMEN TREE PRESERVATION CREDIT

SPECIMEN TREE REPLACEMENT
REQUIRED: 1236 CANOPY + 492 UNDERSTORY = **1728** TOTAL
PROVIDED: 1274 CANOPY + 498 UNDERSTORY = **1772**TOTAL
1274 PINE REFORESTATION
498 UNDERSTORY REPLANTING

TREE COVERAGE — 1,004,444 SF

TSA #1	151,539 SF
TSA #2	53,665 SF
TSA #3	12,589 SF
TSA #4	52,155 SF
TSA #5	20,013 SF
TSA #6	343,730 SF
TSA #7	39,652 SF
TSA #8	186,464 SF
TSA #9	27,480 SF
TSA #10	22,484 SF
TSA #11	94,673 SF
TOTAL:	1,004,444 SF

NEIGHBORHOOD PARK

MIN. 1 TREE (2 INCH CALIPER MIN MEASURED 6" ABOVE THE GROUND AT INSTALLATION) TO BE PLANTED IN AT LEAST 350 SQUARE FEET OF SOIL OR 1 PRESERVED EXISTING CANOPY TREE A MIN. OF 12 INCH CALIPER FOR EVERY 2,500 SQUARE FEET OF REQUIRED PARK SPACE. (UDO 7.5.5.A.2)
REQUIRED: 55 (135,772 / 2500)
PROVIDED: 55*

*AMENITY CANOPY TREES SHALL BE PLANTED IF PRESERVED EXISTING CANOPY TREES DO NOT MEET THE REQUIREMENT. REPLANTING TO BE FINALIZED DURING CDs.

SPECIAL HIGHWAY OVERLAY DISTRICT

ALONG STREET "B" — 1866 LF

TREES
REQUIRED: 112 (3/50 LF)
PROVIDED: 112*

*TREES SHALL INCLUDE CANOPY, UNDERSTORY AND EVERGREEN

VEHICLE USE AREA

MAIL KIOSK #1 — 3 SPACES

CANOPY TREES
REQUIRED: ALL SPACES WITHIN 60' FROM PLANTED TREE
PROVIDED: 1

SHRUBS
REQUIRED: EVERGREEN SHRUBS PLACED MAXIMUM OF 5' ON CENTER (150 LF) 30 SHRUBS
PROVIDED: 30 SHRUBS

MAIL KIOSK #2 — 3 SPACES

CANOPY TREES
REQUIRED: ALL SPACES WITHIN 60' FROM PLANTED TREE
PROVIDED: 1

SHRUBS
REQUIRED: EVERGREEN SHRUBS PLACED MAXIMUM OF 5' ON CENTER (143 LF) 29 SHRUBS
PROVIDED: 29 SHRUBS

PLANT SCHEDULE

TREES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CAL	HEIGHT
	CNT1	37	Canopy Tree 1	Canopy Tree 1	1.5" min	8' min
	CNT10	24	Canopy Tree 10	Canopy Tree 10	1.5" min	8' min
	CNT11	33	Canopy Tree 11	Canopy Tree 11	1.5" min	8' min
	CNT12	34	Canopy Tree 12	Canopy Tree 12	1.5" min	8' min
	CNT13	25	Canopy Tree 13	Canopy Tree 13	1.5" min	8' min
	CNT14	47	Canopy Tree 14	Canopy Tree 14	1.5" min	8' min
	CNT15	30	Canopy Tree 15	Canopy Tree 15	1.5" min	8' min
	CNT16	35	Canopy Tree 16	Canopy Tree 16	1.5" min	8' min
	CNT2	58	Canopy Tree 2	Canopy Tree 2	1.5" min	8' min
	CNT3	38	Canopy Tree 3	Canopy Tree 3	1.5" min	8' min
	CNT4	49	Canopy Tree 4	Canopy Tree 4	1.5" min	8' min
	CNT5	36	Canopy Tree 5	Canopy Tree 5	1.5" min	8' min
	CNT6	52	Canopy Tree 6	Canopy Tree 6	1.5" min	8' min
	CNT7	46	Canopy Tree 7	Canopy Tree 7	1.5" min	8' min
	CNT8	29	Canopy Tree 8	Canopy Tree 8	1.5" min	8' min
	CNT9	18	Canopy Tree 9	Canopy Tree 9	1.5" min	8' min
SHRUBS	CODE	QTY	COMMON NAME	BOTANICAL NAME	CONT	HEIGHT
	EVS1	59	Evergreen Shrub 1	Evergreen Shrub 1	36" min	

CONCEPT PLANT SCHEDULE

PINE REFORESTATION	30,634 sf
Pinus strobus / White Pine	637
Pinus taeda / Loblolly Pine	637
UNDERSTORY REPLANTING AREA	33,267 sf
UNDERSTORY TREE 3 / UNDERSTORY TREE 3	249
UNDERSTORY TREE 4 / UNDERSTORY TREE 4	249

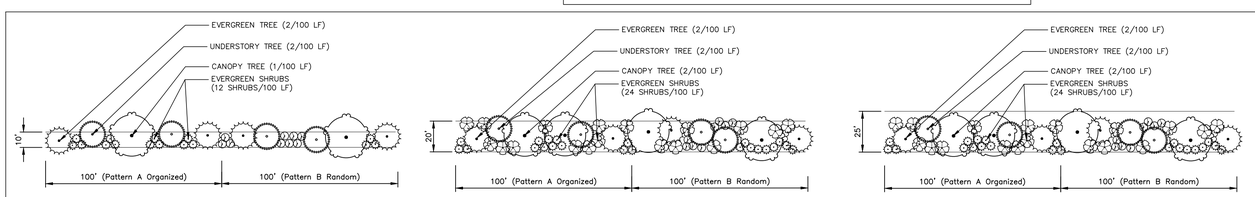
SPACING "D"
ROWS "A"

TRIANGULAR SPACING FOR PINE SAPLING REFORESTATION

LOBLOLLY PINE SAPLING SPACING CHART

SPACING "D"	ROW "A"
10' o.c.	5' o.c.

NOTE: UPON ESTABLISHMENT, TREE REFORESTATION AREAS SHALL FOLLOW THE SAME UDO REQUIREMENTS AS TREE SAVE AREAS. DECIDUOUS HARDWOOD MAY BE USED TO SUBSTITUTE PINES. EXACT SPECIES TO BE FINALIZED DURING CDs.



10' TYPE 'B' BUFFER
NOT TO SCALE

20' TYPE 'B' BUFFER
NOT TO SCALE

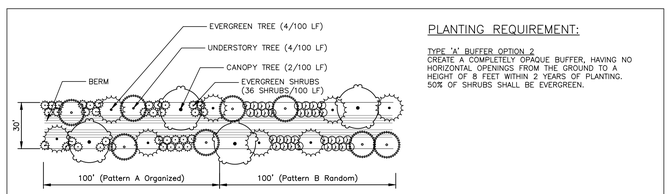
25' TYPE 'B' BUFFER
NOT TO SCALE

PLANTING REQUIREMENT:

TYPE 'B' BUFFER
CREATE A SEMI-OPAQUE BUFFER HAVING ONLY SEASONAL HORIZONTAL OPENINGS, NOT TO EXCEED 10% OF THE TOTAL WIDTH FROM THE GROUND TO A HEIGHT OF 8' WITHIN 2 YEARS OF PLANTING.

50% OF SHRUBS SHALL BE EVERGREEN.

***CANOPY TREES IN BUFFER ADJACENT TO ON-STREET PARKING TO BE WITHIN 60' FROM PARKING SPACES.



TYPE 'A' BUFFER
NOT TO SCALE

PLANTING REQUIREMENT:

TYPE 'A' BUFFER OPTION 2
CREATE A COMPLETELY OPAQUE BUFFER, HAVING NO HORIZONTAL OPENINGS FROM THE GROUND TO A HEIGHT OF 8 FEET WITHIN 2 YEARS OF PLANTING. 50% OF SHRUBS SHALL BE EVERGREEN.

STREET YARD AND PERIMETER BUFFER PLANT SPECIES

CANOPY TREE SPECIES
(INSTALLED AT 1.5" CAL., 8' HT. MIN.)
LIRIODENDRON TULIPIFERA
LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'
NYSSA SYLVATICA
QUERCUS NUTTALLII
QUERCUS PHELLOS
QUERCUS RUBRA
PLATANUS OCCIDENTALIS
ULMUS AMERICANA 'PRINCETON'

EVERGREEN TREE SPECIES
(INSTALLED AT 1" CAL., 8' HT. MIN.)
CEDRUS DEODORA
MAGNOLIA GRANDIFLORA
PINUS TAEDA
THUJA OCCIDENTALIS 'GREEN GIANT'

UNDERSTORY TREE SPECIES
(INSTALLED AT 1" CAL, 6' HT. MIN.)
CARPINUS CAROLINIANA
CERCIS CANADENSIS
CHIONANTHUS RETUSUS
CORNUS 'SPP'
ILEX OPACA 'CAROLINA #2'
ILEX X EMILY BRUNER'
ILEX VOMITORIA
JUNIPERUS VIRGINIANA
PISTACHIA CHINENSIS
VIBURNUM AWABUKI
VIBURNUM DENTATUM

EVERGREEN SHRUB SPECIES
(INSTALLED AT 36" HT. MIN.)
CALLICARPA AMERICANA
ILEX CORNUTA 'NEEDLEPOINT'
ILEX GLABRA 'NIGRA'
ILEX CRENATA 'COMPACTA'
AZALEA HYBRIDS
ILLICIUM PARVIFOLIUM
MYRICA SP.
ILEX VOMITORIA 'NANA'
CAMELLIA SASANQUA
OSMANTHUS X FORTUNEI
PRUNUS CAROLINIANA
HYDRANGEA MACROPHYLLA

GENERAL LANDSCAPE NOTES:

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF WAKE FOREST AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR THE SITE INSPECTION BEFORE LANDSCAPE CONSTRUCTION AND INSTALLATION IN ORDER TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS.
3. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE BEGINNING DEMOLITION OR INSTALLATION.
4. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE NOTES, SPECIFICATIONS, DRAWINGS OR SITE CONDITIONS FOR RESOLUTION PRIOR TO INSTALLATION.
5. ANY DAMAGE TO UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. VERIFICATION OF TOTAL PLANT QUANTITIES AS SHOWN IN THE PLANT SCHEDULE SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. ANY DISCRPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.
13. SUBSTITUTIONS OF SPECIFIC PLANTS CAN ONLY OCCUR WITH PRIOR WRITTEN PERMISSION OF BOTH OWNER AND LANDSCAPE ARCHITECT.
14. CONTRACTOR TO ENSURE PROPER STABILIZATION AND SEEDING OF THE SITE IN ACCORDANCE WITH APPLICABLE REGULATIONS.
15. LANDSCAPE MATERIAL SHALL BE WELL FORMED, VIGOROUS, GROWING SPECIMENS WITH GROWTH TYPICAL OF VARIETIES SPECIFIED AND SHALL BE FREE FROM DAMAGE, INSECTS AND DISEASES. MATERIAL SHALL EQUAL OR SURPASS #1 QUALITY AS DEFINED IN THE CURRENT ISSUE OF "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY AMERICAN HORT - AMERICANHORT.ORG.
16. ALL PLANT MATERIAL IS TO BE CAREFULLY HANDLED BY THE ROOT BALL, NOT THE TRUNK, BRANCHES AND/OR FOLIAGE OF THE PLANT. MISHANDLED PLANT MATERIAL MAY BE REJECTED BY THE LANDSCAPE ARCHITECT.
17. ALL PLANT MATERIAL IS TO BE WELL ROOTED, NOT ROOT BOUND, SUCH THAT THE ROOT BALL REMAINS INTACT THROUGHOUT THE PLANTING PROCESS. DEFICIENT PLANT MATERIAL MAY BE REJECTED BY THE LANDSCAPE ARCHITECT OR OWNER.
18. ALL PLANTS TO BE A MINIMUM OF WHAT IS SPECIFIED IN THE PLANT SCHEDULE. ANY CHANGES OR SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT AND GOVERNING JURISDICTION PRIOR TO ANY HOLE BEING DUG.
19. ALL TREES MUST BE PLANTED AFTER OCTOBER 1 AND BEFORE MARCH 31.
20. CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT TO ESTABLISH THE EXTENTS OF MULCH/SEED/SOD IF NOT SPECIFICALLY SHOWN ON PLANS.
21. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE IN ALL PLANTING AREAS.
22. PROPOSED TREES TO BE PLANTED A MINIMUM 15 FEET FROM ANY LIGHT POLE AS MEASURED FROM TRUNK OF THE TREE TO THE POLE.
23. PROPOSED TREES TO BE PLANTED A MINIMUM 5 FEET FROM ANY FIRE HYDRANT AS MEASURED FROM TRUNK OF THE TREE TO THE HYDRANT.
24. ALL TREE PLANTINGS SHALL BE MULCHED WITH 3 INCHES OF SHREDDED BARK OR 4 INCHES OF PINE STRAW IN A 3 FOOT RADIUS AROUND THE TREE, OR TO THE DRIPLINE, WHICHEVER IS GREATER. THE MULCH SHALL BE FREE OF TRASH AND MAINTAINED WEED FREE THEREAFTER. MULCH SHALL NOT COVER THE ROOT COLLAR.

MAINTENANCE NOTES:

1. WARRANTY: INSTALLER SHALL REPAIR OR REPLACE ANY PLANTINGS THAT FAIL IN MATERIALS, WORKMANSHIP, OR GROWTH WITHIN ONE YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
   - DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM LACK OF ADEQUATE MAINTENANCE, NEGLECT, ABUSE BY OWNER, OR INCIDENTS THAT ARE BEYOND CONTRACTOR'S CONTROL.
   - STRUCTURAL FAILURES INCLUDING PLANTINGS FALLING OR BLOWING OVER.
2. THE OWNER OF THE PROPERTY AND THEIR AGENTS, HEIRS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, PRESERVATION AND MAINTENANCE OF ALL PLANTINGS AND PHYSICAL FEATURES ON THIS PLAN. FAILURE TO MAINTAIN ALL PLANTINGS IN ACCORDANCE WITH THIS PLAN MAY CONSTITUTE A VIOLATION OF THIS ORDINANCE AND MAY RESULT IN FINES. THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE VEGETATION, INCLUDING BUT NOT LIMITED TO:
   - FERTILIZATION
   - PRUNING WITHIN LIMITS
   - PEST CONTROL
   - MULCHING
   - MOWING
   - PROTECTION OF THE ROOT ZONES FROM EQUIPMENT, CONSTRUCTION AND RELATED MATERIALS, ETC.
   - METHOD OF IRRIGATION
   - OTHER CONTINUING MAINTENANCE OPERATIONS

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JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-LS1
CHECKED BY	MPT
DRAWN BY	SM
SCALE	N/A
DATE	08. 25. 2023

SHEET

LANDSCAPE NOTES AND DETAILS

L5.11

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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DECIDUOUS CANOPY						
PRESERVED				REMOVED		
SIZE	SPECIES	QTY:	CREDIT:	SIZE	SPECIES	QTY:
20	ash	3	3	30	ash	1
21	ash	4	3	26	ash	1
22	ash	3	3	24	ash	1
23	ash	1	3	22	ash	1
24	ash	1	3	25	beech	1
25	ash	1	3	37	beech	1
26	ash	1	3	30	beech	1
27	ash	1	3	32	beech	1
28	ash	1	3	23	beech	2
29	ash	1	3	28	beech	2
35	ash	1	4	30	chestnut oak	1
20	beech	3	3	23	elm	1
21	beech	3	3	47	gum	1
24	beech	1	3	31	gum	1
25	beech	1	3	32	gum	1
26	beech	1	3	29	gum	2
28	beech	1	3	30	gum	3
34	beech	1	4	24	gum	3
36	beech	1	4	22	gum	3
40	beech	1	4	21	gum	3
26	chestnut oak	1	3	27	gum	4
23	elm	1	3	26	gum	4
26	elm	1	3	25	gum	7
27	elm	1	3	20	gum	9
28	elm	1	3	28	gum	9
29	elm	1	3	23	gum	12
20	gum	43	3	36	hackberry	1
21	gum	1	3	31	hickory	1
21	gum	34	3	28	hickory	1
22	gum	35	3	20	hickory	2
23	gum	25	3	21	hickory	3
24	gum	29	3	23	hickory	3
25	gum	22	3	27	maple	1
26	gum	22	3	20	maple	1
27	gum	20	3	23	maple	1
28	gum	13	3	21	maple	1
29	gum	9	3	29	maple	3
30	gum	10	3	26	pecan	1
31	gum	6	4	31	poplar	1
32	gum	9	4	44	poplar	1
33	gum	1	4	36	poplar	1
34	gum	1	4	28	poplar	1
35	gum	1	4	59	poplar	1
36	gum	1	4	41	poplar	1
37	gum	1	4	33	poplar	2
24	gum double s	1	3	29	poplar	2
27	gumsw	1	3	27	poplar	2
26	hackberry	1	3	32	poplar	2
20	hickory	2	3	40	poplar	2
21	hickory	1	3	22	poplar	3
22	hickory	1	3	38	poplar	3
24	hickory	1	3	25	poplar	3
25	hickory	1	3	23	poplar	3
27	hickory	1	3	21	poplar	4
28	hickory	1	3	26	poplar	4
20	maple	5	3	24	poplar	5
21	maple	5	3	31	red oak	1
22	maple	7	3	25	red oak	1
23	maple	4	3	43	red oak	1
24	maple	2	3	48	red oak	1
25	maple	2	3	23	red oak	1
26	maple	5	3	26	red oak	1
27	maple	4	3	52	red oak	1
28	maple	6	3	21	red oak	1
29	maple	2	3	27	red oak	1
30	maple	3	3	41	red oak	1
31	maple	1	4	20	red oak	2
32	maple	2	4	36	red oak	2
33	maple	1	4	33	red oak	2
34	maple	1	4	42	red oak	2
36	maple	2	4	30	red oak	3
39	maple	1	4	35	red oak	3
40	maple	1	4	34	swamp white o	1
47	maple	1	5	21	walnut	1
20	poplar	11	3	21	white oak	1
21	poplar	7	3	37	white oak	1
22	poplar	11	3	25	white oak	2
23	poplar	8	3	24	white oak	2
24	poplar	6	3	30	white oak	2
25	poplar	8	3	40	white oak	2
26	poplar	7	3	32	white oak	3
27	poplar	1	3	26	white oak	4
28	poplar	6	3	40	willow oak	1
29	poplar	5	3	33	willow oak	1
30	poplar	7	3	20	willow oak	1
31	poplar	5	4	50	willow oak	1
32	poplar	2	4	38	willow oak	1
33	poplar	7	4	34	willow oak	2
34	poplar	1	4			
35	poplar	2	4			
36	poplar	1	4			
37	poplar	2	4			
38	poplar	1	4			
43	poplar	1	5			
45	poplar	1	5			
20	red oak	1	3			
22	red oak	2	3			
24	red oak	1	3			
25	red oak	1	3			
27	red oak	1	3			
28	red oak	1	3			
31	red oak	1	4			
32	red oak	1	4			
33	red oak	1	4			
35	red oak	1	4			
36	red oak	1	4			
37	red oak	1	4			
38	red oak	2	4			
44	red oak	1	5			
20	river birch	2	3			
21	river birch	2	3			
22	river birch	1	3			

DECIDUOUS CANOPY			
PRESERVED			
SIZE	SPECIES	QTY:	CREDIT:
26	river birch	2	3
33	river birch	1	4
34	river birch	1	4
40	river birch	1	4
27	swamp oak	1	3
25	swamp white	1	3
32	swamp white	1	4
20	sycamore	1	3
21	sycamore	2	3
22	sycamore	1	3
23	sycamore	1	3
26	sycamore	1	3
28	sycamore	1	3
29	sycamore	1	3
30	sycamore	1	3
32	sycamore	1	4
33	sycamore	1	4
34	sycamore	1	4
20	walnut	1	3
20	white oak	1	3
21	white oak	1	3
22	white oak	2	3
24	white oak	2	3
27	white oak	1	3
28	white oak	2	3
32	white oak	1	4
24	willow oak	3	3
30	willow oak	1	3
31	willow oak	1	4
33	willow oak	1	4
35	willow oak	1	4
42	willow oak	1	5
52	willow oak	1	5
21	wilow oak	1	3
23	wilow oak	1	3
25	wilow oak	1	3
26	wilow oak	1	3

UNDERSTORY						
PRESERVED				REMOVED		
SIZE	SPECIES	QTY:	CREDIT	SIZE:	SPECIES	QTY:
16	cedar	1	2	9	cedar	1
30	cedar	1	2	25	cedar	1
27	cedar	1	2	12	cedar	1
29	cedar	1	2	30	cedar	1
26	cedar	1	2	8	cedar	2
21	cedar	1	2	17	cedar	2
22	cedar	2	2	21	cedar	3
23	cedar	2	2	24	cedar	3
13	cedar	2	2	28	cedar	3
20	cedar	3	2	23	cedar	3
15	cedar	4	2	20	cedar	4
14	cedar	4	2	11	cedar	4
17	cedar	4	2	18	cedar	4
18	cedar	6	2	13	cedar	5
8	cedar	6	2	14	cedar	5
9	cedar	6	2	19	cedar	5
12	cedar	7	2	22	cedar	6
10	cedar	8	2	16	cedar	6
11	cedar	8	2	10	cedar	6
13	cherry	1	2	15	cedar	7
8	cherry	2	2	8	cherry	1
10	cypress	1	2	27	cherry	1
9	cypress	1	2	26	cherry	2
10	dogwood	1	2	19	cypress	1
8	dogwood	3	2	12	dogwood	1
10	holly	1	2	9	dogwood	1
12	holly	1	2	11	dogwood	1
21	leyland cyp	1	2	10	dogwood	1
12	redbud	1	2	14	holly	1
8	black willov	4	2	13	leyland cypress	1
9	black willov	1	2	38	leyland cypress	1
11	black willov	1	2	16	leyland cypress	1
13	black willov	2	2	21	leyland cypress	1
				24	leyland cypress	2
				19	leyland cypress	2
				17	leyland cypress	2
				12	leyland cypress	3
				15	leyland cypress	3
				8	leyland cypress	4
				10	leyland cypress	4
				11	leyland cypress	4
				18	leyland cypress	5
				14	leyland cypress	5
				20	magnolia	1
				24	magnolia	1
				26	magnolia	1

EVERGREEN CANOPY						
PRESERVED				REMOVED		
SIZE	SPECIES	QTY:	CREDIT:	SIZE:	SPECIES	QTY:
10	pine	1	3	40	pine	1
20	pine	33	3	38	pine	1
21	pine	30	3	34	pine	1
22	pine	40	3	35	pine	2
23	pine	35	3	31	pine	2
24	pine	36	3	36	pine	2
25	pine	31	3	33	pine	3
26	pine	32	3	32	pine	3
27	pine	35	3	29	pine	5
28	pine	24	3	26	pine	6
29	pine	24	3	30	pine	7
30	pine	25	3	27	pine	9
31	pine	1	4	28	pine	10
32	pine	9	4	22	pine	11
33	pine	5	4	23	pine	11
34	pine	3	4	20	pine	15
35	pine	4	4	21	pine	16
36	pine	1	4	25	pine	16
37	pine	1	4	24	pine	17
38	pine	1	4			
39	pine	1	4			
42	pine	1	5			

TREE PRESERVATION AND REPLACEMENT SUMMARY

SEE TABLE AT LEFT FOR INDIVIDUAL TREES AND SPECIES INFORMATION

CANOPY TREES

DECIDUOUS TREES

186 DECIDUOUS TREES REMOVED = 744 REPLACEMENT TREES
551 DECIDUOUS TREES PRESERVED = 1738 CREDITS

EVERGREEN TREES

123 EVERGREEN TREES REMOVED = 492 REPLACEMENT TREES
373 EVERGREEN TREES PRESERVED = 1147 CREDITS

CANOPY TREE TOTAL:

REPLACEMENT TREES REQUIRED: 1236
CANOPY TREES PRESERVED = 2885 CREDITS
REPLACEMENT TREES REQUIRED: 1236**

** REFORESTATION AREAS TO COUNT TOWARD REPLACEMENT TREES. SEE SHEET L5.11 FOR DETAILS.

UNDERSTORY TREES

123 UNDERSTORY TREES REMOVED = 492 REPLACEMENT TREES
89 UNDERSTORY TREE PRESERVED = 178 CREDITS
REPLACEMENT TREES REQUIRED: 492***

*** UNDERSTORY REPLANTING AREAS TO COUNT TOWARD REPLACEMENT TREES. SEE SHEET L5.11 FOR DETAIL.

NOTES:
1) PER CODE SECTION 8.4.3.D WHEN A SPECIMEN TREE IS REMOVED IT SHALL BE REPLACED WITH AN AMOUNT OF TREES AND/OR LANDSCAPING OF EQUAL VALUE. PROPOSED REPLACEMENT AT A RATE OF 4 TREES PER SPECIMEN TREE.

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JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-LS1
CHECKED BY	MPT
DRAWN BY	SM
SCALE	N/A
DATE	08. 25. 2023

SHEET

LANDSCAPE NOTES

L5.12

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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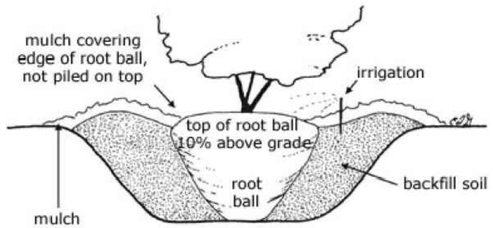
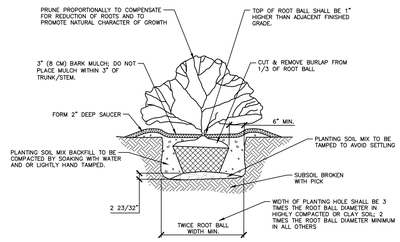
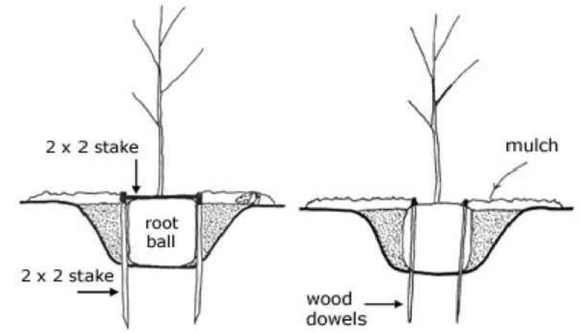


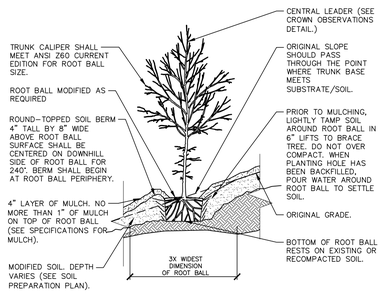
01 TREE INSTALLATION (TOWN OF WAKE FOREST TYP. DETAIL)
SCALE: NTS



02 SHRUB INSTALLATION
SCALE: 3/8"=1'-0"

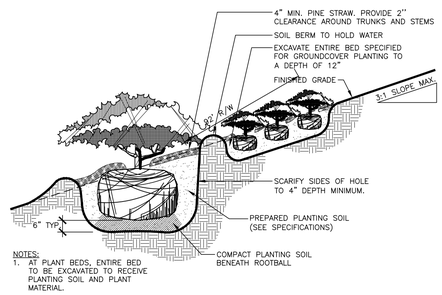


03 PREFERRED TREE STAKING METHODS (TOWN OF WAKE FOREST TYP. DETAIL)
SCALE: NTS



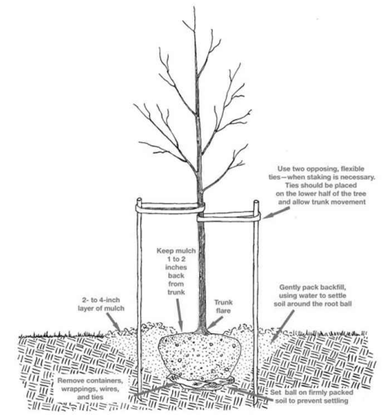
NOTES:
1. TREES SHALL BE OF QUALITY PRESCRIBED IN CROWN OBSERVATIONS AND ROOT OBSERVATIONS DETAILS AND SPECIFICATIONS.
2. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

04 TREE ON SLOPE 5% (20:1) TO 50% (2:1) - MODIFIED SOIL
SCALE: N.T.S.



NOTES:
1. AT PLANT BEDS, ENTIRE BED TO BE EXCAVATED TO RECEIVE PLANTING SOIL AND PLANT MATERIAL.

05 SHRUB PLANTING ON SLOPE
SCALE: 3/4"=1'-0"



06 ALTERNATE TREE STAKING METHOD (TOWN OF WAKE FOREST TYP. DETAIL)
SCALE: NTS

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CHECKED BY	MPT
DRAWN BY	SM
SCALE	N/A
DATE	08. 25. 2023

SHEET

LANDSCAPE DETAILS

L5.13

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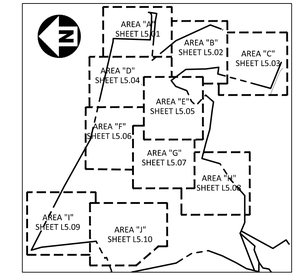

INDEX MAP
1"=1000'

LEGEND

- LD — LD — LIMITS OF DISTURBANCE
- 250 PROPOSED CONTOUR
- WETLAND
- TREE SAVE
- TREE TO BE REMOVED
- TREE TO REMAIN

NOTES:

1. REFER TO SHEET C2.00 FOR ADJACENT PROPERTY LEGEND AND OWNER INFORMATION.

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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CHECKED BY	SRD
DRAWN BY	CTM
SCALE	1"=200'
DATE	08. 25. 2023

SHEET

SPECIMEN TREE MAP

L5.14

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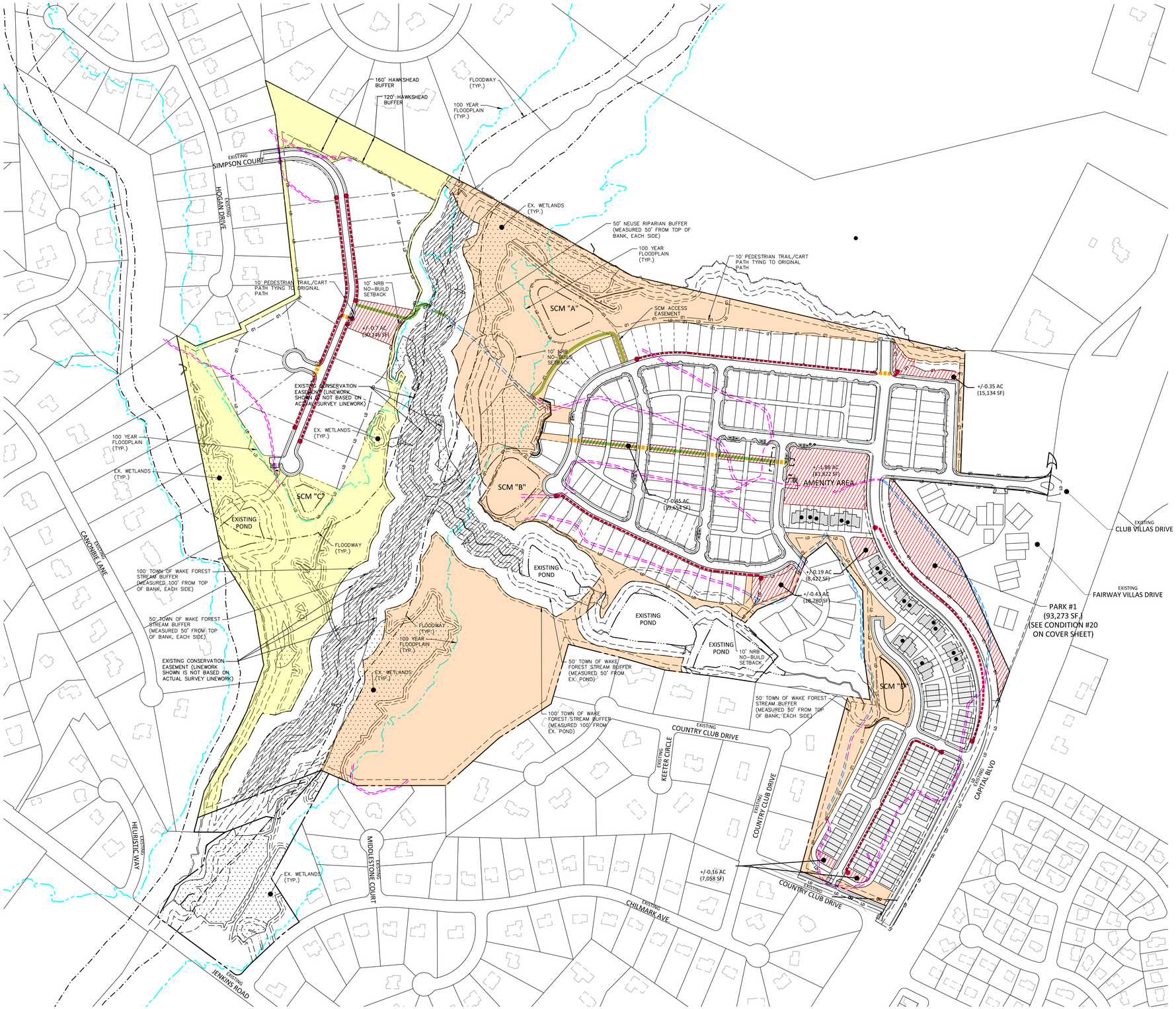

LEGEND

SYMBOL	DESCRIPTION	APPROXIMATE LAND AREA
	OPEN SPACE AREA WEST OF STREAM BUFFER USED TOWARD TOWN OPEN SPACE REQUIREMENT	+/-17.38 AC (756,992 SF)
	OPEN SPACE AREA EAST OF STREAM BUFFER USED TOWARD TOWN OPEN SPACE REQUIREMENT	+/-37.13 AC (1,617,223 SF)
	NEIGHBORHOOD PARK SPACE WEST OF CREEK EAST OF CREEK	 +/-5.85 AC (275,886 SF) +/-0.70 AC (30,146 SF) +/-5.15 AC (245,740 SF)
	EXISTING CART PATH	
	TO BE REMOVED	+/-6,563 LF
	TO REMAIN	+/-3,262 LF
	EXISTING CONSERVATION EASEMENT (FOR REFERENCE ONLY; CONSERVATION EASEMENT AREA INCLUDED AS PART OF THE OPEN SPACE CALCULATIONS OF SUP UNDER SEPARATE COVER)	+/-10.35 AC (450,842 SF)

SITE LEGEND

- SIGNAGE
- TRAFFIC DIRECTIONAL ARROW
- VAN — VAN ACCESSIBLE PARKING STALL
- ACCESSIBLE RAMPS
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- 100 YEAR FLOOD PLAIN
- PEDESTRIAN TRAIL/SIDEWALK (DEMONSTRATING FURTHEST DISTANCES FROM RECREATION SPACE)
- CROSSWALK
- PEDESTRIAN ASPHALT TRAILS

OPEN SPACE CALCULATIONS

OPEN SPACE (UNIMPROVED)	REQUIRED	5,430,882 SF x 10% = 543,088 SF	
	PROPOSED	2,188,322 SF (40.29%)	
OPEN SPACE W/IN:	TREE SAVE		1,004,444 SF (45.9%)
	REFORESTATION		63,901 SF (2.92%)
	CONSERVATION ESMTS		0 SF (EXCLUDED)
OPEN SPACE OUTSIDE OF FLOOD HAZARD, WATERCOURSES, AND WATERSHED BUFFERS	REQUIRED	2,188,322 SF x 25% = 54,708 SF	
	PROPOSED	1,119,977 SF (51.18%)	
PARK SPACE	REQUIRED	5,430,882 SF x 2.5% = 135,772 SF	
	PROPOSED	275,886 SF (5.0%)	
	ACTIVE REQUIRED		68,971 SF (25% PARK SPACE)
	ACTIVE PROPOSED		82,881 SF (30.04%)
PARK SPACE OUTSIDE OF PONDS, LAKES, WETLANDS, AND POWER EASEMENTS	REQUIRED	275,886 SF x 50% = 91,306 SF	
	PROPOSED	275,886 SF (100%)	

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

MCADAMS
The John R. McAdams Company, Inc.
2905 Meridian Parkway
Durham, NC 27713

phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

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CLIENT

DRY TIMBER LLC
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

GREEN TIMBER FOUNDATION
394 FLEMING ROAD
YOUNGSVILLE, NC 27596-9698

CONTACT:
JAMES ADAMS
jmas@millridgeco.com
PHONE: 919. 556. 5418

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO. DATE

PLAN INFORMATION

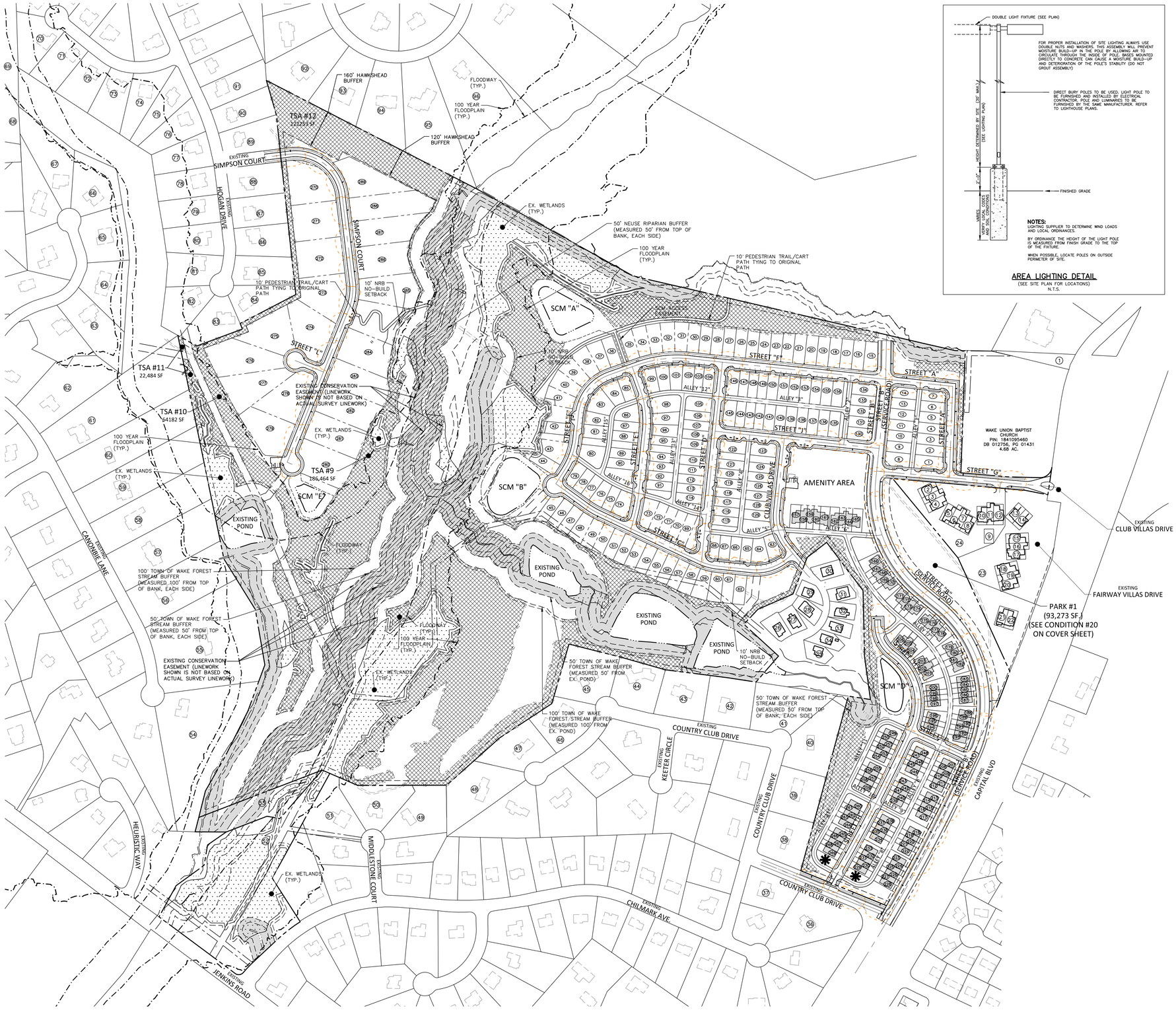
PROJECT NO.	2021110197
FILENAME	2021110197-OS1
CHECKED BY	SRD
DRAWN BY	CTM
SCALE	1"=200'
DATE	08. 25. 2023

SHEET

OVERALL OPEN SPACE PLAN

L6.00

M:\Projects\TCL\2021110197\04-Production\Engineering\Master Plan - Pricing Set\Current Drawings\2021110197-OS1.dwg, 8/31/2023 5:08:47 PM, Strong Ma



AREA LIGHTING DETAIL
(SEE SITE PLAN FOR LOCATIONS)
N.T.S.

THIS PROJECT WILL MEET THE FOLLOWING LIGHTING STANDARDS AT THE TIME OF CONSTRUCTION PLANS. IN ADDITION, LIGHT POLES WILL BE LOCATED SO AS TO AVOID ANY CONFLICTS WITH EASEMENTS, RETAINING WALLS OR TREES.

OUTDOOR LIGHTING

THE LIGHTING STANDARDS FOR THIS SITE PLAN WILL MEET ALL THE REQUIREMENTS AS LISTED BELOW.

PURPOSE

THE PURPOSE OF THESE STANDARDS IS TO ASSURE THAT ADEQUATE EXTERIOR LIGHTING IS PROVIDED FOR NONRESIDENTIAL AND MULTI-FAMILY DEVELOPMENTS TO FACILITATE CRIME PREVENTION, SECURITY, AND SAFE PASSAGE, AND THAT EXTERIOR LIGHTS BE SHIELDED SO THAT THE LIGHT CAST BEYOND THE PROPERTY LINE DOES NOT EXCEED THE LIMITS IN ACCORDANCE WITH THESE STANDARDS.

APPLICABILITY

A. ADEQUATE LIGHTING SHALL BE PROVIDED IN NONRESIDENTIAL AND MULTIFAMILY DEVELOPMENTS CONFORMING TO PROFESSIONAL ENGINEERING STANDARDS.

B. THE FOLLOWING SHALL BE EXEMPT FROM THESE PROVISIONS:

1. OUTDOOR LIGHTS USED FOR A TEMPORARY EVENT; PERMITTED THROUGH A TEMPORARY USE PERMIT.

2. OUTDOOR LIGHTS USED EXCLUSIVELY FOR RECREATIONAL ACTIVITIES, CONCERTS, PLAYS OR OTHER OUTDOOR EVENTS THAT ARE OPEN TO THE PUBLIC, PROVIDED THAT THE LIGHT FIXTURES ARE LOCATED AT LEAST 100 FEET FROM ANY ADJACENT RESIDENTIAL USE AND THE EVENT OR FUNCTION MEETS ALL OTHER APPLICABLE ZONING REQUIREMENTS. SUCH LIGHTING SHALL NOT BE ILLUMINATED BETWEEN THE HOURS OF 12:00AM AND 8 A.M. AND BETWEEN 1:00 A.M. AND 8 A.M. FRIDAY AND SATURDAY EXCEPT IN THE UC DISTRICT AND THE DOWNTOWN TIER.

3. OUTDOOR LIGHTING EXEMPTED PURSUANT TO 1 AND 2 ABOVE SHALL ONLY BE ILLUMINATED WHILE THE ACTIVITY TAKES PLACE AND DURING HIGH TRAFFIC PERIODS IMMEDIATELY BEFORE AND AFTER THE EVENT.

STANDARDS

A. ALL SITE LIGHTING SHALL BE DESIGNED SO THAT THE LEVEL OF ILLUMINATION AS MEASURED IN FOOT-CANDLES (FC) AT ANY ONE POINT MEETS THE STANDARDS IN THE TABLE BELOW WITH MINIMUM AND MAXIMUM LEVELS MEASURED ON THE PAVEMENT WITHIN THE LIGHTED AREA.

TYPE OF LIGHTING	LIGHT LEVEL (FOOT-CANDLES) MIN.	MAX
ARCHITECTURAL LIGHTING, LANDSCAPE OR DECORATIVE LIGHTING, WALKWAYS EXCEPT FOR THOSE LISTED BELOW	0.0	5.0
CANOPY AREA LIGHTING	2.0	24.0
PEDESTRIAN PASSAGES AND MALLS (ARTICLE 16)	1.0	15.0
MULTIFAMILY PARKING LOT	0.5	8.0
NONRESIDENTIAL AND MULTIFAMILY ENTRANCES	1.0	15.0
NONRESIDENTIAL PARKING LOT	0.5	10.0
ON-SITE WALKWAYS BETWEEN BUILDING ENTRANCES, BETWEEN PARKING & A BUILDING ENTRANCE, OR SERVING TO MEET SIDEWALK REQUIREMENTS PER SEC. 12.4, PEDESTRIAN AND BICYCLE MOBILITY	0.2	5.0
STORAGE AREA (SECURITY LIGHTING)	0.5	10.0
VEHICLE SALES AND DISPLAY	0.5	24.0

B. THE MAXIMUM ILLUMINATION PERMITTED AT THE EDGE OF A PROPERTY LINE SHALL BE AS SET FORTH BELOW. WHERE A DEVELOPMENT IS UNIFIED WITH SHARED PARKING OR OTHER MEASURES SHOWN ON A SITE PLAN, THE MAXIMUM ILLUMINATION LEVELS SHALL APPLY ONLY TO THE EXTERIOR LOT LINES OF THE PROJECT (ANY INTERIOR LOT LINES SHALL BE EXEMPT FROM THIS PARAGRAPH).

1. THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO A RESIDENTIAL ZONING DISTRICT SHALL BE 0.5 FOOT-CANDLES.

2. THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO NONRESIDENTIAL ZONING DISTRICT SHALL BE 5.0 FOOT-CANDLES.

3. THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO A STREET SHALL BE 5.0 FOOT-CANDLES.

C. FULL-CUTOFF LIGHTING
THE MAXIMUM HEIGHT FOR DIRECTIONAL OR FULL CUT-OFF LIGHTING FIXTURES (FIXTURES DESIGNED TO ENSURE THAT NO LIGHT IS EMITTED ABOVE A HORIZONTAL LINE PARALLEL TO THE GROUND) SHALL BE 30 FEET ABOVE GRADE.

D. NON-DIRECTIONAL LIGHTING
THE MAXIMUM HEIGHT FOR NON-DIRECTIONAL LIGHTING FIXTURES (FIXTURES DESIGNED TO ALLOW LIGHT TO BE EMITTED ABOVE A HORIZONTAL LINE PARALLEL TO THE GROUND) SHALL BE 15 FEET ABOVE GRADE. NON-DIRECTIONAL LIGHTING FIXTURES SHALL BE TRANSLUCENT OR HAVE BAFFLES TO PREVENT VIEWS OF THE LIGHT SOURCE.

E. CANOPY LIGHTING
UNDER CANOPY LIGHTING SHALL BE RESTRICTED TO LIGHTING FIXTURES (INCLUDING LENSES) THAT DO NOT PROJECT BELOW THE BOTTOM OF THE CANOPY.

F. GLARE
LIGHTING SHALL BE ORIENTED NOT TO DIRECT GLARE OR EXCESSIVE ILLUMINATION ONTO STREETS IN A MANNER THAT MAY DISTRACT OR INTERFERE WITH THE VISION OF DRIVERS ON SUCH STREETS.

G. ACCENT LIGHTING
LIGHTING FIXTURES USED TO ACCENT ARCHITECTURAL FEATURES, LANDSCAPING OR ART SHALL BE LOCATED, AIMED OR SHIELDED TO MINIMIZE LIGHT SPILL INTO THE NIGHT SKY.

H. BLINKING OR FLASHING LIGHTS
BLINKING OR FLASHING LIGHTS SHALL BE PROHIBITED UNLESS THE LIGHTS ARE REQUIRED AS A SAFETY FEATURE (E.G. BEACONS ON TOWERS) OR PERMITTED AS PART OF A SIGN IN ACCORDANCE WITH ARTICLE 11, SIGN STANDARDS.

I. NON-CONFORMITIES
LIGHTING FIXTURES EXISTING AS OF JUNE 12, 2000 MAY REMAIN, AND SHALL BE CONSIDERED NONCONFORMING STRUCTURES. MODIFICATIONS, REPLACEMENT OR EXPANSIONS, SHALL CONFORM WITH THE STANDARDS OF THIS ORDINANCE.

STREET LIGHT

GRAPHIC SCALE
0 100 200 400
1 inch = 200 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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CONTACT:
JAMES ADAMS
jmas@millridgeco.com
PHONE: 919. 556. 5418

JOYNER PROPERTY
MASTER SITE PLAN
CLUB VILLAS DRIVE
WAKE FOREST, NORTH CAROLINA

REVISIONS

NO.	DATE	
1	04. 06. 2022	RESPONSE TO TOWN COMMENTS
2	07. 07. 2022	RESPONSE TO TOWN COMMENTS
3	09. 29. 2022	RESPONSE TO TOWN COMMENTS
4	06. 27. 2023	RESPONSE TO TOWN COMMENTS

PLAN INFORMATION

PROJECT NO.	2021110197
FILENAME	2021110197-LI1
CHECKED BY	.
DRAWN BY	.
SCALE	1"=200'
DATE	08. 19. 2021

SHEET

LIGHTING PERFORMANCE PLAN

L7.00

M:\Projects\TOA\2021110197\04-Production\Engineering\Master Plan - Pricing Set\Current Drawings\2021110197-LI1.dwg, 6/27/2023 5:09:45 PM, Scong.Ma

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-225-
Submitted by: Aileen J. Staples
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Public Hearing to receive public comment on the Installment Financing (160A-20) of Street Resurfacing project

Recommendation:

Item Summary:

ATTACHMENTS
- Public Hearing Street Rehab financing_summary.pdf
- Draft Timetable_Streets IPA.pdf

Public Hearing to receive public comment on the financing of Street Resurfacing project

An installment purchase agreement as authorized by N.C. General Statute 160A-20 will be obtained to finance the street rehabilitation and resurfacing project. Formal approval from the Local Government Commission is required and we are on their schedule for consideration at the December 5, 2023, meeting.

TOWN OF WAKE FOREST
STREET RESURFACING
FINANCING (160A-20) TIMETABLE

Preliminary Conference with LGC	August 11, 2023 (Friday)
*Adoption of Resolution Authorizing Application	September 19, 2023 (Tuesday) (Prior to filing application)
File notification with Joint Legislative Committee	September 30, 2023 (Friday)
Publish Notice of Public Hearing (Ten days prior)	October 5, 2023 (Thursday)
Public Hearing on Financing	October 17, 2023 (Tuesday)
Proposals due from Financial Institutions	November 1, 2023 (Wednesday)
File formal application with LGC	November 7, 2023 (Tuesday)
Approval of Resolution Authorizing 160A Installment Purchase Contract with Financial Institution ***(if needed)***	November 21, 2023 (Tuesday)
Application considered by the LGC	December 5, 2023 (Tuesday)
Close loan/receive installment proceeds (Between December 15 and December 29)	December 2023

*This resolution also authorizes staff to "take other such actions as may be advisable in connection with the proposed financing agreement."

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-226-
Submitted by: Aileen J. Staples
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Public Hearing to receive public input on capital needs for inclusion in the five-year Capital Improvements Plan (CIP) update for FY 2024-2029

Recommendation:

Item Summary:

ATTACHMENTS
- First CIP Public Hearing FY 2024-2029_summary.pdf
- CIP Schedule 2024 (Tentative).docx

Public Hearing to receive public input on capital needs for inclusion in the five-year Capital Improvements Plan (CIP) update for FY 2024-2029

Preparations are underway to update the annual Capital Improvements Plan. The hearing is to receive comments for capital needs over the next five years beginning with FY 2024 and ending with FY 2029. This is the first of two public hearings. The second public hearing to receive comments on the proposed update will be held in February 2024 before adoption. The CIP is the first step in the Town's annual budgeting process. CIP update schedule attached.

CAPITAL IMPROVEMENTS PLAN UPDATE SCHEDULE
For fiscal years 2024 thru 2029

1)	Materials and instructions distributed to Department Directors	September 8, 2023
2)	Public Hearing on Capital Needs	October 17, 2023
3)	Completed CIP Requests submitted (via Teams) to Budget and Performance Analyst	October 20, 2023
4)	Meetings with Department Directors/Project Managers (As needed)	October -November
5)	Present CIP Update to Town Board	January 2, 2024
6)	Public Hearing on CIP Document	January 16, 2024
7)	Work Session on CIP with Town Board	February 6, 2024
8)	Adoption of Updated CIP	February 20, 2024 (Board Meeting)

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-245-
Submitted by: Candace Davis
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Public Hearing on Fire Impact Fee Update

Recommendation:

Item Summary:

ATTACHMENTS

- Agenda Item Summary_Fire Impact Fee Update 2023_PublicHearing.docx
- Resolution 2023-xx_Fire_Impact_Fees.docx
- Wake Forest Fire SDF 2023 Update Report 20230825.pdf
- Wake Forest 9-5-23 Presentation FINAL.pdf

Agenda Item: Public Hearing on Fire Impact Fee Update

Summary: At the September 5th Work Session, the Board of Commissioners received a presenta?on from a consultant team consis?ng of NC Fire Chief Consul?ng and Ra?elis. The consultants presented the 2023 Fire Protec?on Impact Fee recommended fees. The Planning Board received the fire impact fee analysis report and PowerPoint presenta?on in their September 12th agenda packet as informa?on. Staff's recommenda?on is to approve the fire impact fee recommenda?ons as presented by the consultants and requests the Board call a public hearing at the October 17th mee?ng in accordance with NC General Statutes (G.S. 160A-364).

The a?ached resolu?on amends the resolu?on and fee structure previously adopted with an effec?ve date of January 1, 2024.

A?achments: Resolu?on

RESOLUTION 2023-xx

RESOLUTION APPROVING UPDATED FIRE SERVICE PROTECTION IMPACT (FACILITY) FEES

WHEREAS, the current fee structure in place was updated and adopted in 2017 and the Board of Commissioners decided to evaluate and update respective fees more frequently to be consistent and in line with the town's growth, and

WHEREAS, in FY 2022-2023, the Board approved funds to update the Fire Protection Impact Fees. The Town partnered with NC Fire Chief Consulting and Raftelis to gather information, conduct the study, and complete the update, and

WHEREAS, the staff received the final report that was presented to the Board of Commissioners on September 5, 2023, and

WHEREAS, the recommended fees were presented to the Planning Board on September 12, 2023 and a public hearing was held on October 17, 2023, and

WHEREAS, fees are payable at the time of building permit issuance. Any land dedication and respective credits will be coordinated directly with the Planning Department accordingly, and

NOW, THEREFORE, BE IT RESOLVED the Board of Commissioners of the Town of Wake Forest authorizes the approval of the new Fire Protection Impact Fees effective January 1, 2024.

Recommended Fire Protection Fees per:	2017	2023	% Change
Single Family Residential Unit	$ 337	$ 780	131.2%
Multi Family Residential Unit	$ 253	$ 681	169.2%
1,000 square feet of Commercial and Institutional	$ 569	$ 1,015	78.5%
1,000 square feet of Industrial and Manufacturing	$ 197	$ 762	287.0%

Duly adopted this 17th of October 2023.

_____

Vivian A. Jones
Mayor

(ATTEST)

_____

Theresa Savary
Town Clerk

RAFTELIS

August 25, 2023

Ms. Candace Davis
Assistant Town Manager
Town of Wake Forest
401 Elm Avenue
Wake Forest, NC 27587

Subject: Fire System Development Fee Study Update

Dear Ms. Davis:

Raftelis Financial Consultants, Inc. ("Raftelis") has completed an evaluation to develop cost-justified fire system development fees for fiscal year ("FY") 2024 for consideration by the Town of Wake Forest ("Town"). The purpose of this report is to summarize Raftelis' conclusion related to the cost justified fire system development fees to be charged to the Town of Wake Forest and Wakette Rural District residents and businesses who receive fire protection services through the Town. It is not intended to address anything else associated with the system development fees, such as the administration of these fees, etc.

The preparation of this report was developed by Raftelis for the Town based on a specific scope of work agreed to by both parties. The scope of Raftelis' work consisted of completing a calculation of cost justified fire system development fees using common industry practices and industry standards. We provide no opinion on the legality of the system development fees implemented by the Town. It is the responsibility of the Town to ensure compliance of the system development fees with North Carolina statutes. The scope of work did not include any additional work other than the calculation associated with the system development fees, such as opinions or recommendations on the administration of these fees, the timing and application of revenues from the collection of these fees, etc., as that is the responsibility of the Town.

In developing the conclusions contained within this report, Raftelis has relied on certain assumptions and information provided by the Town and its consultant, NC Fire Chief Consulting, who are the most knowledgeable parties of the fire system, its finances, etc. Raftelis has not independently verified the accuracy of the information provided by the Town. We believe such sources are reliable and the information obtained to be reasonable and appropriate for the analysis undertaken and the conclusions reached. The conclusions contained in this report are as of the stated date, for a specific use and purpose, and made under specific assumptions and limiting conditions. The reader is cautioned and reminded that the conclusions presented in this report apply only to the effective date indicated. Raftelis makes no warranty, expressed or implied, with respect to the opinions and conclusions contained in this report. Any statement in this report involving estimates or matters of opinion, whether or not specifically designated, is intended as such, and not as a representation of fact.

Background

System development fees are one-time charges assessed to new growth for the benefit that the new growth derives from the fire system. They serve as an equitable method by which to recover up-front system costs of expansion required to serve new developed properties that will receive benefit from the system expansion. Industry practice indicates that system development fees should be prepared by a financial professional or licensed professional engineer, qualified by experience and training or education, who shall:

- Document in reasonable detail the facts and data used in the analysis and their sufficiency and reliability.
- Employ generally accepted accounting, engineering, and planning methodologies, including the buy-in, incremental cost or marginal cost, and combined cost approaches, setting forth appropriate analysis to the consideration and selection of an approach appropriate to the circumstances and adapted as necessary to satisfy all requirements of the Article.
- Document and demonstrate the reliable application of the methodologies to the facts and data, including all reasoning, analysis, and interim calculations underlying each identifiable component of the system development fee and the aggregate thereof.
- Identify all assumptions and limiting conditions affecting the analysis and demonstrate that they do not materially undermine the reliability of conclusions reached.
- Calculate a final system development fee per service unit of new development and include an equivalency or conversion table for use in determining the fees applicable for various categories of demand.
- Consider a planning horizon of not less than five years, nor more than 20 years.

This letter report documents the results of the calculation of fire system development fees for FY 2024 in accordance with these requirements. In general, system development fees are calculated based on (1) a cost analysis of the existing or planned infrastructure that is in place, or will be constructed, to serve new demands, and (2) the existing or additional demands associated with these assets.

There are three methodologies that could be used to calculate system development fees. These include the buy-in method, the incremental cost method, and the combined cost method. The Incremental method was used to calculate the fire system development fees for the Town, following the same methodology as the previous fee study, and was used due to the Town needing to construct a new fire station to serve the demands of growth. The following steps were completed to calculate the fees:

1. The Fire Department related capital improvement projects ("CIP") were reviewed with Town staff, and the growth related projects were identified. The CIP was allocated to residential and non-residential classes based on the percentage split of population to employment.
2. The additional population and employment growth was developed using Town planning documentation to project current level of population and employment 10 years out.

3. The unit cost of was estimated by dividing the growth related CIP from step 1 by the additional population and employees from step 2.
4. The amount of capacity assumed to be demanded by one person/employee was identified.
5. The system development fee for one person or employee was scaled up for the single-family residential home, and for various categories of commercial development as described below.

Calculation of System Development Fees

Step 1 – Estimate the Growth Related CIP

The Wake Forest Fire Department ("Department") currently provides fire protection services within its Town limits with a current population of approximately 54,274 and an employment base of approximately 21,024. In addition, the Department also serves the rural Wakette Fire District and its current population of approximately 11,511. Thus, the entire fire protection service area served by the Town of Wake Forest has a total population and employment base served of approximately 65,785 and 21,024, respectively.

The Town has developed a fire protection capital improvements plan to address deficiencies in its existing levels of service, and to provide a consistent level of service to anticipated increases in population and employment over the next ten years (FY 2023 through FY 2033). Those capital costs required to address deficiencies in the existing levels of service, or replacement of existing capacity, are not eligible to be recovered through the fire protection system development fees. As a result, our analysis includes only those capital facilities and equipment required to address the needs of growth throughout the ten-year planning period and specifically excludes capital projects intended to cure existing deficiencies or to replace existing capacity.

The growth related CIP was identified as the fire logistics facility, and the new Station 6. The table below summarizes the growth related CIP utilized to calculate the updated system development fees.

Table 1. Growth Related CIP

CIP	Total Projections
Fire Logistics Facility	$1,200,000
Station 6[1]	$10,450,000
Total	**$11,650,000**

These growth related capital costs are then allocated to residential and non-residential development based on the share of facilities and services demanded by each type of development. The demand for services is estimated based on projection of growth in population over the ten-year projection period, and the proportion of that growth in population to growth in employees located within the Town's fire protection service area.

[1] The Station 6 CIP projections allocated to the fire system development fees do not include land cost.

The Town provided population and employment information for 2023, as well as population estimates from planning documents for 2033. The table below summarizes the current and projected population levels, as well as current and projected employee level. The employees were projected to increase based on the same assumptions of population projection. Based on 2023 demographic data and anticipated growth rates provided by the Town, in 2023 the 2033 residential population is estimated to be 85,851, while the employment is estimated to be 27,437 within the Departments fire protection service area.

Table 2. Population and Employment Projections

Category	2023	2033	Projected Growth (2023-2033)
Population[2]	65,785	85,851	20,066
Employment	21,024	27,437	6,413

The 2033 population and employment numbers were utilized to determine a residential/non-residential allocation of the planned capital. Based upon the Projected Growth from 2022 – 2023 in the above chart , this results in a 75.8% (20,066/(20,006+6,413)) residential development allocation and a 24.2% non-residential development allocation for the growth related capital costs. As a result, of the $11.650 million capital cost identified above, 75,8%, or approximately $8.8 million is allocated to residential service and 24.2%, or approximately $2.8 million is allocated to commercial and industrial service.

Step 2 – Calculate the Unit Cost

The residential capital costs are then divided by the additional population anticipated in the Town's fire protection service area during the ten-year planning period to determine a capital cost of approximately $440 per person ($11.65 million/20,066 growth in population). The non-residential capital costs are divided by the additional employees anticipated in the Town's fire protection service area over the ten-year planning period to determine a capital cost of approximately $411 per employee ($8.8 million/6,413 growth in employees). Since the Town does not plan to finance any of the capital improvements through bonds, a debt principal credit is not required to be offset against the system development fees in order to ensure that new development is not charged twice for these capital costs through property taxes and the system development fees.

Step 4 – Calculate the System Development Fee for One ERU

Once the net cost per person and employee is determined, the residential cost per person is allocated to new single family residential development based on a "service unit" that represents the average number of persons per household in the Town's fire protection service area of 1.77. For multi-family residential customers, the residential cost per person is allocated based on a "service unit" that represents the average number of persons (1.55) estimated per multi-family dwelling unit. This average is based on data provided

[2] Population includes 54,274 current 2023 Town of Wake Forest population, and 11,511 current Wakette Rural Service Area population.

by the Town for total population and housing units, and an assumption of 100 hours spent at home out of the total 168 hours per week.

For non-residential development, the non-residential cost per employee is allocated based on a service unit that represents the average number of employees per 1,000 square feet of non-residential development categorized as either Commercial & Institutional (2.31 employees) or Industrial & Manufacturing (1.73 employees). These averages are based on square foot data provided by the Town.

Table 2 provides a summary of the recommended fire protection system development fee to be assessed to all new residential and non-residential development.

Table 3. Calculation of Fire System Development Fees

Description	Unit of Service	Current Fee	100% Calculated Fee
Residential			
Single-Family	1.77 ppl per household	$337	$780
Multi-Family	1.55 ppl per household	$253	$681
Non-Residential			
Commercial & Institutional	2.31 employees per 1,000 sq. ft.	$569	$1,015
Industrial & Manufacturing	1.73 employees per 1,000 sq. ft.	$197	$762

The fire system development fees shown in Table 2 represent the maximum cost justified level of system development fees that can be assessed by the Town. If the Town chooses to assess fees that are less than those shown in the table, the fees should be adjusted across the board for both residential and non-residential development.

Also, the Town can develop an implementation plan to implement the new development fees over two (2) or more years. It is our recommendation that if the Town desires to implement these fees over time that the implementation period be no longer than three (3) years. The implementation plan must implement the same percentage of the total cost fees each year for the residential and non-residential fees.

We appreciate the opportunity to assist the Town with this important engagement. Should you have questions, please do not hesitate to contact Michael Burton at (904) 923-1466, or Mihaela Coopersmith at (843) 523-0357.

Very truly yours,

RAFTELIS FINANCIAL CONSULTANTS, INC.

Michael Burton
Executive Vice President

Mihaela Coopersmith
Manager

RAFTELIS

TOWN of WAKE FOREST

TOWN of
WAKE FOREST

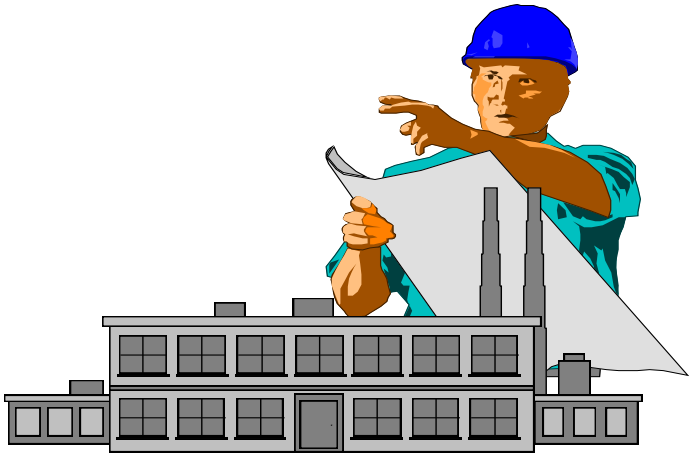
Fire Protection Impact Fee Update

SEPTEMBER 5, 2023

What Are Impact Fees?

What are Development Impact Fees?

Enabled by North Carolina state legislation, these are one-time capital charges assessed to new development or new customers to recover a proportional share of the costs of capital facilities required to provide service to the new customers.



Objective: "Intergenerational Equity"

Relative Dynamic Changes Occurring in Fire and Rescue Services Post COVID

1. Cost of building construction (including fire station construction) has risen significantly.

2. Cost as well as accessibility to fire apparatus and major equipment and tools has increased.

3. The Town of Wake Forest decided in 2016 to update fire impact fee every 3 to 5 years. Department transition occurred in 2020. Significant growth has occurred over the last several years.

Fire Impact Fee Uses – Growth

1. Wake Forest Fire Station 4 - 1505 Jenkins Road – 2015-2017
2. Expansion of Fire Station 2 – 9925 Ligon Mill Road – 2021-2022
3. Funding designated towards future Fire Station 6 - Planned
4. Purchase of a Fire Engine and Ladder truck – Engine 4/Future

Timeline – Fire Protection Impact Fees

- 1989 – Town received local legislation to enact facility (impact fees) - Chapter 502 – SB 576.
- 2006 – Town retained Raftelis to conduct initial evaluation and development of impact fee.
- 2007 – 2008 Implemented and started collecting fire impact fees.
- 2015-2016 – Town retained Raftelis to update fee structure.
- 2020 – Wake Forest Fire Department becomes part of town's municipal structure.
- 2023 – Town retained NC Fire Chiefs to assist with impact fee update.

Partnering with Raftelis

Importance in the Knowledge of the Town of Wake Forest and Wakette Fire District:

- NCFCC has worked closely with the Town of Wake Forest since 2018.
  - Coordinated and facilitated transition of fire department to town operating department.

Partnering with Raftelis

- NCFCC partnered with **Raftelis:**
  - Conducted initial analysis in 2006.
  - Updated in 2015.
  - Highly specialized work involved in development impact fee review.
  - Same methodology applied for **consistency** in conducting update.

- **Ms. Mihaela Coopersmith** from Raftelis will review the technical provisions of the analysis.

RAFTELIS

Rational Nexus Test

- Basis for Cost Justification
  - Must demonstrate a linkage between the service needs of new customers and additional facilities and equipment needed to meet those needs.
  - Must demonstrate a linkage between the level of fees and benefits received by new development.
  - Must not exceed the proportional share of costs for the additional facilities and equipment.

Methodology

Methodology for Calculating Fire Protection Impact Fees:

1. Define the service area and standard of service.
2. Define capital needs to address service requirements.
3. Allocate costs between current and future beneficiaries.
4. Allocate costs between residential and non-residential (employment) base.
5. Calculate cost justified level of fees.

Service Area And Projected Growth

Wake Forest Fire Protection Service Area		
	Current 2023	Projected Growth (2024-2033) [2]
Population [1]	65,785	20,066
Employees	21,024	6,413
Square Footage		
Commercial and Institutional	7,724,695	2,356,236
Manufacturing and Industrial	1,848,567	563,862
Ten Year CIP (2024-2033)	**Total**	**Growth Related**
Capital Improvement Plan	15,436,000	11,650,000

(1) Population includes Town of Wake Forest and Wakette Fire District.
(2) Growth Rate for both Population and Employment 2024-2033 is 31%.

Calculation of Cost per Person

Assumptions

- 75.8% of growth driven by residential demand
  - Equates to $8.82 million of CIP for residential growth
- 24.2% of growth driven by non-residential demand
  - Equates to $2.82 million of CIP for commercial/industrial growth

Calculation

- $8.82 million / 20,066 new residents = $440 / resident
- $2.82 million / 6,413 new employees = $440 / employee

Addresses proportionality concerns related to development impact fees.

Residential Fee Based On Functional Population Units

Schedule 1: Functional/Population Unit Analysis
(Persons per Housing Unit)

Housing Type	Population[1]	Housing Unit[1]	Average Household Size	Occupancy Factor [2]	Functional Population Unit
Town of Wake Forest					
Single Family	38,772	13,129	2.95	60%	**1.77**
Multi Family	12,626	4,895	2.58	60%	**1.55**
Group Home	660	660	1.00	60%	**0.60**
Total	**52,058**	**18,684**			

(1) Population and Housing data obtained from 2022 Estimated Population By Type of Dwelling Unit (Town of Wake Forest Corporate Limits)

(2) Occupancy Factor assumes 100 hours spent at home out of a 168 hour week

Residential Fire Protection Fee

<u>Calculation</u>

- Single Family Residence
  - $440 per resident * 1.77 = $780 per unit

- Multi-Family Residence
  - $440 per resident * 1.55 = $681 per unit

Non-Residential Fee

Assumptions

- 2.31 Commercial and Institutional employees per 1,000 square feet.
- 1.73 Industrial and Manufacturing employees per 1,000 square feet.

Source: Town of Wake Forest NAICS employment by use and square footage by use data used to calculate these factors.

Non-Residential Fee

Schedule 2: Employees per 1,000 Square Feet Calculation - Town of Wake Forest

Square Footage		
Type of Use	**Total Square Feet in 2023**	**Forecast Increase in Square Feet 2024 to 2033 (1)**
Commercial and Institutional	7,724,695	2,356,236
Manufacturing and Industrial	1,848,567	563,862

Employees		
Forecast Incremental Employees Added from 2023 to 2033 (2)		6,413
Breakdown of Employees by Industry	**Percent (2)**	**Employees**
Commercial and Institutional	84.8%	5,436
Manufacturing and Industrial	15.2%	976

Employees per 1,000 Square Feet	
Type of Use	**Employees per 1,000 Square Feet**
Commercial and Institutional	**2.307**
Manufacturing and Industrial	**1.732**

(1) Assumes same growth rate of 31% utilized to project residents and employees.

(2) Percentages based on Town of Wake Forest 2021 NAICS industry sector data

Non-Residential Fee

Calculation

- Commercial & Institutional
  - $440 per employee * 2.31 employees per 1,000 square feet = $1,015 per 1,000 square feet.

- Industrial & Manufacturing
  - $440per employee * 1.73 employees per 1,000 square feet = $762 per 1,000 square feet.

Summary and Comparison To Prior Fire Protection Fees

Recommended Fire Protection Fees per:	2017	2023	% Change
Single Family Residential Unit	$ 337	$ 780	131.2%
Multi Family Residential Unit	$ 253	$ 681	169.2%
1,000 square feet of Commercial and Institutional	$ 569	$ 1,015	78.5%
1,000 square feet of Industrial and Manufacturing	$ 197	$ 762	287.0%

Next Steps

- Local legislation requires public hearing and giving the town planning board reasonable opportunity to make comments or recommendations to Board of Commissioners.

- September 12 – Planning Board
- September 19 – Public Hearing and Approval
  - » January 1, 2024 Effective Date

QUESTIONS and DISCUSSION?

THANK YOU !

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-199-
Submitted by: Emma Linn
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Public hearing on a petition requesting annexation submitted by Douglas and Sarah Machado for property associated with the rezoning request RZ-23-03, located at 2117 Averette Road being Wake County PIN 1851-90-8235 being approximately 2.822 acres.

Recommendation:

Item Summary:

ATTACHMENTS
- 101723 BOC Agenda Summary AN-23-03.pdf
- Attachment A Legal Description AN-23-03.pdf
- Attachment B Annexation Map AN-23-03.pdf
- Attachment C Contiguous Annexation Petition AN-23-03.pdf
- DRAFT ORDINANCE AN-23-03.docx

Agenda Item: Public hearing on a petition requesting annexation submitted by Douglas and Sarah Machado for property associated with the rezoning request RZ-23-03, located at 2117 Averette Road being Wake County PIN 1851-90-8235 being approximately 2.822 acres.

Summary: The property proposed for annexation is contiguous to the corporate limits of the Town of Wake Forest. The proposed annexation is associated with rezoning case RZ-23-03.

On September 19th, 2023, the Board accepted the petition, certified the sufficiency of the annexation petition, and adopted the resolution to investigate the annexation petition thus, setting the public hearing date for the annexation petition.

Attachments: Attachment A Legal Description AN-23-03
Attachment B Annexation Map AN-23-03
Attachment C Contiguous Annexation Petition AN-23-03
Draft Ordinance

SCALICE
land surveying

2117 Averette Road

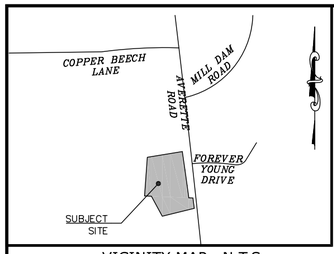
Schedule A

All that tract or parcel of land situate in the Township of Wake Forest, County of Wake, and State of North Carolina, bounded and described as follows:

Beginning at a 5/8" rebar set in the westerly right of way of Averette Road (60' Wide) having North Carolina State Plane NAD 83 (Epoch 2011) grid coordinates of North 810,054.27 and East 2,160,017.92 (us ft);

1) thence South 76°31'17" West for a distance of 215.43 feet to an ½" iron pipe found;
2) thence North 27°59'07" West for a distance of 168.96 feet to an ½" iron pipe found;
3) thence North 87°13'36" West for a distance of 51.62 feet to a ½" iron pipe found;
4) thence North 04°28'45" East for a distance of 288.63 feet to an angle iron found;
5) thence North 81°04'02" East for a distance of 263.64 feet to an ½" iron pipe found;
6) thence along the westerly right-of-way of Averette Road, South 07°48'48" East for a distance of 138.87 feet to a point;
7) thence continuing along the westerly right-of-way of Averette Road, South 07°38'10" East for a distance of 116.33 feet to a point;
8) thence continuing along the westerly right-of-way of Averette Road, South 07°41'12" East for a distance of 92.61 feet to a 5/8" rebar set;
9) thence continuing along the westerly right-of-way of Averette Road, South 07°05'18" East for a distance of 86.18 feet to the point and place of beginning,

said parcel having an area of 122,928 square feet, 2.822 acres, more or less



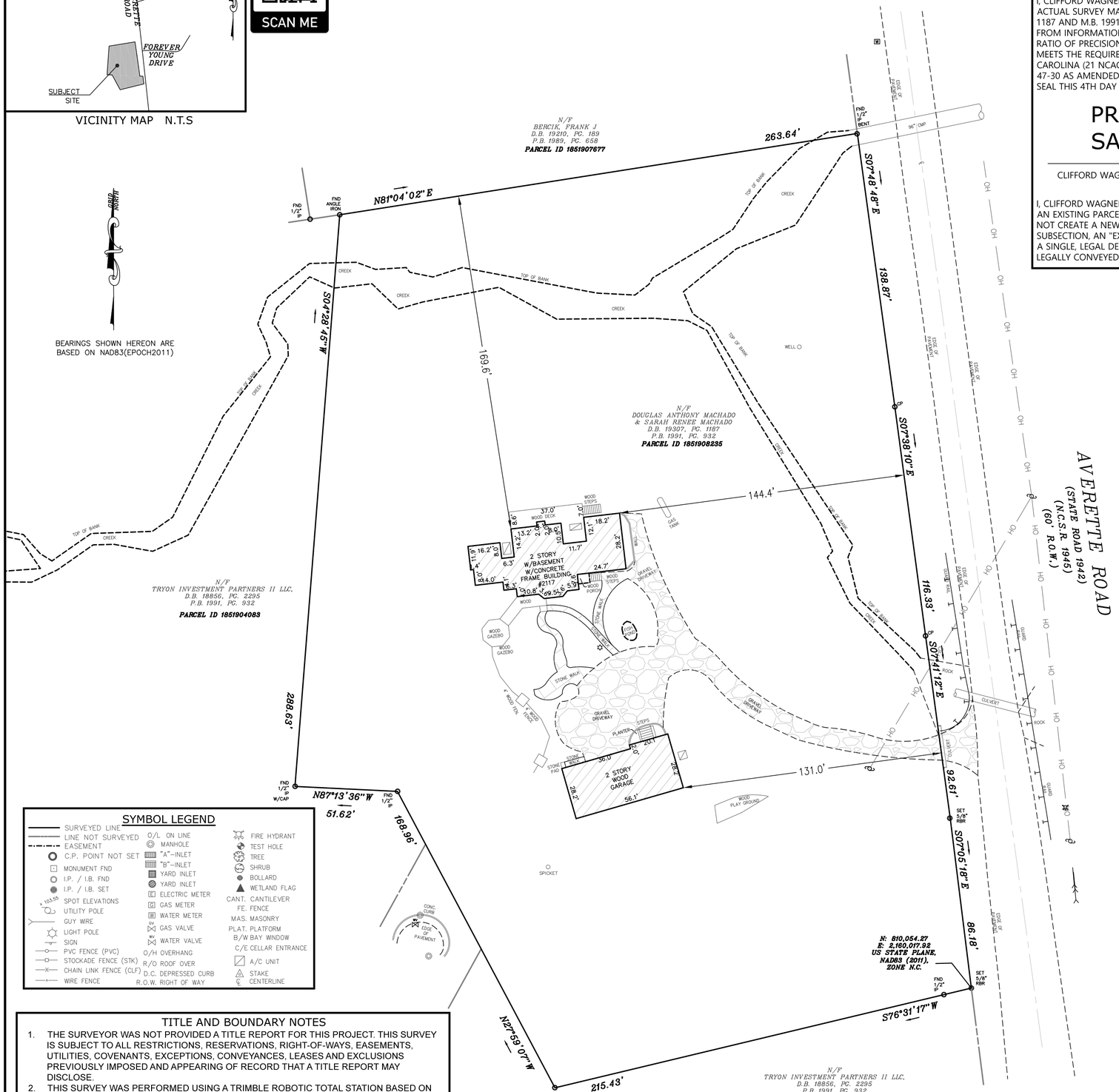
VICINITY MAP N.T.S

SCAN ME

NOTE:

REZONING CASE NUMBER RZ-23-05

BEARINGS SHOWN HEREON ARE BASED ON NAD83(EPOCH2011)



SURVEYORS CERTIFICATE

I, CLIFFORD WAGNER, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN D.B. 19307, PG 1187 AND M.B. 1991, PG. 932); THAT THE BOUNDARIES NOT SURVEYED ARE INDICATED AS DRAWN FROM INFORMATION DERIVED FROM RECORD SOURCES REFLECTED ON THIS MAP; AND THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY IS REFLECTED HEREON; AND THAT THIS MAP MEETS THE REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.1600), AND THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED, WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND OFFICIAL SEAL THIS 4TH DAY OF APRIL, 2023.

PRELIMINARY -NOT FOR SALES OR CONVEYANCE

CLIFFORD WAGNER L-4241 DATE

I, CLIFFORD WAGNER, BY SIGNATURE ABOVE, ALSO HEREBY CERTIFY THAT THAT THE SURVEY IS OF AN EXISTING PARCEL OR PARCELS OF LAND OR ONE OR MORE EXISTING EASEMENTS AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET. FOR THE PURPOSES OF THIS SUBSECTION, AN "EXISTING PARCEL" OR "EXISTING EASEMENT" IS AN AREA OF LAND DESCRIBED IN A SINGLE, LEGAL DESCRIPTION OR LEGALLY RECORDED SUBDIVISION THAT HAS BEEN OR MAY BE LEGALLY CONVEYED TO A NEW OWNER BY DEED IN ITS EXISTING CONFIGURATION. GS-74-30 (11)c1

FIRM LICENSE NO. C-4482

ANNEXATION MAP: 2117 AVERETTE RD ANNEXATION
ANNEXATION CASE NUMBER: AN-23-03
2.82± ACRES
TOWN OF WAKE FOREST
FULFILLS REQUIREMENTS OF N.C.G.S. 160A-29
ORDINANCE #_____
ADOPTED:_____
EFFECTIVE DATE OF ANNEXATION:

TOWN CLERK

I, THERESA SAVARY, TOWN CLERK, TOWN OF WAKE FOREST, NORTH CAROLINA CERTIFY THAT THIS IS A TRUE AND ACCURATE MAP OF ANNEXATION ADOPTED THE _____ DAY OF _____, 20___, BY THE WAKE FOREST BOARD OF COMMISSIONERS. I SET MY HAND AND SEAL OF THE TOWN OF WAKE FOREST,

_____, 20_____

_____
THERESA SAVARY

LOT AREA
122,928 S.F.
2.822 AC.

SYMBOL LEGEND

SURVEYED LINE
LINE NOT SURVEYED
EASEMENT
C.P. POINT NOT SET
MONUMENT FND
I.P. / I.B. FND
I.P. / I.B. SET
SPOT ELEVATIONS
UTILITY POLE
GUY WIRE
LIGHT POLE
SIGN
PVC FENCE (PVC)
STOCKADE FENCE (STK)
CHAIN LINK FENCE (CLF)
WIRE FENCE
O/L ON LINE
MANHOLE
"A"-INLET
"B"-INLET
YARD INLET
YARD INLET
ELECTRIC METER
GAS METER
WATER METER
GAS VALVE
WATER VALVE
O/H OVERHANG
R/O ROOF OVER
D.C. DEPRESSED CURB
R.O.W. RIGHT OF WAY
FIRE HYDRANT
TEST HOLE
TREE
SHRUB
BOLLARD
WETLAND FLAG
CANT. CANTILEVER
FE. FENCE
MAS. MASONRY
PLAT. PLATFORM
B/W BAY WINDOW
C/E CELLAR ENTRANCE
A/C UNIT
STAKE
CENTERLINE

TITLE AND BOUNDARY NOTES

1. THE SURVEYOR WAS NOT PROVIDED A TITLE REPORT FOR THIS PROJECT. THIS SURVEY IS SUBJECT TO ALL RESTRICTIONS, RESERVATIONS, RIGHT-OF-WAYS, EASEMENTS, UTILITIES, COVENANTS, EXCEPTIONS, CONVEYANCES, LEASES AND EXCLUSIONS PREVIOUSLY IMPOSED AND APPEARING OF RECORD THAT A TITLE REPORT MAY DISCLOSE.
2. THIS SURVEY WAS PERFORMED USING A TRIMBLE ROBOTIC TOTAL STATION BASED ON CONTROL ESTABLISHED USING A TRIMBLE R10 GPS UNIT UTILIZING THE NORTH CAROLINA GNSS CORS REAL TIME NETWORK WITH A RELATIVE PRECISION OF .04' AT THE 95% CONFIDENCE LEVEL.
3. DISTANCES SHOWN HEREON ARE GROUND DISTANCES UNLESS OTHERWISE NOTED AS GRID.
4. COMBINED FACTOR = 0.99994112033260
5. GEOID MODEL IS CONUS GEOID18
6. CLASS A SURVEY

REV	DATE	DESCRIPTION	BY	CHK
5	07/26/2023	REVISED SURVEY	JWC	CW
4	07/24/2023	REVISED SURVEY	JWC	CW
3	07/07/2023	REVISED SURVEY	JWC	CW
2	04/25/2023	REVISED SURVEY	JWC	CW
1	04/24/2023	REVISED SURVEY	JTS	CW

SCALICE land surveying
mjslandsurvey.com P:984-240-7999
266 W. Millbrook Road, Raleigh, NC 27609

PARCEL ID
1851908235

JOB No. 23-0959
DATE SURVEYED: 04/21/2023
SCALE: 1" = 40'
DR.: G.S. CREW.: T.N.

OWNER: DOUGLAS ANTHONY MACHADO & SARAH RENEE MACHADO

ANNEXATION MAP

2117 AVERETTE ROAD
WAKE FOREST, NC 27587
OF LANDS
SHOWN ON
MAP NO 1991 PAGE 932
SITUATE
WAKE FOREST TOWNSHIP
WAKE COUNTY, NORTH CAROLINA

SHEET 1 / 1

(1) UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF LAW. (2) ONLY BOUNDARY SURVEY MAPS WITH THE SURVEYOR'S SEAL & SIGNATURE ARE GENUINE TRUE AND CORRECT COPIES OF THE SURVEYOR'S ORIGINAL WORK AND OPINION. (3) CERTIFICATIONS ON THIS BOUNDARY SURVEY MAP SIGNIFY THAT THE MAP WAS PREPARED IN ACCORDANCE WITH THE CURRENT STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.1600) UNLESS OTHERWISE NOTED. (4) CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS. (5) THE PROPERTY LINES ARE FOR A SPECIFIC PURPOSE AND USE AND THEREFORE ARE NOT INTENDED TO GUIDE THE ERECTION OF FENCES, RETAINING WALLS, POOLS, PATIOS PLANTING AREAS, ADDITIONS TO BUILDINGS, AND ANY OTHER TYPE OF CONSTRUCTION. (6) THE EXISTENCE OF RIGHTS OF WAY AND/OR EASEMENTS OF RECORD IF ANY, NOT SHOWN ARE NOT GUARANTEED. (7) IF THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT, THE EXISTENCE OF ANY COVENANTS, RESTRICTIONS, EASEMENTS AND/OR RIGHTS OF WAY OF RECORD, IF ANY, MAY NOT BE SHOWN OR ADDRESSED AND ARE NOT GUARANTEED.

TOWN *of*
WAKE FOREST

Planning Department
Wake Forest Town Hall – 3rd Floor
301 S. Brooks Street
Wake Forest, NC 27587
t 919.435.9510
f 919.435.9539
www.wakeforestnc.gov

CONTIGUOUS ANNEXATION PETITION APPLICATION

(Last updated: July 2013)

Submittal Date: 4/24/23

To the Board of Commissioners of the Town of Wake Forest:

I/we the undersigned owner(s) of real property respectfully request that the area described in the paragraph below and as shown in the attached survey map of the property be annexed into the Town of Wake Forest.

The area to be annexed is contiguous to the Town of Wake Forest corporate limits and the boundaries of such territory are as follows *(attach or insert below a metes & bounds description with a matching survey map)*:

Attached

Note: If ownership is a corporation or partnership, please provide such name and the name and signature of the person authorized to sign on behalf of the corporation or partnership. If in joint ownership, please provide names and signatures of ALL owners.

Name	Address	Signature	Date
Sarah Machado	217 Averette Rd		4/24/23
Doug Machado	217 Averette Rd		4/24/23

For additional information or assistance, please call the Planning Department at (919) 435-9510.

ORDINANCE 2023-XXX

ORDINANCE OF THE BOARD OF COMMISSIONERS OF THE TOWN OF WAKE FOREST, NORTH CAROLINA

(Contiguous annexation submitted by Douglas and Sarah Machado for property associated with the rezoning request RZ-23-03, located at 2117 Averette Road being Wake County PIN 1851-90-8235 being approximately 2.822 acres.)

WHEREAS, the Board of Commissioners has adopted a resolution under N.C.G.S. 160A-31, as amended, stating its intent to annex the area described below; and

WHEREAS, the Board of Commissioners has by said resolution directed the Town Clerk to investigate the sufficiency of said petition; and

WHEREAS, the Town Clerk has certified the sufficiency of said petition and a public hearing on the question of this annexation was held at the Town of Wake Forest Town Hall at 6:00 p.m. on October 17, 2023, after due notice by publication on September 26, 2023; and

WHEREAS, the Board of Commissioners does hereby find as a fact that said petition meets the requirements of N.C.G.S. 160A-31, as amended; and

NOW, THEREFORE, BE IT ORDAINED by the Board of Commissioners of the Town of Wake Forest, North Carolina:

Section 1. By virtue of the authority granted by N.C.G.S. 160A-58.2, as amended, the following described territory is hereby annexed and made part of the Town of Wake Forest as of the 17th day of October, 2023.

(See Attachment A – Legal Description and Attachment B - Annexation Map)

Section 2. Upon and after the 17th day of October, 2023, the territory and its citizens and property shall be subject to all debts, laws, ordinances, and regulations in force in the Town of Wake Forest and shall be entitled to the same privileges and benefits as other parts of the Town of Wake Forest. Said territory shall be subject to municipal taxes according to N.C.G.S. 160A-58.10.

Section 3. The Mayor and the Town of Wake Forest shall cause to be recorded in the office of the Register of Deeds of Wake County, and in the office of the Secretary of State at Raleigh, North Carolina, an accurate map of the annexed territory, described in Section 1 hereof, together with a duly certified copy of this ordinance.

Adopted and effective this 17th day of October 2023.

_____
Vivian A. Jones
Mayor

ATTEST:

_____
Theresa Savary
Town Clerk

APPROVED AS TO FORM:

_____
Hassan Kingsberry
Town Attorney

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-252-
Submitted by: Monica Sarna
Submitting Department: Engineering
Meeting Date: October 17, 2023

SUBJECT
Town Approval of the UNRBA Consensus Principles

Recommendation:
Board approval to support the final draft of the UNRBA's Concepts and Principles Document (C&P Doc) and the draft Consensus Principles II (CPII)

Item Summary:

ATTACHMENTS

- Summary.docx
- Attachment A_CP II Resolution.docx
- Attachment B_ConsensusPrinciples II_20230920_Board approved.pdf
- Attachment C_2023_09_20 Final UNRBA Concepts and Principles for Reexamination.pdf

ITEM TITLE: Town Approval of the UNRBA Consensus Principles

ITEM SUMMARY: Upper Neuse River Basin Association (UNRBA) is seeking board approval on the final draft of the UNRBA's Concepts and Principles Document (C&P Doc) and the draft Consensus Principles II (CPII). Since the Town is a member of the UNRBA, our approval is an important part of the UNRBA's submittal to the State.

ATTACHMENTS: Attachment_A_CPII Resolution

Attachment B_ConsensusPrinciples II_20230920_Board approved

Attachment C_2023_09_20 Final UNRBA Concepts and Principles for Reexamination

SPECIFIC ACTION REQUESTED: Recommend approval.

RESOLUTION 2023-XX

WAKE FOREST RESOLUTION ENDORSING THE UPPER NEUSE RIVER BASIN ASSOCIATION ("UNRBA") CONSENSUS PRINCIPLES II FOR REVISED FALLS LAKE RULES

WHEREAS, the North Carolina Environmental Management Commission ("EMC") adopted the Falls Lake Rules ("Rules"), and the N.C. Rules Review Commission approved the Rules at its December 16, 2010, meeting, with an effective date of January 15, 2011;

WHEREAS, the jurisdictions of the Falls Lake watershed developed an original set of consensus principles in February 2010 to guide the development of the current Rules;

WHEREAS, the Rules (15A NCAC 02B .0275 (5)(f)) allow for the reexamination of the existing Rules using a Division of Water Resources ("DWR")-approved evaluation process, and for the results of the reexamination to be presented to DWR and the EMC;

WHEREAS, the UNRBA has followed the Rules' reexamination process, secured required approvals of the process by DWR, and invested in a 10-year, $10 million study of Falls Lake and its watershed, to establish an updated and comprehensive scientific basis for revisions to the Rules;

WHEREAS, on September 20, 2023, the UNRBA Board of Directors approved revised consensus principles ("Consensus Principles II", *see* Attachment B) for the readoption of the Rules;

WHEREAS, the UNRBA member local government jurisdictions desire to endorse the Falls Lake Consensus Principles II for the readoption of the Rules;

NOW, THEREFORE, BE IT RESOLVED, that the Town of Wake Forest endorses Consensus Principles II as adopted by the UNRBA Board of Directors, and recommends that the North Carolina Department of Environmental Quality and the EMC use these consensus principles as guidelines in developing the revised rules for Falls Lake.

Duly adopted this 17th day of October 2023.

_____

Vivian A. Jones
Mayor

(ATTEST)

_____

Theresa Savary
Town Clerk

UPPER NEUSE RIVER BASIN ASSOCIATION (UNRBA) CONSENSUS PRINCIPLES II TO GUIDE REVISIONS TO THE FALLS LAKE RULES
Approval by the UNRBA Board of Directors September 20, 2023

These Consensus Principles are based on scientific conclusions resulting from a 10-year evaluation of Falls Lake and its watershed by the UNRBA, NC Collaboratory, and other organizations. The information now available cannot be fully described in this set of Consensus Principles but is described in more detail in a companion document titled "Concepts and Principles for the UNRBA Recommendations for a Revised Falls Lake Nutrient Management Strategy" available online at https://unrba.org/reexamination.

The UNRBA is committed to a cooperative and collaborative process to reach agreement on revised Falls Lake Rules (also referred to as the revised Falls Lake Nutrient Management Strategy). The Association appreciates our positive relationship with the NC Department of Environmental Quality and its Division of Water Resources (DEQ-DWR). The UNRBA will work diligently to maintain this relationship through the development and the adoption of a revised set of Falls Lake Rules. We have had the opportunity to interact and report to the NC Environmental Management Commission (EMC) on initiatives of the UNRBA. We plan to continue this communication through the readoption and implementation of the Falls Lake Rules. These Consensus Principles, and supporting information, will be provided to DEQ-DWR, the EMC, and the NC General Assembly as required by State law.

1. Revised rules are needed to promote effective action and sustainable investment by local governments, utilities, and other partners to meet the goals of maintaining, protecting, and improving water quality in Falls Lake into the future. The UNRBA recognizes the importance of this lake as a water supply source, an ecological and recreational resource, and a flood control reservoir.
2. NC DEQ-DWR and the EMC should move forward promptly with the revisions to the Falls Lake rules, taking into consideration these Consensus Principles.
3. The revised rules should embrace a systems approach focusing on solutions that consider interactions among surface water, land surfaces, groundwater, soils, and atmospheric and climatological drivers. This watershed-health approach should consider environmental benefits, costs, and impacts to users of the water resource and those asked to pay the costs of the regulations. The revised rules should improve water quality throughout the watershed, and not prioritize activities solely based on the reduction of nutrients to Falls Lake.
4. The revised rules should include adaptive management. Implementation of the rules should be reviewed every 5 years, with a report to address new information, conditions, or concerns that have developed during the previous 5 years. The UNRBA proposes that the adaptive management provision also include a detailed reevaluation of the rules completed 25 years after the date the revised rules are enacted. A detailed reevaluation should incorporate additional monitoring data collected by DWR and other organizations, data analysis, modeling evaluations, and consideration of technological advancements for improving water quality. The 25-year review should include a reexamination of the rules, so that changes may be proposed and put forward for consideration.
5. The revised rules for managed lands should be an investment-based, joint-compliance approach. Managed lands include residential, commercial, institutional (schools, hospitals, other state and federal facilities, etc.), agricultural (cropland and pasture), road rights of way, recreational (parks), etc.
6. The revised rules should not require nutrient load reductions from natural or unmanaged

areas including forests, land in forest succession, scrubland, non-pasture grassland, and isolated or connected wetlands. Nutrient loads from these areas should not be directly or indirectly assigned to other source categories.

7. The revised rules should promote land conservation and preservation of natural or unmanaged areas as an investment credit.
8. The revised rules should include a provision for a watershed organization to promote voluntary coordination of an investment-based, joint-compliance approach.
9. The revised rules should maintain the annual loading limits specified in the current new development rule, provide a more flexible evaluation-of-need for stormwater nutrient control for individual residential lots or for the subdivision of large family parcels for the purposes of passing land to heirs for building their homes, allow local governments to consider more innovative approaches to stormwater management, and include joint consultation among watershed organization members to assess and document consistent application of new development requirements.
10. Major and minor wastewater treatment plant owners should continue to optimize treatment performance using currently installed technologies. Review of plant performance should be included as a provision of the 25-year review. Plant and collection system owners should continue to track emerging technologies that may become technically and financially feasible in the future for further improvements to plant operations and biosolids handling; and identify and eliminate exfiltration from sewer lines and sanitary sewer overflows.
11. The revised rules should incorporate requirements for new wastewater treatment facility requests or expansion requests including provisions for technology upgrades, joint-compliance permits (e.g., the Lower Neuse Compliance Association's permit), nutrient offsets, and/or nutrient credit trading using practices on managed lands.
12. Investment credits should continue to be available for inspecting, identifying, and repairing or replacing malfunctioning onsite wastewater treatment systems and, as appropriate, for connecting onsite systems to sewer systems.
13. Separate, State-required nutrient management requirements should not be applied to managed lands in separate areas of the watershed (draining to an upstream watershed impoundment, arms of Falls Lake, etc.). However, water quality in all areas of the watershed should be tracked, particularly sub-watersheds with water-supply impoundments. The adaptive management provisions of the revised rules should address changing conditions in these waterbodies and allow for revisions to the program to address concerns as they arise.
14. The revised rules should expand the types of projects that qualify for investment credit, include the option of developing new credit types, and provide opportunity for other voluntary partners. The revised rules should promote local government participation in other watershed improvement actions.
15. The revised rules should encourage local governments to base implementation decisions on the principles of the fair and equitable treatment of members, and the residents of the watershed. The revised rules should promote opportunities for equitable stakeholder participation by encouraging input and participation from the public and interest groups.
16. The chlorophyll-a standard and water quality 303(d) assessment methodology for Falls Lake should be adjusted to better represent conditions in Falls Lake. The UNRBA supports an adjusted 303(d) assessment methodology and site-specific chlorophyll-a standard for Falls Lake and will continue to cooperate and collaborate with DEQ-DWR, Environmental Protection Agency (EPA), and other stakeholders on these revisions. The UNRBA does not recommend delaying rule revisions while these objectives continue to be developed and evaluated. Readoption of the Falls Lake Rules remains the priority so ongoing implementation efforts in the watershed can proceed.

Concepts and Principles for the Upper Neuse River Basin Association (UNRBA) Recommendations for a Revised Falls Lake Nutrient Management Strategy

Prepared for
Upper Neuse River Basin Association

Approved by the Board of Directors
September 20, 2023

Project Number: 170061

421 N. Harrington Street, Suite 420
Raleigh, North Carolina 27603

Statement of Purpose:

This document frames the concepts and principles that have been identified by the Upper Neuse River Basin Association (UNRBA) members and watershed stakeholders as important in developing a revised Falls Lake Nutrient Management Strategy. This document supports the Consensus Principles II that will be submitted as part of the UNRBA's recommendations for a revised nutrient management strategy. This document includes the core concepts and principles that need to be evaluated during the readoption of the rules and addressed in the final version of the rules. This document was not developed to provide specific regulatory language or regulatory requirements.

Executive Summary

Background and Supporting Information

Falls Lake Reservoir was constructed and filled in the late 1970s/early 1980s. Several pre--impoundment evaluations of the reservoir predicted that it would be eutrophic (overly productive biologically) but still meet its designated uses (DNER 1973, NCDEM 1983, USACE 1974): drinking water supply, recreational use, aquatic life use, and flood control. Based on information provided in the US Army Corps of Engineers (USACE) 2013 Falls Lake Master Plan and the NC Division of Water Resources (DWR) 2021 Falls Lake Status Report, the designated uses of the reservoir are being met, and the reservoir provides:

- Flood control for downstream communities preventing over $600 million in cumulative flood damages from construction through 2012
- Water supply for over a half-million customers treating 41 million gallons per day
- A regional recreation resource including swimming, fishing, and boating
- Habitat to aquatic and terrestrial wildlife (no nutrient-related fish kills have been reported since the 1980s)

Falls Lake was listed on the 303(d) list of impaired waters for exceedances of the North Carolina (NC) chlorophyll-a criterion of 40 micrograms per liter (µg/L). Chlorophyll-a measures the green pigment in a water sample and is used as an indicator for algal growth. Monitoring by the Division of Water Resources (DWR) and other organizations show elevated chlorophyll-a levels at some locations and times of year in the lake, especially in shallow areas. However, these levels are lower than predicted, and they have not resulted in any demonstrated water quality conditions that impair designated uses.

In 2005, the NC General Assembly passed a bill requiring the NC Environmental Management Commission (EMC) to develop a Nutrient Management Strategy for Falls Lake. To support this effort, DWR used predictive modeling of the watershed and the reservoir to develop the Falls Lake Rules which set two stages of nutrient reduction requirements for the lake. The two stages of nutrient reductions are relative to a "baseline" year of 2006. Both the monitoring and modeling were developed on a compressed time schedule with limited data. As a result, there is significant uncertainty in the nutrient load reduction targets and the ability of the lake to meet the chlorophyll--a criterion regardless of the nutrient load reductions achieved.

Based on DWR's 2010 Fiscal Analysis of the Falls Lake Rules, the nutrient load reductions prescribed by the Rules were estimated to cost $604 million for Stage I and $946 million for Stage II. In addition, a review by Cardno ENTRIX (2013) concluded that the required load reductions were not technically, financially, or logistically feasible. For example, each square foot of existing development would have to be treated by at least two stormwater control measures (SCMs) to meet

the Stage II requirements. Retrofitting existing development given site constraints with even one SCM is often not possible.

Recognizing the uncertainty associated with model-based load reduction targets, Section 5(f) of the Falls Lake Rules included an adaptive management provision allowing for a re-examination of the Stage II requirements. The decade-long evaluation process by the UNRBA and the four-year study period funded by the NC Collaboratory have provided exceptional scientific information and knowledge about conditions in the lake and its watershed. Falls Lake is at risk of increasing eutrophication, but data and analyses indicate a relatively stable trophic condition. The lake currently meets its designated uses. Furthermore, nutrient reduction efforts in the watershed and changes in environmental conditions have resulted in significant reductions in nutrient loading to the lake since the baseline year of 2006. These conditions have not yet reflected significant and demonstrative reductions in chlorophyll-a in the lake. Due to the slow response of nutrient cycling in the lake and its sediments, the full implications of reduced loading over the last 17 years have not fully manifested. It is likely that these positive changes in the nutrient balance will be reflected over a much longer time given the large store of nutrients present in the lake sediments and the continued addition of nutrients from the watershed.

Other watersheds in the country face similar challenges. The Chesapeake Bay Program Scientific and Technical Advisory Committee (STAC) released a Comprehensive Evaluation of System Response in May 2023. Similar to the Falls Lake watershed, the report concludes that "current efforts to reduce nutrient loads will not meet the TMDL targets" and that "estuary water quality has been slow to respond to realized nutrient and sediment reductions in many regions of the Bay." This report focuses on an estuary that drains a much larger watershed with more opportunities for implementation given the relative amount of agricultural land and urban land in the watershed. Even with additional opportunities for implementation in the Chesapeake Bay watershed, the report concludes that "additional nutrient reductions will improve water quality, but water quality criteria may be unattainable in some regions of the Bay under existing technologies" and that "the legal requirements of the Clean Water Act (the water quality goal) divert attention away from considering multiple means of improving living resources (support of aquatic life as the designated use)."

As noted above, the current Falls Lake Nutrient Management Strategy is not technically, financially, or logistically feasible due to the unique characteristics of the watershed and the reservoir. A revised Nutrient Management Strategy for Falls Lake based on the science available and sound management principles is needed to protect this resource. While it is impossible to change the fundamental characteristics of this watershed and reservoir that make it eutrophic, a regulatory framework for nutrient management is essential for maintaining designated uses. The critical management objective for Falls Lake must be to mitigate impacts from existing activities in the watershed and to design and manage land use changes while continuing to maintain and improve water quality in Falls Lake. Without reasonable, balanced, and economically supportable actions, the risk of increased eutrophication, degradation of water quality, and adverse impacts to designated uses is a real possibility in the face of changing land use patterns and climatological conditions.

Key Findings from Information Gathering, Monitoring, and Modeling Studies

Before the comprehensive monitoring and modeling effort began, the UNRBA conducted an open and transparent planning process to ensure the requirements for a re-examination specified in the Falls Lake Rules were met. The state-approved monitoring and modeling quality assurance project plans (QAPPs) ensured the work of the UNRBA was conducted in a scientific and quality-assured manner. Since the monitoring effort started in 2014, the UNRBA has made considerable effort and investment to further the scientific understanding of the watershed and the lake. The UNRBA has

worked closely with researchers, third-party model reviewers, and DWR modeling staff to review and vet the watershed and lake models. Key findings from the UNRBA monitoring and modeling efforts are listed here and further described in the sections below as well as the UNRBA modeling reports:

- Efforts to reduce loading from the watershed since the baseline year of the Rules and DWR modeling (2006) have significantly reduced nutrient loading to Falls Lake.
  - Major wastewater treatment plants have reduced total nitrogen loads by 57 percent and total phosphorus loads by 73 percent (based on four-year average of loads discharged from 2015 to 2018).
  - Over 350 stormwater control measures and best management practices have been implemented to mitigate loading from existing development.
  - Requirements to limit nutrient export from development occurring since 2012 (i.e., new development) have been implemented by every local government in the watershed.
  - Atmospheric deposition of total nitrogen has decreased by approximately 20 percent since baseline.
  - Best management practices implemented on agriculture including nutrient management plans, livestock exclusion, and stream buffer restoration have reduced loading from this source. The acreage of agriculture has declined 44 percent since baseline due to economic and other pressures.
- 75 percent of the watershed is unmanaged, and opportunities for further nutrient reductions are limited.
- Precipitation is the key driver of increases in nutrient loading to the lake and an important driver of increase/decrease in lake residence time which is a controlling factor for algal growth.
- The watershed soils and lake sediments adsorb nutrients that can be released slowly over decades, extending the time that changes in the watershed will result in water quality changes in the lake.
- Reductions to the nutrients applied or deposited in the watershed do not have an equivalent reduction in delivered loading to Falls Lake. Only 20 percent of the loads applied to the watershed reach the lake, so reducing a pound applied or released will only result in approximately 0.2 pounds reduction to the lake.
- Levels of algae indicated by chlorophyll-a are not well correlated to nutrient loading. The hydrology, morphology, retention time, depth, and characteristics of the different areas of the lake are just as important as nutrient loading.
- Nutrient concentrations in Falls Lake are relatively low. Chlorophyll-a can reach high concentrations even when nutrient concentrations remain low.
- Falls Lake is meeting its designated uses:
  - Algal toxin levels are below U.S. Environmental Protection Agency (EPA) guidelines for drinking water and recreation (DWR 2021).Nutrient-related fish kills have not occurred in nearly 40 years since the lake was filled (NCDEQ annual fish kill reports).
  - Recreation is not limited by water quality (USACE 2013).
  - The City of Raleigh provides safe drinking water to over 500,000 customers and indicates that Falls Lake is an excellent source of raw water (DWR 2021)
  - In 2023, the American Water Works Association ranked the City of Raleigh 3rd in its international “"Best of the Best" Water Taste Test”

- Forested areas are important to the ecological health of the watershed and should be protected. Natural areas, including forests, cycle nutrients and provide important nutrients to waters that sustain aquatic life.
- North Carolina is the only state that limits chlorophyll-a everywhere in a waterbody using instantaneous measurements. A summary of other state's approaches to chlorophyll-a standards is summarized in the April 7, 2020 PFC meeting presentation (slides 57 to 68)
- Several scenarios were evaluated with the UNRBA watershed and lake models. None of the scenarios were able to achieve delivered nutrient loading to Falls Lake that would meet Stage II of the Falls Lake Nutrient Management Strategy nor were any of the scenarios able to meet the chlorophyll-a standard everywhere in Falls Lake. Even a scenario that converts all land to forest and wetlands and removes all watershed-scale human inputs was not able to achieve these goals and standards (rates of atmospheric deposition were not changed for this scenario).
- Lake modeling indicates that an additional 50 percent reduction in total nitrogen delivered to Falls Lake would be needed to achieve the chlorophyll-a water quality standard 90 percent of the time. Achieving this level of additional reduction would require treating runoff from natural areas like forests. An evaluation of a pump-and-treat approach using an algal harvesting system studied by the City of Durham indicates that at least 138 systems would be needed to meet this level of nitrogen loading. However, there is not sufficient water consistently available in the stream network to run this many systems. While these systems should remain an option to consider as part of the revised nutrient management strategy, constraints like cost and land availability will limit widespread application.
- Achieving measurable load reductions to Falls Lake will require a systems approach directed at realistic and incremental change in the nutrient balance. The Stage I Interim Alternative Implementation Approach (IAIA) approved by the EMC provides a useful framework for the revised nutrient management strategy.
- Stakeholder participation in the process is critical to developing a successful strategy.
- A watershed approach for non-point sources provides nutrient management for all waters draining to Falls Lake, including upstream water supply impoundments.

Recommendations for a Comprehensive Approach to Nutrient Management Proposed by the UNRBA

The UNRBA has been working with other watershed stakeholders to study the Falls Lake watershed since 2011. These collaborative efforts have included discussions with internal and external stakeholders who recommend that the revised nutrient management strategy incorporate the fundamental principles of IAIA including using an investment-based, joint-compliance framework on the implementation of projects and activities beneficial to water quality across the watershed.

Based on the extensive work conducted by the UNRBA, the successes of the IAIA Program, and the feedback from external and internal stakeholders, the UNRBA Path Forward Committee (PFC) developed a list of foundational principles for a revised nutrient management strategy. It is anticipated that the jurisdictional governing boards or commissions of the UNRBA will sign a document stating their commitment to a list of foundational principles submitted as part of the UNRBA's recommendations. Below is a brief description of some of these principles which are further described later in this document:

Embrace a systems approach focusing on right-sized solutions. Progressive management of this watershed will require looking beyond individual pipes and parcels of land. Nutrient load reductions will be incremental as project identification and implementation are very challenging. A more comprehensive approach that considers the atmosphere, soils, surface water, groundwater, and

physical, biological, and chemical processes of the system will expand the opportunities for meaningful change. A triple-bottom line approach that considers environmental benefits, costs, and impacts to citizens must be an integral aspect of developing the revised strategy. The tools and models built by the UNRBA predict how management actions in the watershed affect nutrient loading to, and water quality in, Falls Lake. The UNRBA is also conducting economic analyses that consider capital, maintenance, and operational costs of nutrient management activities. By focusing on the whole watershed and local implementation, the proposed strategy aims to improve water quality across the watershed and not prioritize activities solely based on the reduction of nutrients to Falls Lake. Projects will result in reductions in nutrient loading through incremental and sustained progress across the watershed, but may also address other pollutants, long-term watershed sustainability, etc. This comprehensive approach is needed to provide lasting protection of the lake and its designated uses. Focusing on watershed health also addresses the sub-impoundments (e.g., Lake Michie, Little River Reservoir, Lake Orange, Lake Buter, etc.) used for water supply within the basin. Allowing investments throughout the watershed will positively impact water quality across the basin.

Because of the holistic nature of the recommendations, the UNRBA also recommends that its implementation for non-point sources be considered by the State as addressing all waterbodies in the watershed that are currently listed, or may be in the future, on the State's 303(d) list of waters for pollutants related to nutrients. These other waters may be considered Category 5 waters in future Integrated Reports if additional point source controls are required.

Create an adaptive program with scheduled assessments and reevaluation. The UNRBA recommends that the rules exclude the specifics of the program because it will be extremely difficult to adapt to new information and conditions. Rather, the UNRBA recommends development of an approved program document referenced by the rules with specific assessment, renewal, and reevaluation periods. The UNRBA recommends the revised strategy include a formal review period to evaluate how well the program is working in terms of water quality, necessary changes, and evolving technologies. The UNRBA proposes a full evaluation in 25 years following the date the revised rules are readopted with interim evaluations every five years. Interim evaluations and reporting years can address concerns or changes that occur during the 25-year period and assist with tracking trends and accomplishments over the longer 25-year period. As with the IAIA, annual reports are recommended to track implementation and compliance with annual investment commitments. It is in the interest of the state and the citizens of the watershed that these assessments be done in partnership with DWR.

The UNRBA recommends that the rules exclude the specifics of the program because it will be extremely difficult to use adaptive management provisions. Rather, the UNRBA recommends development of an approved program document referenced by the rules.

Cooperate and collaborate with stakeholders – The UNRBA has worked very closely with its members and external partners since the re-examination process began. Extraordinary access and participation by all stakeholders have been promoted by the UNRBA, and transparency has been an important theme in sharing the work and status of the re-examination effort. Internal and external stakeholders are invited to provide comments during monthly status meetings. The UNRBA has hosted several Technical Stakeholder Workshops, Regulatory Forums, or joint Symposia with the NC Collaboratory to hear and incorporate feedback in the process. The UNRBA has worked closely with researchers, third-party model reviewers, and DWR modeling staff to review and vet the watershed and lake models. The UNRBA also worked with DWR, representatives of agriculture, environmental groups, and land conservation organizations to expand the list of practices with state-approved

nutrient credits. This nutrient credit project led to the addition of three nutrient reduction practices eligible for use on existing development and led to the state allowing for over- and under-sized practices to receive an appropriate amount of credit for existing development retrofits. Nutrient practice development should be an ongoing commitment of an investment-based system. The UNRBA proposed a credit for land conservation and continues to work with DWR on securing a credit for this excellent practice in protecting the watershed and lake. The nutrient credit project formed strong working relationships with the organizations involved and ultimately led to discussions regarding the IAIA. The UNRBA recognizes that without these partners, a revised nutrient management strategy cannot be successful. The UNRBA encourages input during the crafting of the revised strategy from all stakeholders to identify opportunities, constraints, and solutions to achieve a shared vision to maximize the serviceable life of the reservoir and maintain its designated uses.

The UNRBA encourages input during the crafting of the revised strategy from all stakeholders to identify opportunities, constraints, and solutions to achieve a shared vision to maximize the serviceable life of the reservoir and maintain designated uses.

Expand the types of projects and provide opportunity for other voluntary partners – The IAIA includes a broad range of eligible projects and activities approved by DWR for compliance with Stage I Existing Development Rules. The UNRBA members and stakeholders have discussed many types of additional projects and activities related to nutrient reduction opportunities for inclusion in the revised nutrient management strategy that would apply to specific types of land use, discharges, etc. As with the IAIA, the UNRBA recommends a provision for expansion of the list of eligible activities to be include in the revised strategy.

To apply a systems approach, opportunities that intersect with other watershed landowners and partners should be considered (e.g., a stream restoration project funded by a local government on private land under an agreement with the landowner). The UNRBA is not proposing that inclusion of other partners come with investment requirements, but where opportunities exist for improving water quality and quantity, the revised strategy allows and promotes local government participation in other watershed improvement actions.

Establish a Watershed Organization with tiered participation. The UNRBA anticipates investment requirements for its members under the revised nutrient management strategy. The potential partners (e.g., agriculture and institutions) would not have the burden of investment requirements. To foster cooperation and establish a functioning, holistic program, the UNRBA proposes establishment of a "Watershed Organization" with tiered membership. Those local governments, state and federal agencies, and utilities with investment requirements would be in Tier 1 and could support administration and implementation of the program through funding. Those without investment requirements could be in Tier 2. This tier would not be expected to fund the program but could participate on committees to identify opportunities and constraints, participate in decision making, etc. Committees specific to a sector (e.g., agriculture) could be chaired by a representative of that sector (i.e., committees may be chaired by a Tier 2 member). Annual compliance reporting and tracking of investment requirements for the Tier 1 members could be managed by the Watershed Organization, similar to the current IAIA. The initiation date of the Watershed Organization will be determined by the readoption of the Falls Lake Rules, which must be achieved in accordance with Session Law 2018-5 Section 13.8.(a). This session law specifies that the EMC must begin rule re-adoption no later than December 31, 2024. It is anticipated by DWR that readoption of the rules will occur no later than 2027.

Develop a fair and equitable strategy. The UNRBA strives to develop a revised nutrient management strategy that protects the watershed and Falls Lake in a fair and equitable manner. An investment-based, watershed-health approach will continue to be most effective when all parties in the

watershed are fully engaged and committed. This should include those with drainage to the lake and those benefiting from the ongoing management of the watershed and lake for reducing nutrient and other water quality impacts. As with the IAIA, the proposed framework provides equity by including those using Falls Lake and other intake points (e.g., Lake Michie, Lake Butner) as a water supply. Equity is also addressed through tiered membership in the program as some sectors can fund activities through taxes and fees, and others are comprised of local landowners and businesses that do not have this ability. The requirements of the revised strategy will consider these and other equity factors. Stakeholder feedback on this proposal and the UNRBA economic analyses will also be considered as the program is developed.

Consider environmental and social justice issues. The program should consider environmental and social justice issues in implementation of the revised nutrient management strategy (funding, siting, public input, public access, etc.). The revised rules should promote opportunities for equitable stakeholder participation by encouraging input and participation from the public and interest groups. Multiple state and federal databases and tools exist to support this effort. Jurisdictions participating in this program should make efforts to assure that the projects and actions do not create social justice issues.

Measure compliance by investment levels and track nutrient reductions as supplemental information. As with the IAIA, the UNRBA recommends that compliance under the revised strategy be tracked by investment and the amount of nutrient reductions be tracked as supplemental information. One of the fundamental differences of the IAIA compared to conventional regulatory approaches is that compliance is tracked by required investment in eligible activities rather than counting the nutrient pounds reduced. This approach provides three key benefits: 1) local governments can plan for required investment levels as part of their budgeting process, 2) activities that do not have state-approved nutrient credits that are known to be beneficial to water quality and quantity can be incorporated into the program, and 3) projects can occur within jurisdictional boundaries that benefit citizens across the watershed as well as downstream water quality. Representatives of agriculture have indicated that they prefer to maintain ownership of their nutrient loss tracking and reporting. This cooperative approach would allow that to continue while potentially leveraging funding from other sectors. Department of Transportation (DOT) representatives have indicated an interest in participating in this revised program.

Nutrient Reduction Opportunities

Nitrogen and phosphorus are naturally occurring elements that are necessary in appropriate amounts for a healthy ecosystem. These nutrients cycle through the air, soils, groundwater, surface water, plants, algae, and other organisms. The UNRBA recognizes the importance of continuing to address nutrient loading using conventional methods, and significant progress cannot be made in this unique watershed if only conventional methods are used. A watershed-approach is needed to limit inputs to the system and sequester nutrients before they reach Falls Lake.

The UNRBA recommends that all opportunities for nutrient reduction be considered in the revised strategy, not as requirements but rather as potential opportunities for cooperation.

Proposed Legislative Changes

The NC Collaboratory is funding a study to evaluate potential changes to the Falls Lake Rules that would allow for a more collaborative, system-based approach to nutrient management in the watershed. The UNRBA is working with the lead author of this study, Dan McLawhorn, to better understand existing legal constraints on its proposals and where legislative changes may be required. A link to the presentation on this topic at the 2023 Falls Lake Nutrient Management Study Symposium hosted by the NC Collaboratory is available here. The UNRBA will begin developing

recommendations for potential rule changes after its December 2023 submittals and plans to coordinate this effort with DWR. Rules will be amended to be consistent with the General Statutes and Session Laws which apply to the program.

Status of the UNRBA Recommendations

This Concepts and Principles Document was developed based on input from the PFC and the Board of Directors, as well as input from external stakeholders, including staff from DWR and representatives from agriculture, DOT, and Non-Governmental Organizations (NGOs). These discussions identified several program components to guide development of the revised Falls Lake Rules. Many program components are designed to promote flexible implementation of the rules. These concepts and principles have been distilled into an updated set of Consensus Principles (called Consensus Principles II) for consideration by the governing bodies of the UNRBA members (e.g., county commissioners, town councils, city councils, utility boards). Once the individual governing bodies have signed the Consensus Principles II and endorsed the UNRBA recommendations for the revised nutrient management strategy, the UNRBA will submit these documents to the EMC and DWR.

As the rules readoption process unfolds, discussions among UNRBA members and other external stakeholders will continue. Additional recommendations and responses to stakeholder feedback will be considered during this process.

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Background and Supporting Information

History of the Reservoir and Characteristics of Falls Lake and its Watershed

The history of Falls Lake reservoir provides important context for its current water quality. The "lake" is a man-made body that results in an impoundment of the Neuse River at the natural fall line of the river at "the Falls of the Neuse." The placement of the Falls Lake Dam converted a natural, riverine environment to one with hydrologic, habitat, and ecological conditions very different from those that existed previously. This conversion has resulted in factors that affect water quality that were not present before the river was dammed. The reality of this history brings us to the regulatory and water quality policy crossroads of how this management effort should proceed over the coming decades.

The Falls Lake reservoir project was authorized by Congress as part of the Flood Control Act in 1965 and began filling in January 1983. Figure 1 shows an old earthen dam uncovered during the construction of the Falls Lake dam in the late 1970s. The Congressionally authorized uses of Falls Lake include flood control, drinking water supply, recreation, fishing, aquatic life, and wildlife. Design and construction of the impoundment were conducted by the U.S. Army Corps of Engineers (USACE), which continues to manage and operate the reservoir today.

Figure 1. Construction of the Falls Lake Dam, photograph courtesy of the US Army Corps of Engineers as cited by the Wake Forest Historical Museum.

Pre-impoundment studies predicted that Falls Lake would be highly eutrophic (over-enriched with nutrients), especially in the shallow, upper end of the lake (DNER 1973, USACE 1974, NCDEM 1983). These studies also predicted that chlorophyll-a concentrations would be high and that dissolved oxygen would be depleted in deeper portions of the lake during thermally stratified (warm summer) conditions.

Laboratory analysis of chlorophyll-a measures the green pigment in a water sample and is used as an indicator for algal growth. In 1979, the NC EMC established a chlorophyll-a criterion of 40 µg/L. The driving force for this water quality standard was poor water quality conditions on the Chowan River in northeastern NC. The Chowan River is a tributary to Albemarle Sound. Water quality conditions in this estuary in the 1970s resulted in demonstrated impairments to the waterbody that directly impacted the classified, designated uses. In response to these impacts, the Division of Environmental Management (predecessor agency of what is now the Division of Water Resources, DWR) evaluated these conditions and convened a group of established scientists and subject matter experts. This group provided a recommendation for a benchmark level of algal activity, using chlorophyll-a as indicator. This threshold would guide regulatory action to address the problems on the Chowan River. The agency, through the EMC, adopted the benchmark level as a standard and applied this value to all waterbodies in the state. The evaluation that led to this standard was not specifically referenced to use support impacts in reservoirs.

Despite the water quality predictions provided in the pre-impoundment studies, it was concluded that the expected levels of algal activity would not impede the anticipated designated uses of Falls Lake. NC allowed the construction of the dam under Section 401 of the Clean Water Act (the Water

Quality Certification required for permitting of a “fill” under Section 404). Evaluations conducted as part of the reexamination process have demonstrated that the lake is meeting its designated uses. There have not been nutrient-related fish kills since the lake was filled. The City of Raleigh is able to use Falls Lake to provide drinking water to over 500,000 customers and was awarded 3rd place in the 2023 American Water Works Association’s international “"Best of the Best" Water Taste Test.” Dissolved oxygen levels are sufficient to provide aquatic habitat to many species, and the lake supports recreational activities throughout the year.

Monitoring by DWR and other organizations show elevated chlorophyll-a levels at some locations and times of year in the lake. However, these levels are lower than predicted, and they have not resulted in any demonstrated water quality or use-related conditions that impair designated uses. For example, the earlier studies predicted summer average chlorophyll-a concentrations of 110 µg/L in the upper part of the lake while data collected from August 2014 to October 2018 show a summer average concentration of 41 µg/L. These data are summarized in the UNRBA 2019 Monitoring Report.

The decade-long evaluation process by the UNRBA and the 4-year study period funded by the NC Collaboratory have provided exceptional scientific information and knowledge about conditions in the lake and its watershed. Falls Lake is at risk of increasing eutrophication, but data and analyses indicate a relatively stable trophic condition at this time. Falls Lake is eutrophic, but it is not increasing in the level of enrichment. The lake currently meets its intended uses.

Nutrient reduction efforts in the watershed and changes in environmental conditions have resulted in significant reductions in nutrient loading to the lake since the designated “baseline” year of 2006. These conditions have not yet reflected significant and demonstrative reductions in chlorophyll-a in the lake. Due to the slow response of nutrient cycling processes in the lake and its sediments, the full implications of reduced loading over the last 17 years may not have fully manifested. However, lake water quality has stabilized since the Rules were enacted, and the lake is continuing to meet its designated uses. The revised strategy should include a long-term water quality review process to track water quality in Falls Lake and the other water supply impoundments in the basin.

Other watersheds in the country face similar challenges. The Chesapeake Bay Program Scientific and Technical Advisory Committee (STAC) released a Comprehensive Evaluation of System Response in May 2023. Similar to the Falls Lake watershed, the report concludes that “current efforts to reduce nutrient loads will not meet the TMDL targets” and that “estuary water quality has been slow to respond to realized nutrient and sediment reductions in many regions of the Bay” This report focuses on an estuary that drains a much larger watershed with more opportunities for implementation given the relative amount of agricultural land and urban land in the watershed. Even with additional opportunities for implementation in the Chesapeake Bay watershed, the report concludes that “additional nutrient reductions will improve water quality, but water quality criteria may be unattainable in some regions of the Bay under existing technologies.”

Falls Lake was sited and constructed within a hydrologic, geologic, and nutrient balance environment that produced a unique morphological configuration and a reservoir environment that was destined to be eutrophic. All reservoirs in Piedmont NC strongly demonstrate a eutrophic nature, and this condition is unavoidable. Previous monitoring and evaluation as well as study, research, and assessment efforts over the last 11 years document this condition in Falls Lake. While all Piedmont reservoirs have different characteristics, site-specific water quality factors, and management challenges, the level of understanding of these factors and challenges are well understood for Falls Lake and its watershed. A revised Nutrient Management Strategy for Falls Lake needs to be based on the available science and sound management principles. While it is impossible to change the fundamental characteristics of this watershed and reservoir, a regulatory framework for nutrient

management is essential to maintaining designated uses. The critical management objective for Falls Lake must be to mitigate impacts from existing activities in the watershed and to design and manage land use changes while continuing to maintain and improve water quality in Falls Lake. Without reasonable, balanced, and economically supportable actions, the risk of increasing eutrophication, degradation of water quality, and adverse impacts to designated uses is a real possibility.

Regulatory and Statutory Requirements for Falls Lake, the UNRBA Response, and the Limitations of the Current Management Approach

Statutory Requirements and the Rules

In 2005, the NC General Assembly passed Senate Bill 981 requiring the NC EMC to develop a nutrient management strategy for Falls Lake. The bill also directed the Commission to "consider the cost of the proposed measures in relation to the effectiveness of the measures. These measures could include, but are not limited to, buffers, erosion and sedimentation control requirements, post-construction stormwater management, agricultural nutrient reduction measures, the addition of nutrient removal treatment processes to point source permitted wastewater treatment plants, the removal of point source discharging wastewater treatments through regionalization and conversion to non-discharge treatment technologies, and any other measures that the Commission determines to be necessary to meet the nutrient reduction goals."

In 2009, Senate Bill 1020 was passed to provide credit for early implementation of practices installed before the Rules were adopted. This bill also delayed adoption of the Rules from July 1, 2009, to January 15, 2011, and required that "stormwater management programs to reduce nutrient loading from new development be implemented no later than 30 months after the Rules become effective." Additional measures listed for consideration in the nutrient management strategy were included in this bill: "measures to address nutrient inputs from on-site wastewater treatment systems, control of atmospheric deposition, allowing the sale and purchase of nutrient offsets, and allowing trading of nutrient loading allocations and credits for nutrient reductions." The bill also specified design standards for sedimentation and erosion control for land-disturbing activities and stated that this section of the bill would not be delayed and would have a start date of January 1, 2010. These requirements were addressed in the Falls Lake Rules.

To support rules development, DWR used predictive modeling of the watershed and the reservoir to develop the Falls Lake Rules, which set two stages of nutrient reduction requirements for the lake. In January 2011, the Falls Lake Rules were adopted by the EMC. The Rules state:

> *The objective of Stage I is to, at minimum, achieve and maintain nutrient-related water quality standards [chlorophyll-a criterion] in the Lower Falls Reservoir [downstream of Highway 50] as soon as possible but no later than January 15, 2021, and to improve water quality in the Upper Falls Reservoir [upstream of Highway 50]. The objective of Stage II is to achieve and maintain nutrient-related water quality standards throughout Falls Reservoir. This is estimated to require a reduction of 40 and 77 percent in average annual mass loads of nitrogen and phosphorus respectively, delivered from the sources named in Item (6) in the Upper Falls Watershed from a baseline of 2006. The resulting Stage II allowable loads to Falls Reservoir from the watersheds of Ellerbe Creek, Eno River, Little River, Flat River, and Knap of Reeds Creek shall be 658,000 pounds of nitrogen per year and 35,000 pounds of phosphorus per year. (15A NCAC 02B .0275)*

However, both the monitoring and modeling were developed on a compressed time schedule with limited data. As a result, there is significant uncertainty in the nutrient load reduction targets and

the ability of the lake to meet chlorophyll-a water quality criteria regardless of the nutrient load reductions achieved.

In the 2010 Fiscal Analysis for Proposed Nutrient Strategy for Falls of Neuse Reservoir (hereinafter DWR Fiscal Analysis), DWR estimated compliance with Falls Lake Rules to cost $1.54 billion, with $604 million for Stage I requirements and $946 million for Stage II requirements. According to the USEPA Municipal Preliminary Screener, Stage II reductions alone ranked as a "Large Impact" to affected communities with each household contributing approximately $1,400 per year (Cardno ENTRIX 2013).

The DWR Fiscal Analysis described its cost estimates as "conservative high-end" because it assumed that technological advancements would lead to more effective nutrient removal measures and more cost-effective compliance options before the Rules took effect (DWR 2010). However, the analysis also presented evidence that costs could be much higher and nutrient reductions could be impossible to meet. Using a watershed assessment of Ellerbe Creek conducted by the City of Durham, DWR extrapolated data to estimate a total, high-end cost of the Rules. The resulting estimate was $1.5 billion to achieve **one third of nitrogen reductions** and **one half of phosphorus reductions** required by the Rules. DWR addressed this possibility: "This suggests a much greater ultimate cost than we have estimated as high-end, or simply unachievable reductions. We expect, however, that more cost-effective solutions to conventional BMP [best management practices] retrofits will continue to emerge, making costs of this nature unnecessary" (DWR 2010, p.85). The 2011 Rules established two portions of Falls Lake for assessing compliance: upstream and downstream of Highway 50. These portions are called assessment units (AUs) which are used under NC's 303(d) assessment process to determine compliance with water quality standards as required under Section 303(d) of the Federal Clean Water Act. NC has incrementally increased the number of AUs in Falls Lake over the past two decades to 12 AUs. The UNRBA has sought to stabilize the 303(d) process to be consistent with the Rules. The UNRBA offered the following comments to the EMC in a letter dated February 18, 2022: "The current dynamic assessment approach (changing AU's) represents a moving target and results in considerable confusion about attaining and maintaining compliance with the water quality standard. Consistent AUs should be established based on the lakes limnologic and morphologic characteristics consistent with EPA guidance. It is also important that the assessment approach be aligned with the management strategy laid out in the Falls Lake Rules. The Draft IR [now final] now includes 12 assessment units (7 upstream and 5 downstream of Highway 50). Falls Lake has a robust monitoring program performed by both the Division of Water Resources and the Center for Applied Aquatic Ecology. Combined, this effort represents approximately 28 monitoring stations in the lake. Applying the current Assessment Methodology continues to increase the number of Assessment Units and challenges the ability of ever attaining the water quality standard for chlorophyll-a in Falls Lake. This "station-by-station" approach does not reflect the physical morphology of the lake. Since the 2008 water quality assessment the number of AUs for Falls Lake has changed from 2 to 12. The increasing number of units has not been due to changes in standards or classification or even designated uses. Rather, it represents the expansion of data collection and the variability of the monitoring results."

The established path for addressing waters that are not meeting water quality standards is laid out in the Federal Clean Water Act (first adopted in 1972). It is a model that has resulted in dramatic improvement of water quality across the country. Companion legislation in NC has been consistent with this framework. It is a "command and control" framework that is based on clear cause and effect of identified pollutant sources impacting downstream water quality. It has worked extremely well when the need for reduced pollution is primarily due to point sources or specific land use activities.

For more disparate watershed related water quality issues, the conventional framework is mostly ineffective. There are extremely limited situations where such regulatory efforts have been successful in reducing the impacts of non-point sources to the degree necessary. One well-known example of the struggles of managing a watershed-based water quality concern is the Chesapeake Bay program. With the application of tremendous financial and management resources, improvements have been elusive. Progress has been and continues to be made, but it remains a challenge to meet. The Chesapeake Bay Program STAC states in their May 2023 Comprehensive Evaluation of System Response that "the legal requirements of the Clean Water Act [the water quality goals in the Bay] divert attention away from considering multiple means of improving living resources [support of aquatic life as the designated use]." The "dead zone" at the mouth of the Mississippi River in the Gulf of Mexico provides another example of the monumental difficulty of achieving significant mitigation of existing land use within a watershed.

Individual degraded streams throughout the country have similar challenges. The Federal 303(d)-process identifies streams with degraded biological integrity, among other programs, usually resulting from watershed-based impacts. In NC, many of these situations do not lend themselves to establishing a Total Maximum Daily Load (TMDL) or do not have the regulatory authority to establish a Water Quality Management Plan that will effectively address the degraded biological integrity of the stream. Most of these streams stay on the 303(d) list of impaired waters and do not have actions in place to manage the pollutant sources within the watershed.

Nutrient issues are predominantly caused by watershed impacts and non-point sources distributed throughout the watershed feeding the reservoir, estuary, or slow-moving stream or river. The long-established framework of "put limits on the sources and solve the problem" does not work in these situations. This is not a failure of intention but rather a failure to identify the true need for a management framework and to define a feasible management system to address the real problem. Faced with similar challenges, the Chesapeake Bay STAC indicates that "additional funding of existing implementation efforts is unlikely to produce the intended nutrient reduction outcomes" and that "achieving and sustaining substantial nonpoint pollutant reductions will likely require development and adoption of new implementation programs and tools."

In other words, the conventional framework does not work for watershed-based water quality issues. That is certainly true based on the findings of the scientific work on Falls Lake. To move this process forward with broad support and allocation of resources to maintain and improve water quality in Falls Lake, an updated nutrient management strategy for Falls Lake is essential.

The conventional source-control framework does not work for watershed-based water quality issues, particularly for the Falls Lake watershed which is mostly unmanaged lands. An updated approach is required to move this process forward with broad support and allocation of resources to maintain and improve water quality in Falls Lake.

In order to develop a more scientifically valid approach, a comprehensive reexamination effort was undertaken by the UNRBA as allowed by the Falls Lake Rules. The Falls Lake UNRBA reexamination effort and the research funded by the NC Collaboratory provide a unique and deep understanding of this watershed and reservoir. It is now the most monitored and studied reservoir in NC. The careful assessment of the data and information by subject matter expert review, statistical comparisons, and watershed and lake modeling provides clarity on how this watershed and lake behave. This level of information is not available for other NC reservoirs and was not available when the current Falls Lake Rules were developed.

However, scientific knowledge and understanding alone cannot effectively consider the unique characteristics of this watershed and lake in developing an improved management approach. Water quality management policy is an essential component in deciding the most effective way to maintain and improve water quality in Falls Lake, now and in the future. The science provides clear evidence regarding specific management actions that can meet the water quality standard for chlorophyll-a throughout the lake. The cause-and-effect aspects of nutrients in this watershed and lake cannot be dramatically changed. Despite significant reductions in nutrient loading to Falls Lake since the mid-2000s, chlorophyll-a concentrations have remained stable. While the chlorophyll-a concentrations are above the standard of 40 µg/L in some parts of the lake, there are no reports of impacts to water treatability, fish kills, algal scums, or mats. This evaluation indicates that the current water quality standard for chlorophyll-a is not well correlated to uses in this lake and is therefore not applicable to Falls Lake. The standard is incorrect for this system and cannot be achieved. Thoughtful and effective management actions, consistent with the scientific findings and feasible to implement, are needed to protect water quality in Falls Lake. The characteristics of this watershed and lake indicate that dramatic changes are not possible. A eutrophic Falls Lake will always exist.

A reasonable management objective should be to prevent a trophic condition that will impede designated uses. This watershed is becoming more urban and suburban, and that transition will continue. Development in the watershed is an essential economic factor for this region and the jurisdictions within the watershed. Land use is shifting away from its historic composition to more intensely developed areas within the watershed. The New Development Rules currently in place mitigate this shift, but long-term changes in the hydrology and nutrient balance within the watershed are still expected. Controls on runoff from new development manage the first inch of runoff from a developed site. While most rainfall events in our region do not exceed one-inch, higher rainfall storms, sometimes several inches, are becoming more frequent. A portion of storms greater than 1 inch bypasses treatment and delivers untreated flow and nutrients to Falls Lake. Larger storms also saturate pervious areas in the watershed including unmanaged lands. Saturated soils result in surface and subsurface transport of nutrients to streams.

Without other watershed mitigation efforts, nutrient loading to Falls Lake will continue to increase over time. Development increases the amount of impervious surface and results in compacted soils. These changes alter the hydrologic and water quality properties of the development site and downstream waters. Land preservation is a critical safeguard for keeping the watershed as natural as possible, particularly considering a recent decision by the US Supreme Court regarding protection of wetlands that do not have a “continuous surface connection to waters of the US” (Sackett versus EPA, Docket number 21-454). Other waters may also be at risk depending on interpretation of the decision. Land conservation should be a voluntary aspect of the revised management strategy and should be recognized by the State as a critical component of a long-term nutrient management strategy. The Raleigh Watershed Protection Program has a target of preserving 30,000 acres of high priority lands by 2045. Retrofits on existing land use are also useful, but 75 percent of the watershed is currently forested, wetlands, or other unmanaged lands. The Interim Alternative Implementation Approach (IAIA) is a sustainable model for keeping the watershed as stable as possible as it includes land conservation as an eligible practice in addition to more conventional stormwater control measures and best management practices.

Unmanaged land in this watershed is a critical reason that lake water quality continues to support designated uses. The composition of the watershed, implementation of new development rules, and the improvements that have been made since the baseline year of 2006 have resulted in a stable trophic condition. There is a tremendous opportunity to structure a management approach that is broadly supported, economically viable, and aimed at an achievable goal. This document identifies

the concepts and principles that outline a revised strategy based on the latest science, good public policy, and common ground among the many stakeholders.

Reexamination of the Rules Under the Adaptive Management Provision-

While the Rules were being developed, UNRBA member jurisdictions developed the Consensus Principles to address key provisions of the rules and recognize uncertainties about the basis for the requirements. The Consensus Principles are a memorandum of agreement between the jurisdictions in the watershed that called for a two-stage approach to nutrient reductions and the potential for reexamination of Stage II. This adaptive management provision was critical because it put in place a review process ahead of the very restrictive provisions of Stage II. In basic terms, the Falls Lake Rules adopted by the EMC allow for a "reexamination" of the required actions under Stage II. An entity is allowed to initiate and conduct a reexamination using a DWR-approved assessment process as laid out in the rules (15A NCAC 02B .0275 (5)(f)) and to bring findings back to the Division and the EMC.

The UNRBA began planning for the reexamination under the cited provision in 2011. In 2013, a framework for conducting the reexamination was developed and approved by DWR. This framework established the plan to review historic data and models for Falls Lake, develop recommendations for additional monitoring, conduct the monitoring, and develop modeling tools to allow assessment of the lake and evaluate different management approaches. The UNRBA's plan included a watershed model and three lake water quality models.

The primary purpose of the UNRBA monitoring program was to provide the necessary data and information to support development of the models that would be used to evaluate updated management approaches. Prior to collecting data, the UNRBA evaluated all available data that had been collected on Falls Lake and its watershed. The monitoring program and other provisions of the reexamination required approval by DWR. The UNRBA secured necessary approvals from DWR for evaluation of the current Falls Lake Nutrient Management Strategy including the UNRBA Monitoring Plan and UNRBA Monitoring Quality Assurance Project Plan (QAPP). These documents and the publicly accessible database are available on the UNRBA monitoring website.

Also as required by the Rules, the UNRBA submitted and DWR approved the Description of the Modeling Framework and the UNRBA Modeling QAPP that specifies how the models should be developed and assessed for performance. The UNRBA conducted a model selection process and selected the following models: the Watershed Analysis Risk Management Framework (WARMF) to conduct watershed and lake modeling, the Environmental Fluid Dynamics Code (EFDC) as the second lake model, and a statistical/Bayesian model as the third lake model. The purposes and relationships of these models toward developing a revised strategy is described in the Conceptual Modeling Plan (Figure 2). The UNRBA has not only provided DWR with the required documentation for the reexamination but has also provided documentation of all its process and decision-making including model selection and discussions of the contracts and scopes of work for those efforts. DWR representatives regularly attend the meetings of the UNRBA, and many follow-up discussions have occurred with the agency to ensure there is a clear

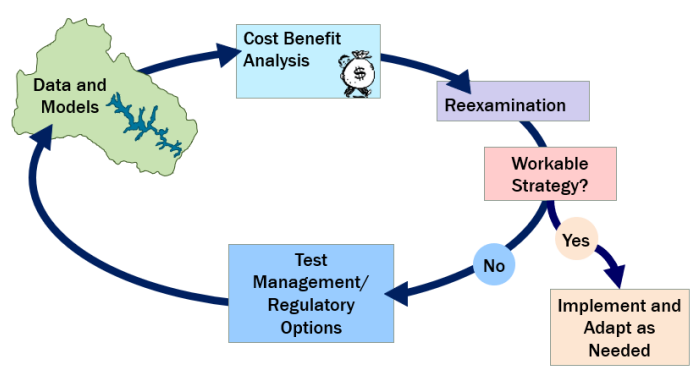


Figure 2. UNRBA Conceptual Modeling Plan for the Reexamination of Stage II

understanding of the work being done to support the UNRBA's recommendations on a revised nutrient management strategy.

In 2016, the NC General Assembly passed legislation (Section 14.13.(a)) that established the NC Collaboratory. One of the initial charges of this organization was to study nutrient management strategies in general and for Jordan and Falls Lakes specifically. This initial legislation required the Falls Lake study to be completed by December 2021. The General Assembly later passed legislation to extend the deadline to December 2023 to allow the UNRBA reexamination process to complete. This legislation also includes a reference to other evaluations of the Falls Lake Nutrient Management Strategy. The bill requires the EMC to consider that information along with the report by the NC Collaboratory.

Following the creation of the Collaboratory, the UNRBA coordinated closely with the organization and its researchers. This allowed the UNRBA to provide input each year on what additional studies would enhance and better inform its work. The UNRBA has shared all its data, work, and preliminary results with the Collaboratory. The Collaboratory also provides subject matter expert and third-party review of the UNRBA modeling efforts. This extremely valuable contribution has been occurring while the models were under development rather than after. This integrated approach allowed the reviewers to provide input and feedback as the models were developed and allowed the modeling team to incorporate adjustments before the models were finalized. Third party reviews increase transparency and provide an extra layer of assurance that the models can be relied upon to support regulatory and policy decisions.

By the end of this reexamination process, the UNRBA membership will have invested approximately $10 million to support this effort. This is an unprecedented effort by a regulated community in NC to provide study and research to DWR, EMC, and the General Assembly to support the development of a management approach on a critically important water body. The purpose of this document is to compile key findings from the available studies and present a document that identifies important concepts and principles that should be included in a revised nutrient management strategy for Falls Lake. This document includes notes derived from discussions or materials generated by the Executive Director, Co-chairs of the Path Forward Committee (PFC), Chair of the Modeling and Regulatory Support Workgroup (MRSW), the Scenario Screening Workgroup and its subgroups, members of the MRSW, PFC, and Board of Directors, workshop/symposium participants, and interested stakeholders who have participated in this process. Most of these discussions are based on presentations that are available on the UNRBA meeting page. Most of this input and discussion has occurred during UNRBA meetings. These meetings are open and all attendees, including stakeholders outside of the UNRBA membership, are invited to attend and provide input.

Key Findings from the Monitoring and Modeling Studies

UNRBA Monitoring Program

Routine water quality monitoring in the watershed began in August 2014 and continued through October 2018. The watershed monitoring program obtained monthly samples on 20 water quality parameters from 38 tributary stations. This effort resulted in more than 38,000 measurements and created a database that covered essentially every sub-watershed to Falls Lake. Targeted special studies were also conducted to provide a detailed understanding of the functions of the watershed and lake. It was essential to the analyses and modeling that this data and information collection effort identified the variation of the input of nutrients and other parameters into the lake. It was also a major objective to carefully document and measure Falls Lake's physical, chemical, biological, and geological characteristics. These special studies included storm event sampling, high-flow event sampling, lake sediment depth and quality, lake sediment nutrient storage and release, lake

bathymetry, constriction point monitoring of water movement and water quality from segment to segment of Falls Lake, and light extinction data. For example, Figure 3 shows the water depth information resulting from the UNRBA bathymetric study. This figure also shows how Interstate 85 and Highway 50 segment the lake into what is referred to below as the upper, middle, and lower lake segments.

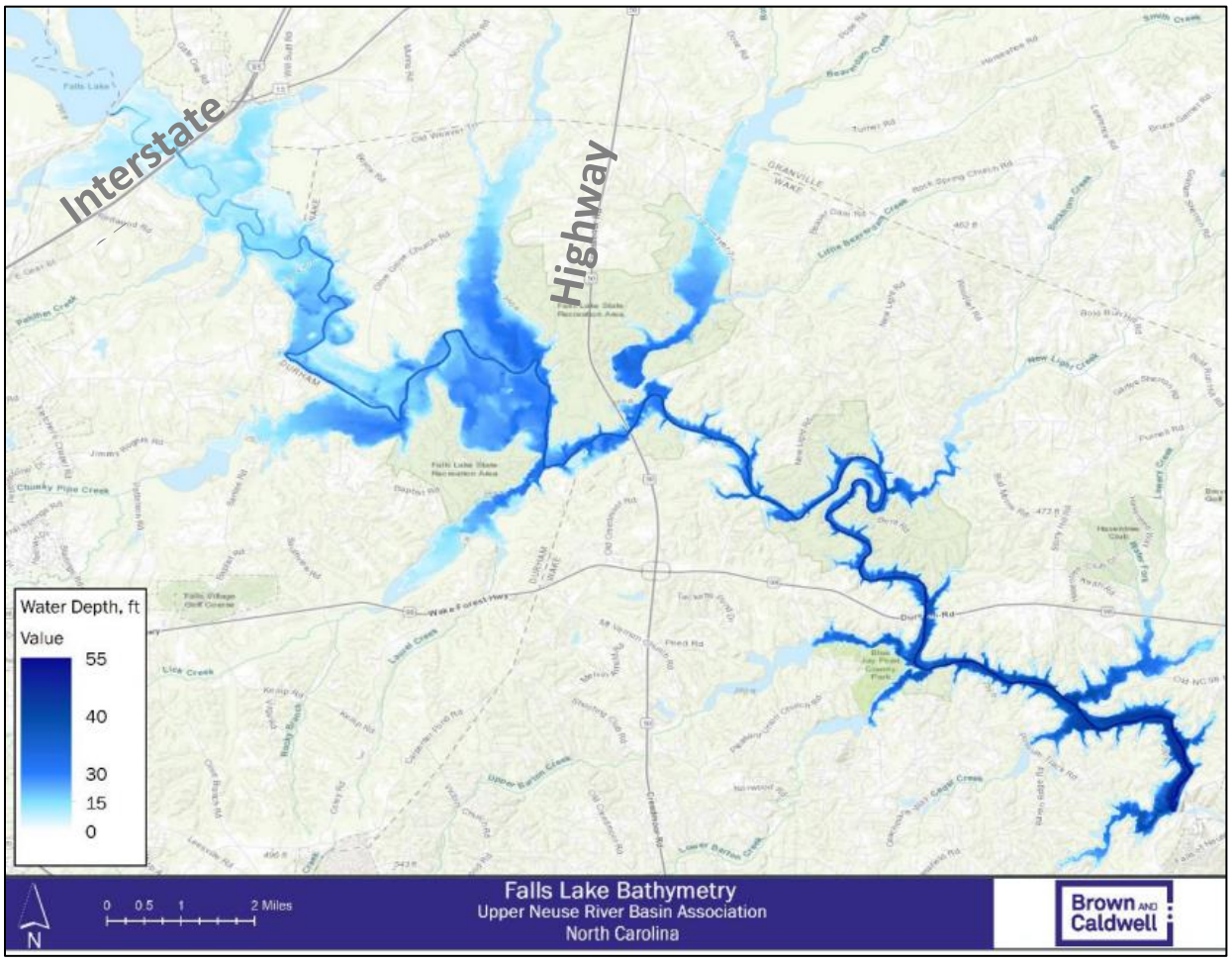


Figure 3. Falls Lake Water Depth

The UNRBA invested approximately $3.5 million in the monitoring effort to fill data gaps in the previous monitoring and modeling effort and provide an improved understanding of the lake and the watershed. In addition to providing an annual report of the monitoring effort as it proceeded, the UNRBA developed a comprehensive monitoring report in 2019 that summarizes the monitoring data and special studies. These efforts provided a comprehensive database that covered the key nutrient-related water quality considerations of the lake, including nutrient loading summaries by source and through time, lake residence time, dissolved oxygen concentrations, and algal toxin data. The UNRBA's monitoring data, DWR data, and data collected by other organizations (NC State University Center for Applied Aquatic Ecology, and the cities of Durham and Raleigh), has been evaluated and included in the data evaluation. This data has been used to develop watershed loading and lake water quality simulation models. The research funded by the Collaboratory has also provided critical insight and understanding of the watershed and lake. Monitoring studies conducted by the US Forest Service in the watershed have provided important information regarding nutrient loading from forested areas. All of this has been incorporated into the UNRBA's evaluation of this

watershed-lake system to inform and support the concepts and principles for the revised nutrient management strategy.

While the UNRBA's complete effort includes comprehensive modeling and the development of tools that can assess the effectiveness of potential management approaches, the data, special studies, and information developed to support the modeling provides an excellent reference and basis for understanding this lake and watershed. The data itself is a "model" by conveying the status of water quality, spatial and temporal variation, and correlations among data sets. A large and extensive database provides important graphical and statistical information that informs further analysis and decision-making. The UNRBA's comprehensive monitoring report, which includes historic data, provides essential insight into the Falls Lake system and documents conditions that must be considered in the regulatory decision-making process.

As a result of the UNRBA's evaluation of the data, one critical finding is that nutrient loading is not the only driver of algal growth in the lake. At times, algal growth and changes in algal activity are independent of short-term changes in nutrient loading and nutrient concentrations in the lake. Other influences such as lake sediment nutrient release, hydrology, and hydraulics in the lake and watershed can be more important in determining the trophic conditions in the lake than nutrient concentrations or loading.

Physical conditions in the lake as well as chemical and biological variation are important drivers of algal growth. The amount of time the water remains in Falls Lake is controlled by the tributary inflows to the lake and releases from the dam which are controlled by the USACE. The release protocol for the dam is directed first at flood control and then, under low-flow situations, water supply and minimum releases to support downstream aquatic life. The longer the water remains in the lake, the more algal activity and growth. Other environmental issues arise during long detention periods including temperature increases and more pronounced fluctuations in dissolved oxygen and pH. This hydrologic condition also impacts lake stratification and the quality of water just above the lake sediment-water interface, impacting the rate of nutrient cycling in bottom sediments. Algal species distribution is impacted as well. Changes in detention time and environmental, chemical, and other physical characteristics impact the function of the arms of the lake including denitrification and settling of suspended materials.

The release protocol for the dam is directed first at flood control and then, under low-flow situations, water supply and minimum releases to support downstream aquatic life. The longer the water remains in the lake, the more algal activity and growth.

High-flow events impact algal conditions in the lake, particularly in the upper portion of the reservoir where the five major tributaries provide more than 60 percent of the flow to Falls Lake. Nutrient inputs in terms of tributary loading are driven by stream flows.

During wetter rainfall periods, high nutrient loading from the watershed associated with high precipitation and stream flows can transport higher sediment and nutrient loads to Falls Lake. These events may increase flushing and reduce residence times. Figure 4 shows the Flat River nearly rising to the bridge deck following a high rainfall event.

Figure 4. Flat River rising near the bridge deck following a UNRBA High Flow Sampling Storm Event

Periods of low loading from the watershed correspond to small inflows and longer residence times when algae are provided longer periods for growth. Sporadic storm events that occur during periods of long detention can provide pulses of nutrients to Falls Lake that may remain stagnant in the lake for an extended time.

The complex relationship between hydrologic condition, nutrient loading, and lake residence time means there is not a predictable cause-and-effect relationship between loading and algal growth. Figure 5 shows that in upper Falls Lake (upstream of Interstate 85), chlorophyll-a concentrations have been declining since the 1980s. This part of the lake historically had more variability in chlorophyll-a concentrations as demonstrated by the longer boxes and whiskers in Figure 5. Chlorophyll-a data were not collected in the upper lake between 2008 and 2012. Since data collection restarted in 2013, chlorophyll-a concentrations have been relatively stable. The middle part of the lake (between Interstate 85 and Highway 50) has lower chlorophyll-a concentrations and less variability than the upper lake. Chlorophyll-a concentrations in this segment have been relatively stable since 2001. In the lower part of the lake (downstream of Highway 50), chlorophyll-a concentrations have been relatively stable over the life of the reservoir, even in the 1980s when concentrations in the upper lake were much higher. During the UNRBA 2014 to 2018 monitoring period, chlorophyll-a concentrations in Falls Lake were highest in 2017 (especially below Highway 50) compared to other UNRBA monitoring years, but nutrient loads that year were approximately half (see the following discussion of UNRBA Watershed Modeling for more information on this characteristic).

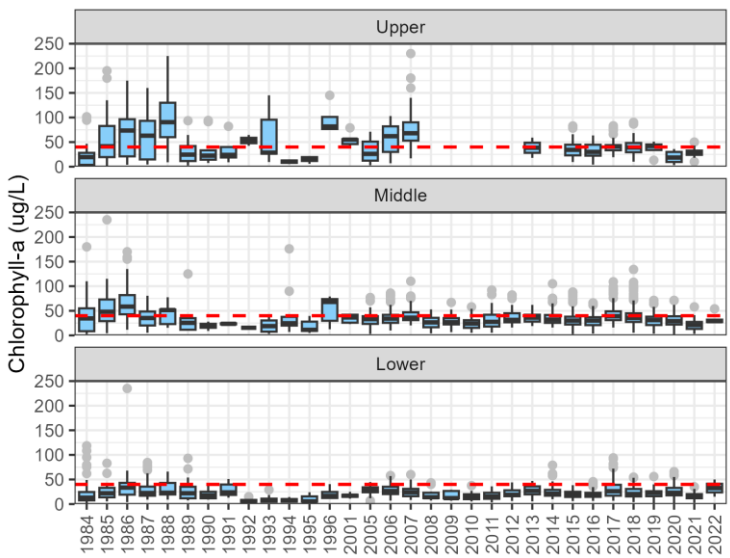


Figure 5. Distribution of Chlorophyll-a Measurements in Upper Falls Lake (upstream of Interstate 85), Middle Falls Lake (between Interstate 85 and Highway 50) and Lower Falls Lake (downstream of Highway 50 to the Dam)

Two additional sources of nutrient loading affect the lake directly. Atmospheric deposition contributes nitrogen, phosphorus, and organic carbon directly to the surface of Falls Lake as well as to the contributing drainage area. Atmospheric deposition data incorporated into the monitoring and modeling shows total nitrogen loads from atmospheric deposition have declined by approximately 20 percent since 2006 (DWR 2021). The bottom sediments within Falls Lake accumulate, release, and cycle nutrients. The UNRBA 2019 monitoring report estimated that lake sediments release approximately 200,000 pounds of total nitrogen each year (10 percent to 25 percent of the watershed load depending on rainfall and the year referenced) and 14,000 pounds of total phosphorus (5 percent to 15 percent of the watershed load depending on rainfall and the year referenced). These preliminary estimates of lake sediment releases have been refined through the UNRBA lake modeling efforts and Collaboratory studies.

The UNRBA 2019 monitoring report estimated that lake sediments release approximately 200,000 pounds of total nitrogen each year (10 percent to 25 percent of the watershed load depending on rainfall and the year referenced) and 14,000 pounds of total phosphorus (5 percent to 15 percent of the watershed load depending on rainfall and the year referenced)

To summarize, the hydrology, morphology, retention time, depth, and characteristics of the different areas of the lake contribute significantly to nutrient loading and chlorophyll-a levels in the lake. These aspects of the lake are beyond the control of the regulated entities in the watershed. While the UNRBA aims to manage nutrient loading in the watershed, it recognizes it is not the only factor to consider in developing a revised nutrient management strategy.

Many important data results and relationships contribute to an updated and improved understanding of this lake and watershed. The best way to examine those in detail is to access the UNRBA 2019 Monitoring Report.

UNRBA Watershed Modeling

The UNRBA has worked extensively with local governments, researchers, state and federal agencies, and utilities to obtain the most comprehensive and complete data available to develop a revised watershed model for Falls Lake. The UNRBA selected the Watershed Analysis Risk Management Framework (WARMF) model partly because it is the same model that DWR used to support development of the Falls Lake Nutrient Management Strategy. Data summaries and discussions related to the Falls Lake and watershed WARMF model development are documented in Modeling and Regulatory Support Workgroup (MRSW) meeting materials and the UNRBA watershed modeling report (BC and Systech Water Resources 2023, available at https://unrba.org/reexamination).

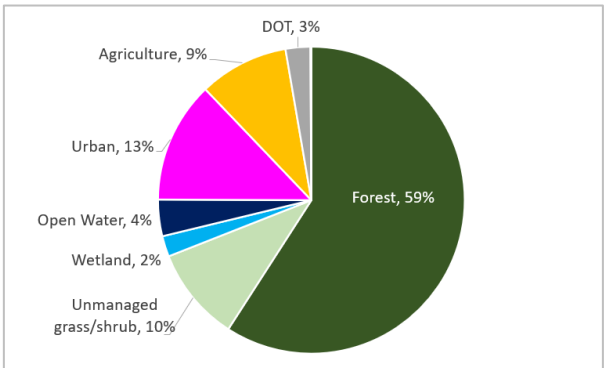
Development of a watershed model is an essential component of a fully informed management approach. The UNRBA has invested significant resources into an effective watershed model development process. The following summary of the watershed modeling effort is provided as context for the UNRBA recommendations for a revised nutrient management strategy. The modeling was reviewed extensively by subject matter experts, third-party model reviewers funded by the NC Collaboratory, and DWR modeling staff. The UNRBA has a high level of confidence in the results of this modeling. A more complete description of the model and the development process is available in the UNRBA Watershed Modeling Report (BC and Systech Water Resources 2023, available at https://unrba.org/reexamination).

Land Use Data and Existing Development Retrofits

A primary input to watershed models is land use data. The Falls Lake watershed is comprised predominately of unmanaged lands (75 percent, Figure 6). Unmanaged lands represent natural areas or areas where former land management activities are no longer occurring (unmanaged grass/shrub areas). Opportunities to reduce nutrient loading from natural areas are very limited.

Opportunities to reduce nutrient loading from natural areas are very limited.

Less than 10 percent of the watershed is used for agriculture, which has declined nearly 45 percent from the baseline year. This decline in production has reduced nutrient loading to the lake. The NC Department of Agriculture and Consumer Services (NCDA&CS) indicates that there are few additional actions that can be taken in the watershed to further reduce nutrient loading from active farmland. Most of the streams in the watershed are buffered, conservation tillage is commonly used, and nutrient management plans and the high cost of fertilizer have lowered the amounts of fertilizer applied. These limited opportunities for additional reductions from agriculture are important to consider in the development of a revised management strategy.



75 percent of the watershed area is in unmanaged land uses: forests, grassland, shrubland, wetlands, or open water.

Figure 6. Distribution of Land Uses in the 492 thousand-acre Falls Lake Watershed (2014 to 2018)

Approximately 13 percent of the land is classified as developed, most of which is low intensity and non-DOT road rights of way. There are areas in the watershed like the City of Durham and central municipal areas in the smaller cities and towns where development is represented by more intensive "downtown" impervious land use, but this area is a small subset of the 13 percent classified as urban. In areas that are already densely developed, installation of engineered stormwater control measures (SCMs) is limited due to existing legal, logistical, technological, and economic constraints. Depending on soil conditions and other constraints, the application of some green infrastructure (including rain gardens and similar approaches) is possible with the cooperation of private property owners. The UNRBA's IAIA program encourages these type projects, but nutrient loading reductions are modest. Overall, the opportunity for SCM retrofits on these areas is extremely limited. Even if there were a high level of funding available, private ownership and logistic difficulties may not allow retrofits to occur on most developed sites. The NC General Assembly has prohibited the use of local government eminent domain to condemn property for control of stormwater impacts.

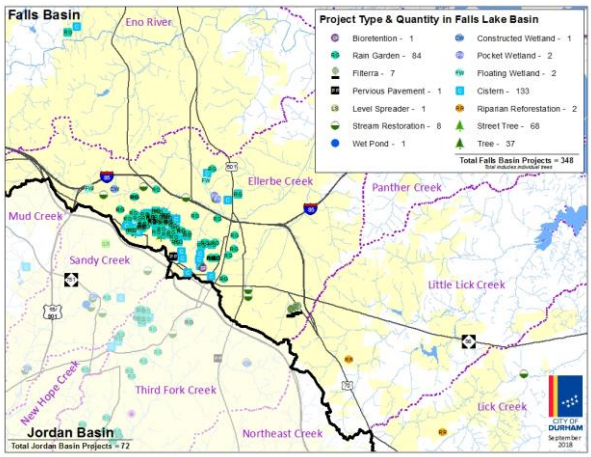


Figure 7. City of Durham Existing Development Retrofits as of December 2015

New development is already managed by every jurisdiction in the watershed under the current Falls Lake New Development Rule.

An example of installation of SCMs in an urban environment is in the City of Durham where the City installed over 350 nutrient and flow reduction measures by the end of 2015 on developed sites to improve water quality (Figure 7). Other local governments in the watershed have also installed retrofits to treat existing development. These projects were accounted for during calibration of the watershed model and were used for support of the IAIA concept. Installation of these projects illustrates the commitment of the jurisdictions in this watershed to mitigate water quality impacts of existing land use in the watershed.

More focused research on the question of applying retrofits was done through NC State University (Hunt et al. (2012), funded by the North Carolina Urban Water Consortium Stormwater Group, through the Water Resources Research Institute of The University of North Carolina). This study assessed opportunities and costs for the installation of SCM retrofits in several developed watersheds including Ellerbe Creek in the City of Durham. The findings indicated that if every potential existing development retrofit identified in the Ellerbe Creek watershed were implemented (at a cost of $16 million capital and $7 million annual maintenance costs), it would only reduce nitrogen loads by approximately 10 percent and total phosphorus loads by 25 percent. These reductions are much lower than the Stage II reduction requirements prescribed in the Falls Lake Rules (40 percent for total nitrogen and 77 percent for total phosphorus).

Development in the watershed occurring after 2011 is subject to the new development rules in the Falls Lake Nutrient Management Strategy. These rules have been implemented by the local governments and require installation of stormwater control measures to limit the amount of nutrients leaving the development to 2.2 pounds per acre of total nitrogen 0.33 pounds per acre of total phosphorus; 50 percent of these reductions must occur on site and 50 percent can be obtained through offsite credits acquired from the State. These amounts were set so that as lands in the watershed were developed, the load delivered to Falls Lake would not increase. The City of Durham began implementing new development requirements before the rules were passed and the loading targets were established. These interim development controls were adopted to reduce the amount of development requiring retrofits once the rules were passed. State law no longer allows for this type of proactive approach.

Soil Properties, Hydrologic, and Nutrient Application Data

Soils data and precipitation data are key drivers of hydrologic response and determine actual loading to streams from nutrients “applied” or deposited in the watershed. These inputs not only determine stream flows and nutrient loads delivered to Falls Lake but also the ability of nutrients to be stored and cycled in the system. Soil hydrologic and chemistry data were obtained from the US Department of Agriculture Natural Resources Conservation Service and the US Geologic Survey. Radar precipitation data for 78 locations in the watershed were provided by the NC State Climate Office (with support from NC Department of Transportation).

Human inputs of nutrients to the land surface are also an important part of the nutrient balance. The model accounts for monthly nutrient application to land surfaces on urban and agricultural lands. Atmospheric deposition of nitrogen and phosphorus is also applied to water surfaces and all land within the watershed, including unmanaged lands.

The passage of the Falls Lake Nutrient Management Strategy resulted in the formation of the Watershed Oversight Committee (WOC) for the Falls Lake Basin. Under the Rules, the WOC is charged with compiling, analyzing, and reporting data related to agricultural production, nutrient reductions, and compliance with the Falls Lake Nutrient Management Strategy. The WOC includes staff from the NCDA&CS Division of Soil and Water Conservation (DSWC), the USDA Natural

Resources Conversation Service, North Carolina Cooperative Extension, and the NC Department of Environmental Quality (DEQ), as well as agricultural and environmental interests from within the watershed. Information on the acreage of crops and pasture in the watershed and the amount and timing of nitrogen application was provided by the WOC for each county for inclusion in the watershed model. Assumptions regarding potassium and phosphorus application rates were obtained from the report "Delineating Agriculture in the Neuse River Basin" (Osmond and Neas 2011).

For developed lands, pervious surfaces such as lawns also receive nutrient application to support plant growth. Less information is available to develop the modeling assumptions for these areas because the owner types and individual preferences and practices vary widely (homeowners, institutions, parks, etc.). Fortunately, two publications that included local homeowner surveys are available to provide reasonable estimates of nutrient application for these types of areas (Fleming 2013 and Osmond and Hardy 2004). These data were used to help build the watershed model and provide a level of accounting for this source in the watershed that is not normally available.

Wastewater Treatment

The model also accounts for the treatment of wastewater as either point source discharges or non-point sources. Point sources are wastewater treatment plants (WWTPs) that can be considered major (discharging more than one million gallons per day) or minor (discharging less). Non-point sources are onsite wastewater treatment systems (e.g., septic systems and discharging sand filter systems).

There are four minor WWTPs (as defined by EPA) in the Falls Lake Basin that treat less than 1 million gallons per day of wastewater. Effluent data for these four facilities was provided by DWR. Two of these facilities are currently in compliance with the Falls Lake Rules, and two are not. While these systems do not contribute significantly to the nutrient load delivered to Falls Lake (one percent or less), they do represent an opportunity for incremental reduction in nutrient loading.

Effluent discharges from the major WWTPs (treating more than 1 million gallons per day of wastewater) were obtained directly from the North Durham Water Reclamation Facility, Town of Hillsborough, and the South Granville Water and Sewer Authority. Over $80 million have been invested to upgrade and optimize these three facilities since 2006. Based on DWR's 2021 Status Report for Falls Lake, these three discharges have reduced their collective total nitrogen and total phosphorus loads by 57 percent and 73 percent, respectively, from the 2006 baseline.

Sources of Nutrient Loading Delivered to Falls Lake

During the UNRBA study period (2014 to 2018), annual rainfall each year was average to high. Under these conditions, WWTPs contributed approximately 6 percent of the total nitrogen load and 3 percent of the total phosphorus load delivered to Falls Lake (Figure 7). These estimates are based on actual discharges, not permit limits.

A lower rainfall condition was also simulated with the model to represent DWR's baseline modeling period more closely (around 20 percent less rainfall than 2014-2018). Under these lower rainfall conditions, the model estimates that WWTPs would contribute approximately 10 percent of the total nitrogen load and 6 percent of the total phosphorus load delivered to Falls Lake. Based on the work of the Scenario Screening Group of the UNRBA and contact with the major system owners, further reducing the nutrient loading from these facilities would be extremely expensive and energy intensive. Additional reductions would also not significantly impact the total loads delivered to Falls Lake. Considering the contributions from watershed sources delivered to the lake, further reductions at WWTPs would have little impact on lake water quality. When looking at the types of actions that

will be most effective in reducing nutrient loading to the lake, it is important to recognize that this watershed is not dominated by point source loading.

One source of nutrients, atmospheric deposition, affects all the land uses and waterbodies in the watershed including the surface of Falls Lake, and not all of this source originates within the watershed. While atmospheric deposition of nitrogen has decreased by approximately 20 percent since the baseline period based on monitoring data from the National Atmospheric Deposition Program, it still contributes more than 40 percent of the total nitrogen that is applied or deposited to the watershed. Note that not all of this load is delivered to the lake. Figure 8 shows the projected amounts of nutrient load delivered from watershed sources to Falls Lake. There is also a component of the load that falls directly onto lake surfaces, and this contributes approximately 6 percent of the total nitrogen load to Falls Lake. As a point of reference, this percentage of loading from the atmosphere directly to the lake surface is the same contribution of total nitrogen load delivered from point sources.

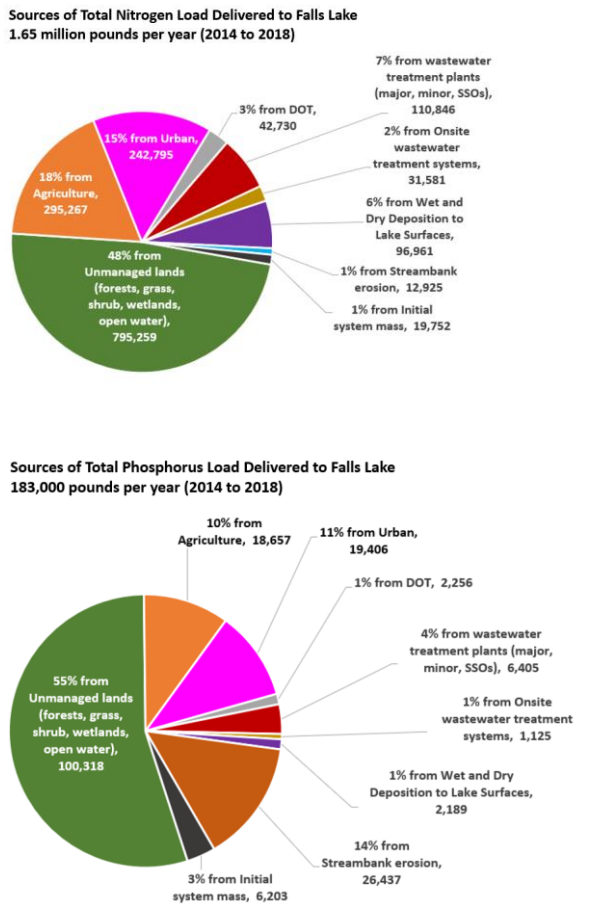


Figure 8. Sources of Delivered Total Nitrogen (top) and Total Phosphorus (bottom) Loads to Falls Lake Based on the Watershed Model

The watershed model simulates stream bank erosion separately from the individual land uses. Loads from stream bank erosion are calculated based on the erosivity of the stream bank soils, the amount of flow in the stream and resulting shear stresses, and stream bank stability metrics due to root systems and other soil characteristics. The model estimates that during 2014 to 2018, stream bank erosion contributed approximately 14 percent of the total phosphorus load delivered to Falls Lake. Because nitrogen content is low in the soil, the amount of nitrogen loading from streambank erosion is not significant. The Collaboratory has recently funded a study to identify the most likely areas of streambank erosion as a result of this modeling and at the request of the UNRBA. This study will be extremely helpful in identifying potential stream restoration sites for future investment projects.

Impacts of Watershed Processes on Delivered Nutrient Loads to Falls Lake

Based on the data compiled for the UNRBA watershed model, an average of 8.6 million pounds of total nitrogen per year were applied or deposited in the watershed in 2014 to 2018. Relative to the baseline period of calendar year 2006, this amount has decreased by approximately 37 percent. Most of the nutrients applied, deposited, or released to the watershed are removed from the system by crop harvesting, denitrification, and other physical, chemical, and biological processes. During the UNRBA study

Reducing one pound of nutrients in the watershed does not translate to reducing one pound delivered to Falls Lake.

period (2014 to 2018), approximately 1.65 million pounds of total nitrogen were delivered to Falls Lake each year. Thus, the watershed processes and crop harvesting reduce the total nitrogen applied to the watershed by approximately 81 percent prior to delivery to Falls Lake. For total phosphorus, the watershed processes reduced the amounts applied, deposited, or released to the watershed by approximately 84 percent. These reductions due to watershed processes and crop harvesting are important considerations for the revised nutrient management strategy. Reducing one pound of nutrients in the watershed does not translate to reducing one pound delivered to Falls Lake. On average, depending on the project location, a one-pound reduction of input may result in 0.2 pounds reduction delivered to Falls Lake. The 770 square-mile watershed is processing a significant amount of nutrients before they reach Falls Lake.

The UNRBA's watershed modeling has also improved understanding of the importance of soil chemistry on the transport, retention, and release of nutrients in the watershed. Soils in the watershed contain iron and aluminum that bind nutrients and release them slowly over time. This understanding must be factored into the revised strategy in terms of compliance dates and to moderate expectations about the length of time it will take for actions that reduce nutrients to impact water quality in the lake. The Chesapeake Bay STAC reported similar findings: realized nutrient load reductions had not translated to expected improvements in water quality.

The modeling also demonstrates that the significant efforts to reduce point and non-point source nutrient loading have had an important impact on delivered loads to Falls Lake. Because most of the land in the watershed is unmanaged (forests, wetlands, etc.) and extensive efforts have already reduced loading from human activities, approximately one-half of the delivered nutrient and carbon load to Falls Lake originates from unmanaged lands (Figure 8). Natural areas, including forests, cycle and provide important nutrients to waters that sustain aquatic life. Land preservation is a critical safeguard for keeping the watershed as natural as possible. These mostly natural areas dominate the drainage area and are important to the health of the watershed and the lake. Even watersheds that are 100 percent forested contribute flow, nutrients, and carbon to downstream waters – healthy ecosystems require nutrients and carbon to support life. Throughout UNRBA meetings, discussions, and document reviews, multiple stakeholders and experts have expressed that conservation must be a component of a revised nutrient management strategy. The scientific work supports this conclusion. The UNRBA's efforts and implementation of the IAIA support this activity as a critical component of future management.

As noted above, another important finding is the importance of precipitation and flow on delivered loading to Falls Lake (Figure 9). During an average rainfall year like 2017 (approximately 45 inches of rain at Raleigh Durham International Airport, RDU), delivered total phosphorus and total nitrogen loads were

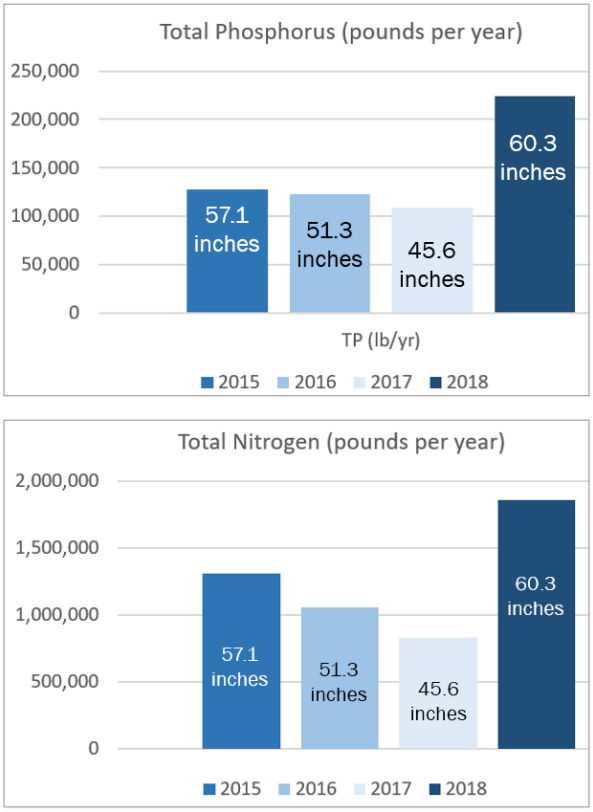


Figure 9. Annual Nutrient Loads Delivered to Falls Lake from the Watershed

approximately half of those delivered during a very wet rainfall year like 2018 (approximately 60 inches of rain at RDU).

The predictive models were developed and calibrated to observed water quality data from the monitoring period (2015-2018). The calibrated models were used to evaluate the impacts of different management options and model assumptions on delivered nutrient loading, lake water quality, and designated uses. The UNRBA convened a Scenario Screening Workgroup comprised of UNRBA members and representatives from DWR, agriculture, the US Forest Service, NC DOT, and environmental advocacy groups to prioritize these evaluations. Sensitivity analyses evaluate how much the parameters of concern (like chlorophyll-a) change when a model input or model parameter is changed (e.g., how much do simulated chlorophyll-a concentrations change if the modeled growth rate of algae is increased or decreased by 20 percent?). Scenarios were used to simulate different conditions than the model was originally calibrated for (e.g., how would simulated chlorophyll-a concentrations change if the USACE operated the lake differently?) Several model sensitivity analyses and model scenarios (e.g., 20 percent more or less rainfall) were evaluated using the watershed model to understand the impacts on delivered nutrients. The scenario with the greatest impact to delivered loading was the change in rainfall amount (Appendix H of the UNRBA Watershed Modeling Report). The majority of delivered load comes from non-point sources, and most of these areas are natural, unmanaged lands. This finding further demonstrates the limitations on additional, large-scale nutrient reductions as natural areas like forests are considered a balanced condition of nutrient inputs and outputs.

Implications for a Revised Nutrient Management Strategy

The watershed modeling results support the conclusion that achieving measurable load reductions to Falls Lake will require a systems approach directed at realistic and incremental change. The relatively small amount of managed land, constraints on the ability to install retrofits, relative effectiveness of load reduction projects, and the long response time of the watershed and lake will require a long-term effort to make progress. The revised rules should provide an adaptive management provision to reevaluate conditions in the future and make changes to the approach as needed (discussed later in this document). Any effective management approach must be flexible and include specific provisions for modifying the strategy as projects and improvements are tracked and as understanding about the system is supplemented. These recommendations for adaptive management are similar to the Chesapeake Bay STAC: "refining restoration goals over time should be considered as knowledge evolves about what future conditions are possible, what local communities and the partnership at-large see as priorities, and what is required to attain those possible futures."

The current Falls Lake Rules require a 40 percent reduction of total nitrogen and a 77 percent reduction of total phosphorus load delivered to Falls Lake relative to the baseline year of 2006. While significant progress has been made, there is no feasible means to achieve these reductions, and as a result, a reexamination of the Rules is needed.

Lake Water Quality Modeling

Three lake water quality models for Falls Lake were developed. Two of these simulate the physical, chemical, and biological processes (e.g., settling of sediment and algae, growth and decay of algae, nutrient uptake rates) in the lake and have been calibrated to match water quality observations collected in Falls Lake.

Researchers funded by the NC Collaboratory have been studying nutrient-related processes in Falls Lake since 2019. Some of these researchers also provided third-party and subject matter expert review of the lake and watershed models. The results of these research studies have been

incorporated into the development of the lake models developed by the UNRBA. For example, researchers found that denitrification in the lake arms reduces nitrogen before reaching the main part of the lake. They also measured rates of nitrogen fixation by blue-green algae where the algae can "import" nitrogen from the atmosphere to support their growth. The researchers found that rates of nitrogen fixation in Falls Lake are currently low. Reports on these and other studies funded by the NC Collaboratory are available online at https://nutrients.web.unc.edu/resources/. The UNRBA models were developed with significant input from the Collaboratory researchers and modeling staff at DWR.

UNRBA Lake Water Quality Models Developed to Support the Reexamination

One of the process-based models is a complex hydrodynamic/water quality/sediment nutrient release model that uses the Environmental Fluid Dynamics Code (EFDC) model framework. One of the reasons EFDC was selected is because it was used by DWR to set the nutrient load reduction requirements specified in the Falls Lake Nutrient Management Strategy. The other UNRBA lake model is a simpler hydrologic/water quality model that uses the Watershed Analysis Risk Management Framework (WARMF). One reason this lake model was selected is because it is directly linked to the WARMF watershed model. This direct linkage generates results for lake water quality when changes in the watershed are simulated. The DWR Falls Lake WARMF model did not include the WARMF Lake model for Falls Lake in the development of the current Falls Lake Nutrient Management Strategy (other impoundments in the watershed were simulated with WARMF Lake).

The UNRBA set up both the EDFC and WARMF Lake models for Falls Lake to use the information from the WARMF watershed model to simulate stream flows and associated sediment, nutrient, total organic carbon, and chlorophyll-a concentrations delivered to Falls Lake. This linked approach is a significant development in the assessment of changes in the watershed and how those are manifested in the lake. Previous modeling did not use a watershed model to provide input files to the lake model. Without this component of the modeling, there is no way to evaluate the feasibility of proposed management activities.

The UNRBA reexamination also includes the development of a third lake model to evaluate how designated uses are affected by lake water quality. This statistical model is primarily data driven and incorporates Bayesian techniques that allow expert opinion to be considered when relationships between parameters and designated uses are difficult to quantify or costly to measure. The UNRBA convened a Technical Advisors Workgroup including users of the lake for feedback on how lake water quality affects their organizations use of Falls Lake for recreation and drinking water supply. This workgroup included representatives from Triangle Fly Fishers, Wake County Parks and Recreation, City of Raleigh Water Treatment Plant, and other local experts in the fields of water chemistry and lake processes.

Comparison of UNRBA Lake Models to Water Quality Data and Algae Data Collected in Falls Lake

The findings of the three lake models for the study period are consistent with the evaluations presented in the UNRBA 2019 comprehensive monitoring report:

- Concentrations of nutrients in Falls Lake are usually relatively low for the study period (2014 to 2018).
- Ammonia releases from lake sediments are higher in the deeper areas of the lake.
- Chlorophyll-a can reach high concentrations even when nutrient concentrations remain low (Figure 10, 1984 to 2020)). Chlorophyll-a is better correlated to total nutrients than inorganic nutrients because algae consume inorganic nutrients and store nutrients as organic material in their cells.

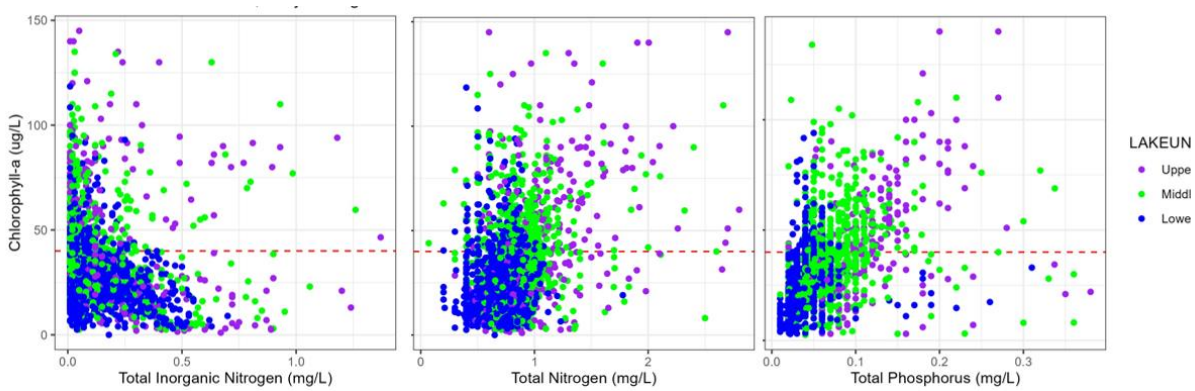


Figure 10. Comparison of Observed Chlorophyll-a Concentrations in Falls Lake to Nutrient Concentrations in Falls Lake (1984 to 2020) Excludes *outliers that are greater than five standard deviations from the mean.*

DWR assesses the presence of different algal species in Falls Lake by counting and identifying algal cells in a water sample. This information is used to estimate the amount of space in the water that algae occupy. This estimate is called biovolume, and DWR provides these estimates monthly at three locations in Falls Lake. As chlorophyll-a is an indicator of algae growth, these two measures are expected to increase and decrease together. However, when the biovolume estimates in Falls Lake are compared to the chlorophyll-a concentrations, they do not always track together. Depending on environmental stressors and dominant algae groups, chlorophyll-a can reach high concentrations even when total biovolume is low (Figure 11). This complicates simulation of chlorophyll-a because the models are designed to predict more chlorophyll-a when more algae are present. Shifts in algal groups and complex algal metabolic and species variation relationships complicate the water quality assessment of Falls Lake.

The lake models can simulate three algal groups, typically modeled as green algae, diatoms, and blue green algae. However, evaluation of DWR algal group data shows that significant concentrations in chlorophyll-a were sometimes caused by species not categorized as one of these three groups. The DWR data also show that green algae are a very small component of the algae in Falls Lake. The alternate species of algae were simulated as a group called "green/other algae."

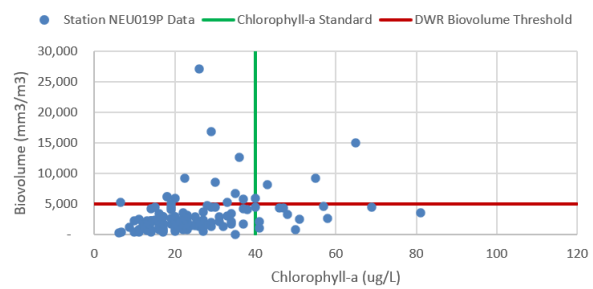


Figure 11. Scatter plot of algal biovolume (the amount of space occupied by algae in a water sample) and chlorophyll-a at a station below Highway 50 *At this station, nearly 80 percent of the exceedances of the chlorophyll-a standard occur when the biovolume is less than the threshold for a bloom.*

Evaluation of Lake Model Scenarios

Following calibration to observed lake water quality data, WARMF Lake and EFDC were used to predict changes in lake water quality resulting from changes in the watershed or lake operations. One of the scenarios evaluated was a land conversion to "all forest" and wetlands with removal of watershed-scale human inputs (rates of atmospheric deposition were not changed for this scenario). This scenario simulates all lands as forests but leaves wetlands in place. It also removes point sources, fertilizer application, and onsite wastewater treatment systems. This scenario establishes the lowest potential loading to Falls Lake and resulting lake water quality. **Even this hypothetical "all**

forest" scenario does not achieve the Stage II nutrient allocations prescribed in the Falls Lake Rules or compliance with the chlorophyll-a criterion at all lake monitoring stations.

Figure 12 shows the simulated and observed chlorophyll-a concentrations using the UNRBA Falls Lake WARMF model developed for 2014 to 2018. The model was developed and calibrated to observations collected from 2015 to 2018 while 2014 was used to initialize the model. The orange line shows the calibrated model, and the dots show the observations. The top half of the figure shows results at Interstate 85 in the upper part of the lake. The bottom half of the figure shows results in the lower part of the lake near the dam. As with the box and whisker plot shown in Figure 5, the upper lake has higher and more variable chlorophyll-a concentrations than the lower lake. While the "all forest" no watershed-scale human inputs scenario (green line) has lower chlorophyll-a concentrations than the calibrated model, it still exceeds the 40 µg/L chlorophyll-a standard (red dashed line) in the upper lake. At Interstate 85, approximately 32 percent of the simulated chlorophyll-a concentrations exceed 40 µg/L under this hypothetical scenario. For the calibrated model (2015 to 2018 conditions), 38 percent of the simulated chlorophyll-a values exceed 40 µg/L at this location. Therefore, while the percent exceedance decreases, not even this hypothetical scenario can meet the chlorophyll-a standard everywhere, all the time in Falls Lake. Therefore, it is not possible to achieve the chlorophyll-a standard in Falls Lake as currently applied.

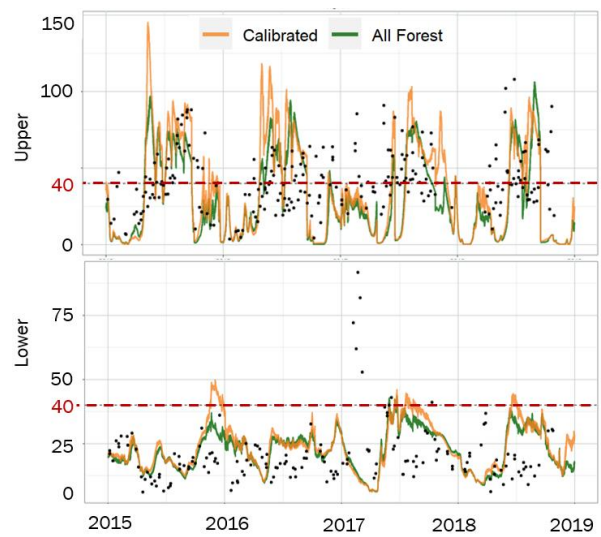


Figure 12. Simulated Chlorophyll-a Concentrations in Upper Falls Lake at Interstate 85 (top) and Lower Falls Lake near the Dam (bottom)

Significant reductions in nutrient loading to Falls Lake have been achieved since the baseline period. Another scenario was evaluated with the EFDC model to determine if these reductions from the watershed would eventually lead to reductions in the amount of nutrients cycled into and out of the Falls Lake sediments and whether this would lower simulated chlorophyll-a concentrations. While changes to the internal nutrient releases were predicted, the simulated chlorophyll-a concentrations did not change significantly. This finding indicates that algae and chlorophyll-a levels will be very resistant to changes in nutrient loading or other conditions of the lake.

A question that was frequently asked by stakeholders is the importance of USACE lake operations on nutrient storage, algal growth, and chlorophyll-a concentrations in Falls Lake. A scenario was evaluated that simulates an outflow structure at normal pool elevation so that water is not retained for flood control purposes. Because the USACE already targets this elevation in their operations, this scenario did not significantly affect simulated water quality in Falls Lake. Maximum values of some parameters either increased or decreased or shifted in time. However, the percent of simulated chlorophyll-a concentrations at I-85 exceeding 40 µg/L (37 percent) was nearly the same as the calibrated model (38 percent). Scenarios were also evaluated to determine the percent reduction in nitrogen and phosphorus loading to Falls Lake that would be required to meet the chlorophyll-a standard at least 90 percent of the time in the upper part of the lake where concentrations are usually highest. This analysis shows that an additional 50 percent reduction in total nitrogen loading beyond what has already been achieved would be required.

Implications for a Revised Nutrient Management Strategy

Given the vast amount of data collected in the watershed and lake, and the unavoidable constraints on further reductions in nutrient loading, a more reasonable implementation program with achievable water quality standards is the most correct path. A long-term, continued program based on investment in water quality management in the watershed and lake is needed. This approach will provide continued progress on protecting and improving water quality. The information developed during this evaluation process shows a reservoir that is eutrophic but meeting its designated uses. It also shows a lake that is subject to elevated algal activity and ongoing development in the watershed. To mitigate the impacts of development, implementation of the New Development Rule is an important management component of the strategy. The full impact of new development includes additional loading to the lake at flows exceeding SCM design standards. Land conservation and promoting the retention and creation of natural areas in the watershed are also essential components of an effective, ongoing strategy. Actions to improve watershed health and address current nutrient loading will provide protection of this important water resource.

Pump-and-Treat Scenario

As discussed in previous sections, one model scenario revealed that removal of all human-generated nutrient inputs and conversion of all land to forests would not meet the chlorophyll-a standard in Falls Lake. This means that all sources in the watershed would have to be treated to levels below that of a wooded watershed to comply with chlorophyll-a standards. This level of treatment would require a pump-and-treat system. To illustrate the cost, tremendous challenges, and economic impact of applying pump-and-treat systems to potentially meet the chlorophyll-a standard, a hypothetical implementation of an algal harvesting system called an algal floway is described below.

System Description

The City of Durham pilot tested a small-scale algal floway nutrient removal system that pumps water out of Falls Lake, releases the water to flow across shallow, open conveyances that grow algae, and then discharges the treated water back into the lake. The cultivated algae consume (remove) nitrogen and phosphorus as the water flows across the conveyance. These algae are periodically harvested along with the nutrients stored in their cells. The harvested material is transported to another location and treated to convert it into a soil amendment or to be disposed of alternatively (landfill, etc.). Reports associated with the pilot test, conceptual design, and 2021 construction cost estimates are available online at https://www.durhamnc.gov/4678/Algal-Floway.

Based on the pilot study results, the City of Durham evaluated the feasibility and operational aspects of a full-scale algal floway which could treat 10 million gallons of water per day. Approximately 2,000 wet tons of cultivated algae would be removed from the floway each year. The amount of nitrogen removed by the algae would range from 3,000 to 6,000 pounds each year. This range assumes the water level at the withdrawal point (either a tributary to Falls Lake or the lake itself) would always be high enough to pump water into the treatment system and that the concentrations of nutrients from the pumped water were like those observed in the pilot study. The cost to construct this facility was estimated at $7.9 million with annual expenses over a 20-yr service life of $170,000 per year. These costs do not include the cost of land or the effort of successfully siting the system.

Reductions Required to Meet the Chlorophyll-a Standard Ninety Percent of the Time

As noted in previous sections, the UNRBA watershed modeling estimates the current delivered total nitrogen load to Falls Lake averages 1.65 million pounds per year. The UNRBA EFDC lake model estimates that a 50 percent reduction in this total nitrogen load would be required to meet the

chlorophyll-a standard 90 percent of the time in the upper part of the lake. A 50 percent reduction in total nitrogen load from 2014 to 2018 levels translates to a reduction of 825,000 pounds per year on average. This is a massive reduction goal on top of the reductions already achieved since 2006. Multiple pump-and-treat type systems would be needed to achieve this level of reduction. Many, if not all of these systems, would be treating nutrients from unmanaged lands including forests and wetlands that do not receive watershed-scale human inputs (however, nutrients are "applied" to these areas from atmospheric deposition).

Implementation

Assuming the highest estimate of nitrogen removal (6,000 pounds per year, which is unlikely), removing 825,000 pounds of nitrogen per year would require 138 full-scale algal floways. These floways would generate an estimated 276,000 wet tons of harvested algae, which would need to be transported to an offsite treatment facility. A rough extrapolation of the pilot study estimates the cost of 138 algal floways at $1.1 billion for construction and $23.4 million per year for operation and maintenance. These facilities have an assumed life span of 20 years, meaning that life-time costs would be approximately $1.6 billion (construction plus 20 years of operational costs). Treatment beyond 20 years would require additional construction or repair costs. This is a conservative cost estimate as site selection, land costs, and legal costs are not included.

These costs assume the maximum amount of treatment based on the pilot study. Assuming the low end of the treatment range (3,000 pounds of nitrogen removed per year per system), construction costs would double to $2.2 billion, and operation and maintenance would double to $46.9 million for a total of $2.7 billion for the 20-year life span of the systems.

Feasibility

While hypothetical costs can be estimated for 138 systems, there are many logistical reasons that warrant this approach infeasible:

- The City of Durham has faced challenges siting even one of these systems, so siting 138 would be unachievable.
- This number of systems would require treatment of 1.38 billion gallons of water per day (10 million gallons per day times 138 systems). This is more water than entered Falls Lake during the average to high precipitation conditions that were evaluated by the UNRBA (only 239 million gallons per day to 476 million gallons per day). If sufficient water is not present in the tributary or lake where pumping occurs, the systems cannot fully operate, and pumps may be stressed.
- More than 276,000 wet tons of algae would have to be harvested, transported, and composted each year. This would likely require construction of a dedicated composting facility.
- The effectiveness of the floways is estimated based on the results of a pilot study. For the sake of illustration, constant removal efficiencies for all 138 systems are assumed. However, cumulative effects for multiple systems are unknown, and removal efficiency for a given floway could decrease significantly if incoming water had already been treated by an upstream floway. Similarly, some of these systems would have to be placed in areas that were predominately forested. Inflow concentrations from these areas would likely be lower than the pilot study, and removal efficiencies would be lower.
- Processing that volume of water and removing that level of nutrients from the system could have unknown environmental and ecological impacts.
- Addition of 138 algal floway footprints and algal harvest transportation could have negative environmental impacts such as increased impervious area and greenhouse gas emissions.

- Community acceptance of widespread installation and maintenance could present an additional hurdle to implementation.
- Local governments cannot condemn land for stormwater treatment, so all systems would require willing landowner participation.

Implications for a Revised Nutrient Management Strategy

Given the cost and constraints listed above, the use of pump-and-treat systems to reduce total nitrogen loads to Falls Lake by 50 percent from recent levels is not feasible. Because of the nutrient reductions that have already been achieved, the mostly natural state of this watershed, and the relative stability of chlorophyll-a concentrations in Falls Lake, nutrient load reductions at the scale necessary to achieve compliance with the chlorophyll-a standard are not reasonable.

This hypothetical pump-and-treat scenario is presented to illustrate the challenges faced by UNRBA members and others in this watershed. The UNRBA is not attempting to avoid costs or responsibility. Rather, this scenario and the modeling discussed previously demonstrates UNRBA's commitment to finding management strategies that will protect water quality instead of applying conventional approaches to try to reach an unrealistic goal.

The data show that achieving the chlorophyll-a standard as currently assessed is not attainable in all areas of Falls Lake. The UNRBA has extensively researched this system and evaluated several scenarios to guide readoption of the Falls Lake Rules. The result of these efforts and discussions with stakeholders indicate that the most effective means to reduce nutrient loading from the watershed and protect water quality in Falls Lake is a measured and incremental investment program that focuses on watershed health. The path forward requires a revised nutrient management strategy that focuses on clear, attainable objectives that continue to maintain the reservoir's designated uses. To move management actions forward with broad support from stakeholders, the revised strategy should not focus on nutrient pounds delivered to Falls Lake with the only goal being attainment of the chlorophyll-a standard. There are finite resources within this watershed, and those allocated to this effort need to be used for enhancing and protecting the entire watershed in sustainable, resilient, and meaningful ways.

Economic Considerations

As recommended in the Framework for a Reexamination Strategy of Stage II of the Falls Nutrient Strategy, the UNRBA planned to supplement monitoring and modeling efforts with a cost-benefit analysis (CBA). The CBA would update the DWR Fiscal Analysis by comparing modeling scenarios that would meet the chlorophyll-a standard in Falls Lake. However, monitoring data and calibrated models revealed that none of the scenarios investigated would comply with the chlorophyll-a standard as currently applied. As no reasonable means of meeting the standard was identified, a formal CBA of nutrient management strategy alternatives could not be conducted during the development of these recommendations. However, the UNRBA will cooperate with DWR to assist in developing a more thorough economic analysis during the rule revision process to evaluate impacts of rule language and alternative strategies as needed. The UNRBA continues to compile information from the local governments to support this effort.

Stakeholder Involvement

Some of the efforts on this vital component of the reexamination have already been briefly noted in this document. Stakeholder engagement for this effort is not limited to specific events but rather is an ongoing commitment to develop the science, support a revised strategy, communicate preliminary findings, and share perspectives on how these findings guide the reexamination.

The UNRBA membership has consistently used consensus to make decisions within the Association's more formal meetings and in conducting its business. The UNRBA is committed to reaching its decisions based on input from its members and representatives as well as other stakeholders. External stakeholders participate through attendance and participation at UNRBA meetings, which are open to the public. External stakeholders also have access to review UNRBA project activities, materials developed to describe and present its work, and documents generated by the UNRBA and its contractors in support of its objectives. As noted, stakeholders are invited to comment on these materials during meetings and in writing to provide input to the work of the UNRBA. Stakeholders have been included as members of workgroups created to support the UNRBA's decisions on many critical topics. Input from the NC DEQ, and its lead agency on the Falls Lake strategy, DWR, has been sought at every step regarding the work of the UNRBA. This agency is the organization that will move the readoption of the Falls Lake Rules forward. The UNRBA has and will continue to provide and enhance input opportunities during stakeholder meetings and workshops. Securing UNRBA input and recommendations to the DWR process is critical to developing a revised strategy and revised rules.

Stakeholder engagement will be expanded as rule revisions are developed. This outreach will include developers and home builders, the USACE, farmers and landowners (outreach to be led by representatives of agriculture), local Soil and Water Conservation Districts, County Health Departments, EPA, and members of the NC General Assembly. This input is critical to the success of implementing a revised nutrient management strategy for Falls Lake.

The Falls Lake Nutrient Management Strategy is an important, ongoing, programmatic commitment for local governments in the watershed. These governments are responsible for implementation of the New Development Rule requirements; identifying, funding, and managing watershed improvement projects; and achieving reductions of nutrient impacts from existing development. It is anticipated that this responsibility will continue, and the revised management strategy will continue to count on these local governments for implementation. The success of water quality management in this watershed requires an effective partnership between regulatory agencies and affected parties. Progress cannot be achieved without trust and collaboration between the state regulatory agencies, citizens, local governments, and landowners in this watershed.

Stage I Existing Development Interim Alternative Implementation Approach

The cooperative and collaborative nature of the UNRBA and its extensive stakeholder engagement process resulted in the development of an innovative and promising approach for ensuring progress for on-the-ground projects and activities that will improve watershed health. This approach addresses the challenges associated with reducing nutrient loading from existing development in the watershed by expanding opportunities for partnerships and the types of projects and activities eligible for compliance.

Beginning in 2018, the UNRBA began exploring an alternative option for achieving compliance with Stage I existing development nutrient load reductions under the Falls Lake Rules. To overcome some of the obstacles present in the current Rules, the UNRBA and its stakeholders developed the IAIA with the goal of protecting and improving water quality in the watershed and lake. The concept was originally suggested by environmental advocacy groups active in the watershed and engaged with the UNRBA and its efforts. The UNRBA worked with its members, representatives from environmental groups, conservation organizations, staff at DWR, other interest groups, and regulated entities to develop an alternative approach for meeting the Stage I Existing Development Rule. This compliance framework uses financial investment in eligible projects and activities that benefit water quality and quantity both for the lake and the watershed. This approach does not rely on the difficult compliance approach of counting pounds of nutrient reductions associated with individual projects,

rather it promotes actions that reduce nutrients, offset impacts, and improve watershed health associated with developed land in the watershed. This approach recognizes long-term benefits and emphasizes protecting lake uses and improving water quality in the watershed and lake. It also engages upstream jurisdictions in the watershed and direct users of the lake in a coordinated and mutual commitment to produce a positive future for water quality in this watershed and lake. The engagement of local governments that represent both lake users and those areas that drain to the lake provides a critical link between upstream actions and downstream benefits. The IAIA Program Document (approved by the EMC in January 2021) and other materials are available here. **The following list identifies the activities and projects currently eligible for use under the IAIA. It is anticipated this list would be expanded in a similar manner allowed under the IAIA.**

- All state-approved practices with established nutrient credits including SCMs and retrofits.
- Green infrastructure and other BMPs that include water quality and quantity improvements.
- Stream and riparian buffer restoration and enhancement.
- Programmatic measures beyond baseline program activities (i.e., levels in 2006) for years after the start of the IAIA program.
  - Fertilizer application education of businesses and homeowners
  - On-site wastewater treatment system inspection programs, maintenance tracking, repair, replacement, and pump-out programs, education of owners regarding proper maintenance, and training of professionals who inspect and repair onsite systems
  - Pet waste pickup education, waste management stations, and enforcement
- Infrastructure improvements including:
  - Repair and replacement of leaky infrastructure
  - Reduction of sanitary sewer overflows
  - Extension of sewer lines to areas using onsite systems (targeting areas with known failure issues) or package plants
- Illicit discharge detection and elimination.
- Land conservation in high priority areas including isolated and connected wetlands, land in forest succession, non-pasture grassland, scrubland, and forests (as determined through an appropriate evaluation resource, i.e., land conservation programs that identify water quality aspects of available preservation sites); the Raleigh Watershed Protection Program has a target of preserving 30,000 acres of high priority lands by 2045.
- Floodplain restoration and reconnection.
- Greenways and parks with water quality and quantity benefits (water quality benefits would be identified as specific project components and documented within the adopted development plans).
- Projects and activities that focus on flooding and have an associated water quality benefit.
- Operation and maintenance costs associated with preserving long-term functionality of practices implemented under the IAIA.
- Hydrilla removal and control

The IAIA is a voluntary program that allows jurisdictions to use a joint compliance approach. The program was designed as a pilot effort to inform the development of the revised nutrient management strategy for Falls Lake. The initial period for undertaking this program was set at five years, but the IAIA is interim because it only applies until the Falls Lake Rules are readopted as required by the NC General Assembly (expected in 2025 or later). The continuation of this approach

to mitigate impacts from existing land use in the watershed is well-suited to the specific challenges of addressing non-point source impacts in the watershed using a long-term management approach.

Year 1 of the IAIA was hugely successful with all participants meeting or exceeding their minimum investment requirements. Participants were required to commit $1.5 million to eligible projects and actions. Annual compliance reporting shows that $5.5 million was committed in the first year. A wide range of projects were implemented including land conservation, green infrastructure, stormwater control measures, illicit discharge detection and elimination, and stream restoration.

Stakeholder feedback received in 2022 and 2023 encouraged the incorporation of this investment-based approach into the revised nutrient management strategy. For example, John Huisman (DWR) said the IAIA demonstrates "positive momentum in the implementation of the Falls Lake Rules and the commitment of the local governments to improve water quality" and that "this is a great success that we can point to as an example for other watersheds." Peter Raabe of American Rivers said, "the adoption of this approach to improving our water supplies for people and nature is a groundbreaking modernization of our clean water regulation. It will deliver benefits that communities will see and appreciate every day and is only possible due to the great work of the UNRBA members and NC DEQ."

Development of the UNRBA Recommendations for a Revised Management Strategy

The efforts of the UNRBA and other organizations including the Collaboratory have greatly improved the scientific understanding of the relationship between nutrients and algae in the lake, nutrient processing, and movement in the watershed, and how those factors should shape a revised strategy for managing water quality in Falls Lake. Revised policies must consider the science and realities of how, and to what extent, actions will impact the entire system. Good policy must be built on good science.

The revised strategy should consider that significant load reductions have occurred since the Rules were passed, and further reductions will be limited by technological, logistical, and economic constraints. The outlook for this watershed and lake is promising because the UNRBA recognizes the importance of protecting Falls Lake, maintaining designated uses, and improving water quality. There is an established and positive relationship between upstream jurisdictions and downstream users of the lake. Jurisdictions in this watershed seek to continue and expand the partnership established between the members of the UNRBA, DEQ/DWR, and the public interest community. A strategy cannot work effectively unless there is mutual agreement on the actions needed and a commitment to manage and oversee those actions for the long-term.

Simply using the models to simulate reduced loading until the standard is met will not work as a regulatory approach. There are significant limitations that existing land use places on the ability to change nutrient input to the lake. It is essential to establish the link between the watershed and the lake and acknowledge the sources and relative amounts of loading.

The concepts and principles aim to establish a revised nutrient management strategy consistent with the long-term realities of how this system responds to changes in the watershed and the length of the time it will take for water quality in the lake to respond. These challenges are best addressed through a flexible, progressive management program. The strategy must also include provisions for ongoing adaptive management plans that continue actions for the long term, assess progress using an appropriate timeline, and adjust the strategy moving forward.

Falls Lake has a specific and complex relationship with its watershed. Efforts on the ground intended to improve water quality in the lake are slow to manifest. Any strategy that expects change to occur quickly is not realistic. Nutrient and water quality management actions and improvements to lake water quality must be assessed over decades.

During 2022, the UNRBA moved into the discussion of concepts and principles for a revised strategy. This critical process began before the modeling was finalized. Discussions of the work completed by the UNRBA and the Collaboratory have occurred over the last several years and inform these recommendations. The lessons learned from the development and implementation of the IAIA have also established some clear guidelines for achieving effective management of the lake and watershed.

Falls Lake is the most thoroughly studied reservoir in NC and among the most studied in the country. As summarized above, the 2014 to 2018 UNRBA monitoring program provided fundamental data and information that was previously not available at this level of detail. The 2019 comprehensive report along with the preliminary results of the Collaboratory research provides an informed picture of the system. The modeling provides further clarification of the system as well as tools to test scenarios and management actions and their impacts on lake water quality.

This document frames the concepts and considerations that have been identified by the UNRBA members and watershed stakeholders as they reference the scientific findings and modeling results. The UNRBA expects to submit these recommendations for the revised strategy to DWR and the EMC by December 2023.

Recommendations for a Comprehensive Approach to Nutrient Management

The UNRBA has been working with other watershed stakeholders to study the Falls Lake watershed since 2011. This work is intended to support the reexamination of Phase II of the Falls Lake Rules. These efforts have led internal and external stakeholders to propose that the revised nutrient management strategy incorporate the fundamental principles of IAIA including using an investment-based, joint-compliance framework on the implementation of projects and activities beneficial to water quality across the watershed.

The IAIA includes a broad range of eligible projects and activities approved by DWR for compliance with Stage I Existing Development Rules. The UNRBA members and stakeholders have discussed many types of additional projects and activities related to nutrient reduction opportunities for inclusion in the revised nutrient management strategy that would apply to specific types of land, discharges, etc. As with the IAIA, the UNRBA recommends including a provision for expanding the list of eligible activities in the revised strategy. Potential expanded activities are organized by topic in this section. However, many of the opportunities and potential partners overlap, and the organization of this document attempted to account for this overlap. Additional projects and activities may be added as the revised nutrient management strategy is implemented.

Because of the holistic nature of the recommendations, the UNRBA also recommends that its implementation for non-point sources be considered by the State as addressing all waterbodies in the watershed that are currently listed, or may be in the future, on the State's 303(d) list of waters for pollutants related to nutrients. These other waters may be considered Category 5 waters in future Integrated Reports if additional point source controls are required. Separate, State-required nutrient management requirements should not be applied to managed lands in separate areas of the watershed (draining to an upstream watershed impoundment, arms of Falls Lake, etc.). However, water quality in all areas of the watershed should be tracked, particularly sub-watersheds with water-supply impoundments. The adaptive management provisions of the revised rules should address changing conditions in these waterbodies and allow for revisions to the program to address concerns as they arise.

The UNRBA anticipates investment requirements for its members under the revised nutrient management strategy. The potential partners (e.g., agriculture and institutions) would not have the burden of investment requirements. To foster cooperation and establish a functioning, holistic program, the UNRBA proposes establishment of a "Watershed Organization" with tiered membership. Those local governments, state and federal agencies, and utilities with investment requirements would be in Tier 1 and could support administration and implementation of the program through funding. Those without investment requirements could be in Tier 2. This tier would not be expected to fund the program but could participate on committees to identify opportunities and constraints, participate in decision making, etc. Committees specific to a sector (e.g., agriculture) could be chaired by a representative of that sector (i.e., committees may be chaired by a Tier 2 member). Annual compliance reporting and tracking of investment requirements for the Tier 1 members could be managed by the Watershed Organization, similar to the current IAIA. The initiation date of the Watershed Organization will be determined by the readoption of the Falls Lake Rules, which must be achieved in accordance with Session Law 2018-5 Section 13.8.(a). This session law specifies that the EMC must begin rule re-adoption no later than December 31, 2024. It is anticipated by DWR that readoption of the rules will occur no later than 2027. Additional details about the Watershed Organization and tiered membership are provided in the section called Program Administration.

Establishment of a Fair and Equitable Program

The UNRBA strives to develop a revised nutrient management strategy that protects the watershed and Falls Lake in a fair and equitable manner. The Falls Lake Rules affect a variety of sectors, some of which can fund compliance through taxes or fees and others that do not have that ability. Beyond financial capabilities, not all communities have the staff resources to fully evaluate potential projects and choose the best options for their citizens. The collaborative nature of a watershed organization will allow regulated parties to share resources and expertise as each member is working towards a common goal. Members will have the option to participate in multi-jurisdictional projects or invest in-kind contributions (i.e., use of equipment, labor and technical service hours, etc.) which allows for significant flexibility in meeting investment requirements.

The watershed organization structure addresses an inherent inequality with conventional water quality regulation: upstream/downstream distribution of costs and benefits. Traditionally, upstream sectors may bear the brunt of expenses for mitigative action without experiencing the corresponding benefits. While downstream sectors may have little influence over incoming water quality and are at the mercy of upstream actions (or inactions). The UNRBA recommendations seek to correct this imbalance by bringing users together to improve and protect valuable water resources regardless of their location within the watershed. The UNRBA recognizes that everyone within the watershed has the potential to be affected by poor water quality, and the recommended investment approach to manage existing development provides a way of fair and equitable means for creating and benefiting from watershed improvements. As with the successful IAIA, the revised strategy should allow projects to be implemented anywhere within the watershed with an expanded suite of compliance activities. Many of the approved activities produce benefits beyond nutrient reduction, such as infrastructure repair, community amenities with a water quality focus (parks, etc.), and high priority land conservation. The result is a fair and equitable strategy where citizens can benefit from projects in their communities and address their unique priorities while protecting water quality in the reservoir.

The UNRBA recommendations for a revised strategy will be most effective when all parties in the watershed are fully engaged and committed to the common goal of watershed protection and improvement. Beyond being a moral obligation to society, a fair and equitable strategy garners

public support and encourages participation, which ultimately results in a more effective nutrient management strategy. Encouraging stakeholder involvement, providing transparent record keeping, facilitating multiple funding vehicles, and offering an expanded suite of compliance activities all contribute to a fair and equitable program. The UNRBA acknowledges that the success of the program depends on participation, and willing participation depends on each member, and each citizen, being treated with respect, equality, and fairness.

Consideration of Environmental and Social/Community Impact Issues

The revised nutrient management strategy should consider environmental and social impact issues in implementation of the program. The revised rules should promote opportunities for equitable stakeholder participation by encouraging input and participation from the public and interest groups. The UNRBA believes that a voluntary and collaborative approach will give more opportunities for communities to be heard and included in the decision-making process. In addition, members are encouraged to employ the multitude of state and federal databases and tools that exist to protect historically underserved communities and individuals. One such tool is the EPAs EJSCREEN tool that can be used to assess whether potential for environmental justice issues may arise within a project's service area. Efforts should be made to ensure that the programs and actions of the regulatory system for nutrient management in Falls Lake and its watershed do not create environmental or social justice issues.

Measuring Compliance Under an Investment-Based, Joint Compliance Approach

As with the IAIA, the UNRBA recommends that compliance under the revised strategy be tracked by investment and the amount of nutrient reductions be tracked as supplemental information. One of the fundamental differences of the IAIA compared to conventional regulatory approaches is that compliance is tracked by required investment in eligible activities rather than counting the nutrient pounds reduced. This approach provides two key benefits: 1) local governments can plan for required investment levels as part of their budgeting process and 2) activities that do not have State-approved nutrient credits that are known to be beneficial to water quality and quantity can be incorporated into the program. Pledged investment levels remove fiscal uncertainty and simplify compliance administration, freeing members to prioritize water quality projects with more comprehensive and sustainable benefits that meet water quality objectives while addressing the unique needs of their communities.

This method of compliance is reminiscent of the EPA's Integrated Planning framework first launched in 2012 and included in the Water Infrastructure and Improvement Act (WIAA) (H.R.7279) of 2019. The integrated planning framework was developed as a means to address the increasingly complex challenges of meeting Clean Water Act (CWA) requirements. "An integrated plan is a process that identifies efficiencies from separate wastewater and stormwater programs to best prioritize capital investments and achieve our human health and water quality objectives. This approach can also lead to more sustainable and comprehensive solutions, such as green infrastructure, which improve water quality and provide multiple benefits that enhance community vitality" (https://www.epa.gov/npdes/integrated-planning-municipal-stormwater-and-wastewater). The success of Integrated Planning shows that moving beyond nutrient tracking into a more comprehensive means of compliance can result in sustainable solutions that reduce pollution sources rather than simply controlling or treating discharges. In fact, many municipalities who have undertaken similar programs have exceeded CWA requirements and saved money by synchronizing water quality goals with capital improvement projects.

Representatives of agriculture have indicated that they prefer to maintain ownership of their nutrient loss tracking and reporting, and this cooperative approach would allow that to continue while

potentially leveraging funding from other sectors. DOT representatives have also indicated an interest in participating in this revised program.

Site-Specific Chlorophyll-a Standard and 303(d) Listing Considerations

The UNRBA is proposing a path forward in our recommendations that sets an ambitious process toward protecting Falls Lake and for continuing those efforts into the future, but the current standard and 303(d) water quality assessment process should be adjusted to better reflect conditions in Falls Lake. The UNRBA could apply much additional financial resources, time, and effort to secure a new standard through administrative, legislative, or legal means. However, the time associated with these efforts would delay watershed improvement actions and put Falls Lake at risk of water quality degradation that could impact uses. Options include a variance, use-attainability analysis, judicial review, legislative action, or other effort to address the compliance issues. UNRBA membership recommends focusing time and financial resources on collaborative projects that address water quality and watershed health. A request for a site-specific standard may still be needed, and the goal would be to promote progress by setting an achievable goal for the watershed and the lake.

The established goal for improving water quality in Falls Lake is the current water quality standard for chlorophyll-a. As part of a comprehensive consideration of an effective nutrient management strategy for Falls Lake, it is appropriate to provide some comments related to this goal.

The UNRBA continues to evaluate and consider a site-specific chlorophyll-a standard for Falls Lake. The current standard was adopted in 1979 to address use support issues on the Chowan River.

The scientific data, research efforts, and an assessment of uses of Falls Lake shows no use impairment. The current standard is not appropriate for the lake because the designated uses are being met despite exceedances of the criterion in some locations. The 303(d)-assessment methodology being applied is not consistent with scientific evaluations of lake quality in NC or any reservoir environment in similar regions of the US.

Even if the UNRBA does not submit a new standard petition as part of this reexamination, the 303(d) assessment methodology should be adjusted for Falls Lake consistent with the science of using chlorophyll-a data to assess overall reservoir quality (how eutrophication is indicated for the reservoir as a whole rather than a station-by-station assessment). The 303(d) assessment methodology for Falls Lake should establish stable and consistent assessment segments based on the physical and limnologic characteristics of the reservoir. On several occasions, the UNRBA has provided comments and requests for an adjusted methodology for Falls Lake.

The data and scientific evaluations provide fundamental information about the reservoir and the watershed. The modeling and scenarios demonstrate the limitations of what can be achieved in terms of additional nutrient load reductions and attainment of the chlorophyll-a standard and the amount of time to realize changes given the soil chemistry in the watershed. Because 75 percent of the watershed is unmanaged and significant reductions in nutrient loading have already occurred since the baseline period of the Rules, additional, large-scale nutrient reductions are not likely to occur. Rather than focus on attainment of the chlorophyll-a standard, the goals of the revised strategy should be incremental improvements and long-term protection of the designated uses of Falls Lake.

The UNRBA supports an adjusted 303(d) assessment methodology and site-specific chlorophyll-a standard for Falls Lake and will continue to cooperate and collaborate with DEQ-DWR, Environmental Protection Agency (EPA), and other stakeholders on these revisions.

Consistent with established legislation, the UNRBA recommends that the NC DEQ-DWR and EMC move forward promptly with the revisions to the Falls Lake Rules taking into consideration these

consensus principles. The UNRBA does not recommend delaying rule revisions while these objectives continue to be developed and evaluated. Readoption of the Falls Lake Rules remains the first priority so ongoing implementation efforts in the watershed can proceed.

Urban Development, State and Federal Lands, and Institutional Lands

The UNRBA recommends an investment-based approach to continue improvements on existing lands. In addition to the eligible activities listed in the IAIA Program Document, stakeholders have identified the following additional activities for inclusion or consideration in the revised nutrient management strategy. **It is noted that the specifics of how to accomplish these actions will need to be considered, evaluated, vetted, and accepted before they are incorporated into the rules or operating procedures. Different communities will have different needs and constraints and may elect to implement the concepts that best support their situation. The opportunities for retrofits will also vary by jurisdiction.** It is anticipated the list of eligible projects and activities would be expanded in a similar manner allowed under the IAIA.

- Expand education activities to address SCM maintenance
  - Focus on Homeowner Association (HOA) Boards and other SCM owners
- Coordinate to fund retrofits for existing and re-development
  - Provide incentives to owners to encourage participation
  - Pay for retrofits and take over inspection and maintenance, but practice ownership would not change (e.g., Hillsborough dry ponds)
  - Evaluate use of development bonds for SCMs as a funding source for maintenance and repairs; local government would not count funds expended from the bond as part of their investment, but staff resources to identify and research bonds and their applicability would count as in-kind investment
- Improve existing stormwater infrastructure on publicly owned lands and privately owned lands under a voluntary agreement
- Improve HOA management and maintenance
  - Inspection and maintenance
  - Outflow management to ensure proper discharge (e.g., cleaning trash debris racks, preventing/repairing erosion downstream of outfalls).

Additional projects and activities will be added to this list as the revised nutrient management strategy is developed.

Opportunities for Partnering on Agricultural Lands

In the Falls Lake watershed, the acreage of land in agricultural production (crops and pasture) has declined by approximately 45 percent since 2006. Most of the operations in the watershed are relatively small and have already implemented best management practices and reduced fertilizer application rates. Many of the streams in the watershed are buffered. The revised strategy should consider the footprint of this land use and its potential for nutrient input to Falls Lake.

In 2006, land identified as agricultural was approximately 89,000 acres. For the study period (2014 to 2018), agricultural land in the watershed was approximately 50,000 acres. The estimated percent contribution of total nitrogen from this land use is 18 percent and total phosphorus is 10 percent. Nonetheless, when incremental improvement is the goal, any reduction of nutrient input is helpful.

The UNRBA recognizes the importance of supporting agriculture in this watershed to maintain its rural nature and support the local food economy. As the revised strategy is being developed, farm-supporting organizations like the NC Farm Bureau and NCDA&CS have helped the UNRBA interface with farmers and make sure we present our common interests in productive ways. The following concerns have been raised during these discussions which should be considered in the transition to rule making to ensure that the interests of all parties are protected and to provide long-term stability for planning and implementation. For some of these concerns, potential solutions were offered (shown in italics). All of these concerns will require additional discussion as rulemaking commences:

- Potential risks to farmers who have received funding from non-agricultural organizations if the structure of the Rules or the accounting methods change in the future; the farmers would have lost reduction credits to other sectors. *Regulatory certainty will need to be addressed with input from DWR; as stated in this document, agriculture would continue to track nutrient loss reductions regardless of the source of funding*.
- Different funding structures or fluctuating levels of funding could affect allocations to the local Soil and Water Conservation Districts. *Funding the Agriculture Cost Share Program with consistent levels of funding is one way to address these allocation issues.*
- Local government funds used for investment credit should be in addition to current levels (2023), so the programs are expanded. *The recommendations in this document have been modified to include a year on which increases will be based.*
- There is a risk that the legislature may reduce funding for the Agriculture Cost Share Program since more funds would be provided by local governments.
- Fluctuating contribution levels from year to year could lead to instabilities in program administration. *Representatives suggest that a recurring minimum contribution level and/or multi-year planning periods with stated commitments (e.g., 5 years like the IAIA) would be helpful for planning and staffing purposes.*
- Farmers want to continue to receive best management practice and technical assistance from existing, trusted organizations like local Soil and Water Conservation Districts. *Funding the Agriculture Cost Share Program with consistent levels of funding would continue existing procedures for funding practices and for technical assistance.*
- Depending on the level of funding increase, additional administrative work may overwhelm staff at NCDA&CS. *Allocating some percent of contributions to support staff would help this issue.*
- Farmers are concerned that their stormwater fees will continue to increase to fund this program. One farmer indicated he pays as much as $1,000 per year in stormwater fees. *By including funding of the Agriculture Cost Share Program as an eligible investment by local governments, farmers are more likely to receive direct benefits under this framework. Alternatively, the fees may increase under the revised nutrient management strategy but would fund projects like stormwater control measures on developed areas, sewer improvement projects, or land conservation.*
- Farmers are used to the existing rule structure that has been in place since 2011 and wary of change that may impact operations and regulatory burdens. Future changes in staff at regulatory agencies or changes in membership of the Watershed Organization could risk stability of the partnership. *Additional outreach is needed to build trust. Formal agreements are needed to protect all stakeholders. Inclusion of representatives of agriculture in the Watershed Organization and its bylaws and committees would solidify partnerships.*

It is always necessary in coordinating with agriculture and in working on all projects to respect the landowner's decision on participation. Since streambank erosion is a significant factor in phosphorus loading and streams normally intersect multiple landowners, farm agencies can help

facilitate coordination with farmers and large landowners on stream projects crossing multiple properties. As the following section of this document deals with forest lands in the watershed, farming-interest representatives pointed out that farmers often own large areas of forest land. Coordination with farmers on potential forest-related projects or initiatives could also be a favorable aspect of agricultural participation in a Watershed Organization.

During the Scenario Screening process, representatives of agriculture met several times with the local agricultural councils to determine if potential additional activities in the watershed could be implemented to further reduce nutrient losses from agriculture. These discussions indicated that in this watershed, additional actions would not significantly decrease nutrient losses.

While large-scale changes may not be feasible, there remain opportunities for local governments and other Tier 1 Watershed Organization members to continue to partner with agriculture. An eligible activity for a local government to meet their investment requirement under the revised nutrient management strategy could include contributing additional funds above and beyond existing investment commitments (for example 2023 levels) to support the following:

- Soil and Water Conservation District activities including soil conservation, water conservation, streambank restoration, and stormwater control measures
- Agricultural best management practices, projects, equipment, and materials
- Local technical assistance, grants, and tracking support
- Voluntary Agricultural Districts (allows for Enhanced Voluntary Agricultural Districts to protect farms from development for 10 years)
- Conservation Reserve Enhancement Program
- Farmland Preservation Program

The most efficient means to provide this funding to agriculture is to utilize existing organizations and programs. For example, the Agriculture Cost Share Program is currently administered by NCDA&CS who coordinates and allocates funding to the local soil and water conservation districts. Utilizing this existing structure minimizes change in current administration of these programs and would rely on their existing decision-making frameworks.

The representatives of agriculture also indicated that they would prefer to maintain their own tracking and reporting systems for production acreages, nutrients applied, cost-share funding, projects implemented, and nutrient loss reductions. The agricultural community has invested a tremendous amount of time and resources into the Nitrogen Loss Estimation Worksheet (NLEW) which was developed by researchers at NC State University Extension. The UNRBA supports the agricultural community conducting its own tracking and reporting, which would be supplemental information to the investment-based compliance metrics under the revised nutrient management strategy. When projects have a method for quantifying nutrient reductions, agriculture would track these projects and reductions in their reporting. Representatives of agriculture indicate they may want to separately track joint projects (with funding support from others) and agriculture-only projects.

The UNRBA is not recommending nutrient reduction or investment regulatory requirements be placed on the agricultural sector, either collectively or individually. The UNRBA proposal is to work cooperatively with agriculture to identify where investment from local governments and other Tier 1 Watershed Organization members could support projects, technical assistance programs, and reporting. This approach would allow the Tier 1 members to work toward their own investment requirements while supporting agriculture in the watershed and allowing agriculture to maintain its autonomy.

The representatives from agriculture that participate in UNRBA meetings and workgroups have noted that an expanded outreach effort is needed as the revised strategy is developed. These representatives (Farm Bureau and NCDA&CS/DSWC) have begun these discussions to gage farmer interest in these concepts and offered to continue these discussions as rule making progresses. The UNRBA would provide support to these discussions as requested and directed by the agricultural representatives.

Forest Lands

Forest lands comprise approximately sixty percent of the Falls Lake watershed. Forests are an important part of a healthy ecosystem as they store, cycle, and release nutrients. Atmospheric deposition in dry and wet forms provides continual inputs of nitrogen, phosphorus, and carbon to all land and water surfaces including forested areas. Natural breakdown of forest debris contributes nutrients to the system. Many stakeholders have expressed the importance of preserving and protecting forested areas in the Falls Lake watershed.

Sediment, nutrient, and carbon loading rates from forests are heavily influenced by hydrologic conditions. Antecedent conditions are important to consider as a dry forest will hold more rainfall than a saturated forest. Destructive storms that disturb the root zone of trees can result in much higher loads of nitrate for an extended period of time (Yeakley et al. 2003, Schaefer et al. 2000, Hogan et al. 2020).

Researchers in Norway are evaluating change to atmospheric deposition of nitrate and sulfate on changes to the biogeochemical processes in forested areas (Deininger et al. 2020). Their findings indicate that "declining sulfur deposition, through reducing the ionic strength in soil water, increases the solubility and mobility of organic soil compounds and may result in increased leaching of organically bound N [nitrogen] to freshwaters." Similar observations of decreased inorganic nitrogen loads coupled with increased organic nitrogen loads were noted in DWR's 20-yr status report for the Neuse and Tar-Pamlico Estuaries (DWR 2023, draft).

Based on the work of the Scenario Screening Group, there are projects and activities that can be implemented to reduce nutrient inputs and exports from forests. The UNRBA recommends that these activities be considered as eligible under the revised nutrient management strategy. Again, the UNRBA does not recommend that these would be regulatory requirements, but rather opportunities for local governments and other Tier 1 Watershed Organization members to invest in activities that would improve water quality and quantity. The first three bullets are currently included in the IAIA Program; the remaining bullets represent an expansion of the Program:

- Forest preservation
- Stream, wetland, and buffer restoration/enhancement
- Floodplain expansion
- Enhancement of Forestry Best Management Practices: stream crossings, haul roads, temporary skid trails, etc.
- Consideration of water usage by tree species in forestry management
- Nitrate capture/denitrification following large, destructive storms through temporary active treatment or passive treatment to enhance denitrification in an improved hyporheic zone
- Controlled burns, harvesting, forest management, vegetation management (native/non-native)
- Phytoremediation (using plants to clean up contaminated environments)

While there are contiguous areas of forests in the watershed, these typically are fractured in terms of ownership. Projects and activities that affect multiple owners will complicate implementation. The Watershed Organization would need to foster relationships with the associations listed and other

groups, including agricultural organizations (since a lot of forest land is on land that includes farming activity.)

As the UNRBA continues to develop the revised nutrient management strategy, stakeholder engagement will be expanded to include the NC Forest Service, NC Forestry Association, and other forest management organizations. Representatives of agriculture have existing working relationships with these associations and have offered to support this outreach. One suggestion has been to fund the NC Forest Service Forest Development Program that provides financial support to replant trees after harvesting or when agricultural production has ceased. As with the Agriculture Cost Share Program, this approach would fund existing organizations who have established administrative procedures, decision-making, and fund-allocation processes.

Streambank Erosion

Stream bank erosion is a significant contributor to the sediment and total phosphorus loads delivered to Falls Lake. Streams may become unstable following channelization, changes to land use, increased impervious surfaces, and changing hydrology. Stream restoration and/or infiltration of stormwater can be implemented to regain stability.

Based on the UNRBA WARMF watershed model, approximately 15 percent of the total phosphorus load to Falls Lake comes from streambank erosion. At the scale of the Falls Lake watershed, the model does not account for previously implemented stream restoration projects or site-scale conditions. While there is uncertainty with the stream bank loading estimates, their relative magnitude compared to other sources indicates opportunities for pollutant reductions (Figure 8).

The UNRBA is not proposing any specific regulatory requirements or projects associated with stream bank erosion, but rather allowing the local governments and other Tier 1 members to fund these projects as an eligible activity. The proposed activities associated with streambank erosion are currently allowed by the IAIA Program:

- Stream, wetland, buffer restoration/enhancement
- Floodplain expansion

Streambank erosion represents a truly “distributed” nutrient source in the watershed. The basin has many miles of streams and rivers. Streams and rivers cross multiple property and jurisdictional boundaries which will complicate implementation of this practice. Many organizations and researchers have studied stream bank erosion in the Falls Lake watershed including City of Durham, USGS, and researchers at NC State University. As a result of the UNRBA modeling study, the NC Collaboratory has recently funded a study to identify hot spots of streambank erosion and potential restoration activities that reduce potential of erosive flows that contribute to streambank erosion. The City of Raleigh is also working with USGS on a streambank erosion study.

Atmospheric Deposition and Climate Resilience

Atmospheric deposition of nitrogen, phosphorus, and carbon affects all land uses and waterbodies, including Falls Lake. While this deposition is a natural process needed to cycle nutrients through the environment, human sources of air emission impact atmospheric concentrations of pollutants, and remote air pollution sources move into the watershed based on weather and prevailing winds. This source may provide an opportunity for reducing the amount of nutrients deposited to the system each year.

According to DWR’s 2021 Status Report for Falls Lake, atmospheric deposition of nitrogen has declined by approximately 20 percent since the baseline period. Improvements to air quality

globally, regionally, and locally have contributed to this reduction. Estimates of reduction since baseline vary annually because the amount of rainfall influences the amount of wet deposition.

Changing weather patterns are important to consider as well. Large storms not only result in greater rates of deposition as direct inputs, but they also erode soil, disturb root systems, and increase runoff volumes and shallow ground water inputs to streams. Drought conditions at critical times can concentrate nutrients near the land surface and when rainfall occurs, wash larger loads of nutrients into waters when algal activity can be stimulated. Warmer temperatures for longer periods can cause biological, chemical, and ecological changes. Together, these factors can result in greater nutrient loading, increased algal growth and species shifts, and impact to downstream waterbodies. Therefore, the revised rules should promote projects and activities that are resilient, effective, and sustainable to provide long-term protection of the lake and the watershed.

The UNRBA recommends that the revised nutrient management strategy employ a systems-based approach that will require looking beyond the actions of individual landowners and facility operators. Tier 1 members could fund the following projects and activities to support this holistic effort. The first three bullets are currently included in the IAIA Program; the remaining bullets represent an expansion of the Program:

- Green infrastructure/infiltration devices
- Floodplain restoration and reconnection
- Projects and activities that focus on flooding that have an associated water quality benefit
- Farmer and forest landowner voluntary conservation work which can significantly contribute to climate solutions and offer many other ancillary benefits including soil health, water quality, and pollinator and wildlife habitat within the watershed.
- Climate sustainability and resiliency projects for water/wastewater/stormwater infrastructure (e.g., elevating key operational equipment like pumps at wastewater treatment plants to mitigate the risk of failure due to flooding)
- Tree planting adjacent to busy streets and highways, e.g., the Center for Watershed Protection Forest- Friendly Codes and Ordinance Worksheet and the Wake County Land Cover Analysis and Tree Canopy Assessment that provides tree-planting priorities by municipality
- Air pollution reduction technologies for point source and vehicle emissions
- Public transportation and green energy sources
- Flood preparedness communications (e.g., operations at watershed impoundments)

Distributed Wastewater Sources

In terms of the total nutrient load delivered to Falls Lake, distributed wastewater sources contribute a minor fraction of the load. Distributed wastewater sources include septic systems, discharging sand filter systems, and sanitary sewage releases. However, the smaller tributaries and headwaters may benefit from projects and activities that reduce nutrient loading. From a public health perspective, these projects and activities can be very beneficial.

The UNRBA does not recommend regulatory requirements in the revised rules for private landowners; however, local Health Departments may require private owner action due to violations of local and state health law and rule. The UNRBA recommends that Tier 1 members work toward their investment requirements by continuing to provide funding and technical assistance to support improvements. The activities listed below are currently included in the IAIA Program and should continue to be eligible under the revised rules:

- Address sanitary sewer overflows (SSO) and sewer exfiltration

- Continue to implement measures that reduce volumes reaching the stream
- Continue to identify and repair potential issues
- Develop grant programs for addressing failing sewer lateral lines

- Address failing on-site wastewater treatment systems (OWWS) and failing discharging sand filters (DSF)
  - Continue to conduct state-mandated operation and maintenance (O&M) inspections to proactively reduce failure rates, investigate and repair malfunctioning systems, prioritize inspections in older neighborhoods, and provide grant programs to subsidize homeowner costs for new systems/repairs
  - Continue to allow credits for connecting onsite systems to sewer systems
  - Consider that expanding sewer may reduce the number of onsite systems but will increase development intensity and impervious surfaces
  - Address regulatory issues with State-issued new permits for DSF
  - Consider financial assistance for system repair or connection to regional wastewater systems to address failing systems.

Point Sources (Major and Minor)

As noted in the "Key Findings from the Monitoring and Modeling Studies," major and minor WWTPs contribute approximately six to ten percent of the total nitrogen load and three to six percent of the total phosphorus load delivered to Falls Lake. One reason these relative contributions are comparatively small is that the three largest dischargers have reduced their collective total nitrogen and total phosphorus loads by 57 percent and 73 percent, respectively, from the 2006 baseline (DWR 2021). Further reductions to nutrients discharged from the major facilities would be extremely expensive and energy intensive. Some of the minor facilities have also achieved significant reductions from the baseline period.

These relative contributions are based on actual discharges from each facility. None of the three major facilities are currently discharging at flows as high as their permit limits. The revised nutrient management strategy will need to address the potential for future facility expansions.

Based on the cost of additional facility upgrades relative to the percent contribution of delivered nutrient loads from WWTPs, the UNRBA is not recommending additional regulatory requirements for the WWTPs in the watershed beyond what has already been achieved. Major and minor wastewater treatment plant owners should continue to optimize treatment performance using currently installed technologies. Review of plant performance should be included as a provision of the 25-year review. Plant and collection system owners should continue to track emerging technologies that may become technically and financially feasible in the future for further improvements to plant operations including biosolids handling. Work should continue to identify and eliminate exfiltration from sewer lines and sanitary sewer overflows.

The revised rules should incorporate requirements for new wastewater treatment facility requests or expansion requests including provisions for technology upgrades, joint-compliance permits (e.g., the Lower Neuse Compliance Association's permit), nutrient offsets, and/or nutrient credit trading using practices on managed lands.

Additionally, the UNRBA recommends that Tier 1 members have the opportunity to fund upgrades and improvements to reduce nutrient discharges from minor WWTPs serving low-income households

in the basin. Technical support to improve operations would also be eligible to meet the investment requirements described by the proposed strategy. The minor facilities are a very small percentage of the load to Falls Lake (one percent or less), but improvements at these facilities would contribute to incremental progress in the watershed.

New Development

The UNRBA proposes that the new development rules would mostly continue as currently prescribed in the Falls Lake Nutrient Management Strategy. Proposals to make slight modifications to these rules have been discussed at UNRBA meetings. One example is possibly waiving the requirement for a stormwater assessment by a professional engineer when family property is parceled and inherited by heirs. Another example is to evaluate the nutrient-related allowances and post-development nitrogen and phosphorus exports that are inherent to the currently-accepted exclusive use of low impact development (LID) criteria, as specified in the 2009 North Carolina Low Impact Development Guidebook to ensure that development meets both the hydrologic goals of LID and the water quality improvement goals for Falls Lake.

Additional activities that would support implementation of the new development rules and address concerns with land disturbance are proposed as eligible activities under the revised nutrient management strategy:

- Include joint consultation among watershed organization members to assess and document consistent application of new development requirements,
- Consider changes to Unified Development Ordinances to allow flexibility in implementing beneficial practices and activities.
- Incentivize green infrastructure, disconnected impervious services, soil improvement, low maintenance lawns, etc.
- Revisit soil improvement practice with NC Division of Energy, Mineral, and Land Resources (DEMLR). This practice is currently creditable only for existing development but is most beneficial for new development.
- Adopt policies allowing stormwater treatment within street rights of way or other easements.
- Encourage, partner, and incentivize larger, regional SCMs that treat upstream existing development and the new development for which new SCMs are being permitted.
- Improve information transfer from developers to HOA Boards.
- Build from current jurisdictional approaches including current inspection programs, enforcement programs, etc.
- Coordinate workshops among members to share information about existing programs and best practices.

Transfer Responsibility of SCMs to Local Governments (Not Recommended)

One suggestion proposed that stormwater systems be transferred into true utilities where existing and new SCMs would be placed under the jurisdiction of the local government. This migration would transfer the systems to the local governments so HOAs and private owners would not be tasked with maintaining them. Several issues were identified as reasons this approach would not be feasible or successful. These notes are included in this document as the UNRBA anticipates this suggestion will be posed again in the future.

- There are thousands of existing SCMs with new ones added regularly.
- Local stormwater programs are already underfunded and understaffed; the workload associated with managing and maintaining thousands of SCMs would be overwhelming.

- Fee increases to provide resources for this action would be large in most jurisdictions and very large in some. Increasing taxes and fees is already challenging, and approved rates are often less than originally proposed. Increased funding through additional taxes and fees could not be expected to provide the staffing levels needed. This approach also transfers the cost of maintenance to all rate payers, including low-income households.

The jurisdictions operating the local government stormwater programs (inspections, education, maintenance, and enforcement), indicate the current approach is the most efficient way to handle SCMs operation and maintenance. For these reasons, the UNRBA does not recommend transferring stormwater systems into utilities operated by the local governments.

Program Administration

Preliminary discussions by the UNRBA members and its advisors are leaning toward establishment of a watershed organization (to be named later). This "Watershed Organization" would include the local governments and utilities that currently comprise the UNRBA as well as other potential partners as described above. Formation of a Watershed Organization would occur as outlined in State law (NCGS 143-214.14). To allow for administration of the Program(s) managed by this organization, it would likely need to register with the State of NC and adopt Bylaws to establish the governance of the Watershed Organization and administer the revised nutrient management strategy. The State of NC would need to delegate authority to the Watershed Organization to implement the revised strategy. Establishing a Watershed Organization to coordinate compliance provides a clear line of communication with the membership and the regulatory agency.

The Collaboratory is funding a study to examine the legislative requirements and operational constraints that may apply to the Watershed Organization. As the rules revision process proceeds, the UNRBA will be working with the Collaboratory, Mr. McLawhorn, the UNRBA legal group, and UNRBA's legal advisor to ensure that State and Federal statutory and regulatory requirements are met.

The Bylaws of the Watershed Organization will need to address the following elements:

- Organizational structure including committees
- Voting and decision making
- Annual administrative dues
- Adding members to the program
- Member resignation and termination - members that resign or are terminated will need to make arrangements with DWR to demonstrate compliance under an alternate framework; it will be the responsibility of the member leaving the program to contact DWR and to determine the actions they need to take to meet these requirements
- Revisions to minimum annual investment amounts
- Joint-funding of special projects)
- Definition of Tier 1 and Tier 2 members; flexibility to add additional member tiers as the program evolves

Participation in the Program will need to be confirmed by the Bylaws of the Watershed Organization, adoption of the program document for the revised strategy, and submission of a resolution of commitment by the members of the Watershed Organization.

Proposed Structure of the Watershed Organization

The preliminary concepts for the new Watershed Organization are to establish two membership tiers. Tier 1 would include local governments, state and federal agencies, and utilities that would have specific requirements under the revised nutrient management strategy. These requirements would likely be investment-based (cash and in-kind) as under the current IAIA Program. Internal and external stakeholders, including staff from DWR and environmental advocacy groups, indicate they would like to see this approach continued under the revised strategy. Tier 1 members would be responsible for funding projects and activities as well as administration of the program. Administrative costs could include meeting coordination and development of meeting materials, compiling annual reports from members, generating a summary report for submittal to DWR, providing technical advisory support, and answering questions about the program from members of the Watershed Organization, regulatory agencies, elected officials, and the public.

Tier 2 members would not have specific requirements under the revised strategy. Their participation would be strictly voluntary. Tier 2 members would be potential partners in the implementation of practices and actions that improve water quality and quantity across the watershed. Tier 1 members would coordinate with and support Tier 2 members to identify and, if appropriate, implement projects across a wide range of land uses and nutrient sources. Funds from Tier 1 members may also be used by Tier 2 members to support reporting and tracking efforts as well as technical assistance programs. Tier 2 members would receive the benefits of investments from Tier 1 members but maintain their own tracking and reporting.

Tier 1 and Tier 2 members would maintain control of actions affecting their lands and interests and provide oversight by leading committees within the Watershed Organization that are focused on their area of responsibility. For example, a committee established to identify opportunities for supporting agriculture in the watershed would be led by representatives from agriculture. The same approach would apply to NC DOT.

As with the IAIA, it is not anticipated that the new Watershed Organization will receive or manage funds from members investing in their own projects, or on projects undertaken by agreement with other participants or other organizations. The current IAIA provides for the funding of "special" projects coordinated through the UNRBA, and the Bylaws for the Watershed Organization should address this potential. As envisioned currently, participating members would develop the necessary agreements and track and report individual and joint contributions. Participants would directly provide the investment funding or support to successfully complete projects and maintain appropriate project files for future reference. Project plans and specific information related to design, installation, operation, and maintenance would not have to be submitted to DEQ but should be kept on file by the participants in accordance with their file retention practices.

Investments

Investments in eligible projects and activities may be "cash" or in-kind (e.g., self-funded projects, donation of technical-service hours, or use of equipment). Individual members will provide annual reports to DEQ that identify each project and the investment amount (for multi-year activities/projects, the participating member will show a total investment and note the projected investment for the coming years). On the basis of these reports, the Watershed Organization will provide a summary report to DWR and to the membership on total participation and total investment.

As envisioned currently, each participant may allocate resources using one or more of four funding options. Participants can use a combination of project funding approaches and can change which funding options they utilize from year to year. Investment credits generated from multi-partner

projects shall be credited to the partners based on individual participant contribution levels including accounting for long-term operation and maintenance costs. The project agreement may provide other allocations for investment credits. The four funding options are listed below:

- Self-funded – An individual participant may use funds for eligible projects and activities within and managed by their own organization.
- Interlocal agreement – Individual participants may enter into interlocal agreements in which eligible projects and activities are jointly funded by two or more jurisdictions.
- Funding existing local organizations - Individual participants may contribute funds towards eligible projects or activities to other local organizations including local Soil and Water Conservation Districts, County Health Departments, School Districts, watershed improvement associations, land conservation groups, and Tier 2 members that do not have investment requirements that may implement projects to improve water quality. The receiving local organization is responsible for prioritizing and selecting from the list of eligible projects and activities under their established procedures for setting priority. Use of funds by other local organizations is limited to projects and activities associated with water quality and watershed improvement benefits. A separate agreement/contract may be required to specify use of funds by other local organizations. Local government funding of agriculture-related projects is discussed in the section called "Opportunities for Partnering on Agricultural Lands."
- Development of a special project– individual participants may contribute to a special project as would be described in the bylaws. These projects would involve the Watershed Organization to manage the project and coordinate the project development steps. Project management subcontractors may be necessary if projects are complex or large. Joint funding would have to cover project management costs, either as managed by the Watershed Organization or by a contractor. The Watershed Organization would likely recommend that the two or more members participating in a proposed special project consider the alternative of a joint project through an interlocal or other type of acceptable agreement. Special projects must fall under the approved list of project types provided in the latest version of the program document.

If a local government receives grant funding for an eligible project, only the investment from the local government(s) used to contribute a match to the project may be counted toward their annual investment commitment under the program (i.e., the grant award may not be counted). It is the responsibility of the participant(s) to ensure that the requirements of the grant are met.

Minimum annual investment commitments for the Tier 1 members will be negotiated during the rules review process and specified in the program document for the revised strategy. Tier 1 members will be responsible for their assigned annual commitment, and if financial resources are made in excess of the annual commitment, the excess may be credited against the member's future years commitment. Each member will have the option to withdraw from the program in accordance with the bylaws of the Watershed Organization as long as an alternate compliance framework is agreed upon by DWR prior to withdrawal. Alternate compliance frameworks may be specified in the revised rules but are not included in this document.

Duration

The revised nutrient management strategy for Falls Lake will be a long-term plan to improve water quality and quantity. Based on stakeholder input, the UNRBA proposes a 25-year program with interim evaluations of success and potential areas of improvement as part of an adaptive management program. The UNRBA recommends that the rules not include the specifics of the program because it will be extremely difficult to use adaptive management provisions. An approved program document referenced by the rules with specific renewal periods (e.g., five years) would be a

more reasonable and adaptative approach. This approach is similar to the IAIA where the Stage I Existing Development Rules reference the IAIA Program Document as the joint-compliance approach.

The initiation date of the revised nutrient management strategy will be determined by the readoption of the Falls Lake Rules which must be achieved in accordance with Session Law 2018-5. This session law specifies that the EMC must begin rule re-adoption no later than December 31, 2024. It is anticipated by DWR that readoption of the rules will occur no later than 2027. The current IAIA program has an initial 5-year investment commitment. The program began on July 1, 2021, and is scheduled to end on June 30, 2026. Depending on the status of rule readoption, the IAIA program may need to be renewed to continue compliance with the Stage I Existing Development Rule. Implementation of the revised strategy will need to take into consideration the status of the IAIA.

Previous and ongoing nutrient reduction activities and projects, including those implemented prior to and under the IAIA will be credited as actions, investments, and/or reductions in the revised strategy. The UNRBA and its members are committed to making sure that projects and activities implemented prior to readoption of the rules are included in the framework for compliance with the readopted Falls Lake Nutrient Management Strategy.

Reporting

Annual reports would be submitted by each Tier 1 member to DWR. These annual reports will list all eligible projects and activities implemented under the program and include an assessment of compliance with respect to minimum investment requirements. Copies of annual reports will be provided to the Watershed Organization for tracking and summary purposes. The Watershed Organization will provide a summary report each year to DWR that summarizes the total investments and commitments for the previous fiscal year. Annual reports from Tier 1 members would be submitted to DWR (with copy to the Watershed Organization) by September 30th following the end of each fiscal year. A summary report based on the individual reports would be generated for consideration by the Watershed Organization at their following meeting in November with submittal to DWR by November 30th.

Regardless of the type of funding arrangement used to demonstrate participation under the revised strategy, each Tier 1 member will need to report, in accordance with the program document, the following types of information depending on the funding option utilized (i.e., as information is available). A template for reporting has been developed to support the IAIA Program and can be modified to support this expanded program:

- Funding option and partners
- Primary organization responsible for management and distribution of funds
- Types and locations of projects and activities planned and linkage to addressing water quality in the watershed and the Lake
- Status of projects and activities (e.g., permitting, construction, completion status)
- Funds allocated (cash and in-kind)
- Estimated nitrogen and phosphorus reductions associated with projects and activities if quantifiable, or other tracking metric, based on the information available for the action/project, for activities without State-approved nutrient credits (e.g., acres conserved, linear feet of pipe repaired). Nutrient credits determined and based on approved crediting methods effective at the time the project is planned, designed, and developed that may be needed for any future credit accounting requirements will not be decreased at a later time based on revisions to credit accounting methods or assumptions. **Note that for projects related to agriculture, Tier 1**

members may include their investments in their tracking reports, but the estimated nutrient reductions associated with the projects will be maintained in the agricultural reporting system.

- Anticipated timeline for completion

As noted previously, the primary reporting and compliance assessment metric will be based on investments. Actions and projects with State-approved nutrient reduction credits would continue to be tracked and reported in annual reports for informational purposes. Representatives of agriculture would continue to maintain their tracking methods and reporting for agricultural production and nutrient losses.

In addition to the annual reports, interim reports (e.g., every five years) will be developed summarizing the previous period of implementation. Interim evaluations and reporting can address concerns and assist with tracking trends and accomplishments during the 25-year assessment period. Challenges that arose during the preceding five years will be noted and revisions to the program suggested as needed. DWR's assessment of water quality and nutrient loading to Falls Lake in their five-year status reports will be summarized as well. Water quality conditions in other impoundments in the watershed will also be summarized. Additionally, these interim reports will be used to identify and track questions and issues that need to be considered in the full reassessment. These interim reports would be submitted by the Watershed Organization based on information and discussions with members and partners including DWR. Interim assessments provide an opportunity to revise the program to address challenges, concerns, and new technologies. Changes and modifications to the program may be considered by the Watershed Organization and DWR. As with the IAIA, the five-year report will also be used to reaffirm commitments of participating jurisdictions and support their capital improvement project planning. Members who choose not to participate in the program for the following years would negotiate a compliance framework with DWR. Alternative compliance frameworks may be developed during the rules review process and included in the revised rules.

The UNRBA recommends the revised strategy include a long-term reassessment of the program (e.g., 25 years) to evaluate performance, identify necessary program changes, and consider evolving technologies and climatological conditions. It is anticipated that the Watershed Organization would coordinate this review process and include a technical assessment of water quality conditions to help guide the readoption of the program with appropriate revisions as part of the reevaluation. The technical assessment would review monitoring data collected by DWR and other organizations and may recommend collection of additional monitoring data. The technical assessment may also require modeling support to assess proposed changes to the program. DWR and the Watershed Organization will work cooperatively to provide the data needed to support the evaluation. To prepare for this assessment, the Watershed Organization could hire a contractor to develop a monitoring plan and other supporting guidelines for the collection and analysis of data, including modeling as needed. DWR would work in conjunction with the Watershed Organization to develop this assessment process and would provide support in the collection of additional data. This adaptive management provision provides a reasonable period of time to assess the program and to determine if changes are needed for the future. Planning for this report and supporting studies should begin no later than 20 years after the start of the program.

Compliance Determination

The revised nutrient management strategy will likely be submitted to the NC EMC as a joint compliance framework for the continued improvement to water quality and quantity in the Falls Lake watershed. Compliance will likely be determined based on the Tier 1 members meeting and reporting on their annual investment levels as specified in an approved program document. This approach is consistent with EPA's Integrated Planning for Municipal Stormwater and Wastewater

which "allows a municipality to balance Clean Water Act requirements in a manner that addresses the most pressing public health and environmental protection issues first." To better align with the requirements of the Integrated Planning Program, NPDES permit holders may need to reference this approach in their permit.

The revised program will likely be a joint compliance effort, but compliance under this program will be assessed individually for each Tier 1 member. An approved program document will be developed with this understanding and with the following basic provisions for demonstrating compliance:

- Each Tier 1 member must document and track investments and eligibility of funded actions or projects and submit annual reports to DWR (with copies provided to the Watershed Organization).
- A member's adherence to the provisions of the program represents compliance with the readopted Falls Lake Rules.

If a Tier 1 member resigns or is terminated under the provisions of the Bylaws, the following is a list of guidelines related to the impacts and actions that the departing member must address or that will impact the member in departing:

- Reentry to the program can only be considered under the membership provisions of the Bylaws
- It is the responsibility of the departing member to contact DWR and to determine the actions it must take and the schedule it must follow to comply with the readopted rules
- The member must address specific program commitments made when joining the Watershed Organization as described in the Bylaws including agreements with other members on joint projects

The group as a whole is not out of compliance if a member drops out.

Financial resource commitments of the departing member for any joint projects not yet completed would be controlled by the agreement in place between the joint project members that developed the joint project.

The total investment level will change in the fiscal year following the departure or addition of a member by the amount of the commitment assigned to the member, but the remaining members investment commitments will not be revised.

Projects can be implemented anywhere in the watershed through this program. Additionally, the provisions of 15A NCAC 02B .0703 Nutrient Offset Credit Trading do not apply to existing land uses and therefore do not apply to the revised program.

Demonstration of compliance can be accomplished with a brief description of relevant programs or activities being implemented (e.g., heightened permitting or land use requirements, education programs, recurring program expenditures) by the applicable jurisdictions and are considered eligible practices under the program. This information will be provided by the participant in their individual annual report provided to DWR.

Participants should ensure that all local, state, and federal requirements under their jurisdictional control are met. These include but are not limited to water supply watershed protection, buffer rules, MS4 permits, and sediment and erosion control requirements. In determining whether to be the host jurisdiction (where the project would be located) for an SCM project, the host jurisdiction should be alert to the requirements of other permit programs and determine, in consultation with the Division of Energy, Mineral, and Land Resources, if the SCM will become a part of the MS4 inventory of local government owned facilities.

Proposed Legislative Changes

The NC Collaboratory is funding a study to evaluate potential changes to the Falls Lake Rules that would allow for a more collaborative, system-based approach to nutrient management in the watershed. The UNRBA is working with the lead author of this study, Dan McLawhorn, to better understand existing legal constraints on its proposals and where legislative changes may be required. A link to the presentation on this topic at the 2023 Falls Lake Nutrient Management Study Symposium hosted by the NC Collaboratory is available here. The UNRBA will begin developing recommendations for potential rule changes after its December 2023 submittals and will coordinate this effort with DWR. Rules will be amended to be consistent with the General Statutes and Session Laws which apply to the program.

Status of the UNRBA Recommendations

This Concepts and Principles Document was developed based on input from the PFC and the Board of Directors as well as input from external stakeholders, including staff from DWR and representatives from agriculture, DOT, and NGOs. These discussions identified several program components to guide development of the revised Falls Lake Rules. Many of the program components identified are designed to promote flexible implementation of the rules.

Feedback provided to date supports the inclusion of significant flexibility in the revised strategy. Much of the existing land use or non-point source components of the revised rules need to be built on the submission of joint compliance plans for approval. This flexibility needs to provide for the opportunity to revise programmatic components of the efforts under the existing land use provisions of the strategy. Because the proposal is looking at a 25-year implementation period with planning for data analysis and potential additional data collection and modeling beginning by year 20, it is clear that the rules will not be open for change for a long period of time. Operational activity and the need for adjusting program components will likely arise before the formal assessment of the strategy. If the program is prescribed in the rules, revisions will be extremely difficult to manage. An approved program document referenced by the rules would be much more reasonable and adaptative.

This Concepts and Principles has been distilled into an updated set of Consensus Principles (called Consensus Principles II) for consideration by the governing bodies of the UNRBA members (e.g., county commissioners, town councils, city councils, utility boards). Once the individual governing bodies have signed the Consensus Principles II and endorsed the UNRBA recommendations for the revised nutrient management strategy, the UNRBA will submit these documents to the EMC and DWR by December 2023.

As the rules readoption process unfolds, discussions among UNRBA members and other external stakeholders will continue. Additional recommendations and responses to stakeholder feedback will be considered during this process.

To provide your input on this document, please email
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Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-267-
Submitted by: Aileen J. Staples
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Approval of Resolution Authorizing Primary and Secondary Agents for NC Department of Public Safety (FEMA) relative to Smith Creek Reservoir Dam Mitigation Project (LPDM-PF-04-NC-2022-001)

Recommendation:
Approval as submitted

Item Summary:

ATTACHMENTS
- Designated Agents_Summary.pdf
- Resolution 2023-xx_Designation of Authorized Agents.docx
- NCDPS.DAform.pdf

Approval of resolution authorizing Primary and Secondary Agents for NC Department of Public Safety (FEMA) relative to Smith Creek Reservoir Dam Mitigation Project (LPDM-PF-04-NC-2022-001)

Summary: The Town received a federal award in the amount of $2,175,000 for the dam mitigation project at the Wake Forest Reservoir. Per grant requirements, primary and secondary agent must be authorized to obtain reimbursements. The attached authorizes Town Manager and Assistant Town Manager/CFO to act on the Town's behalf to secure funding for this project.

Attachments: Resolution; Form

RESOLUTION 2023-xx

RESOLUTION DESIGNATING AUTHORIZED PRIMARY AND SECONDARY AGENTS FOR NC DEPARTMENT OF PUBLIC SAFETY (FEMA)

WHEREAS, the Town of Wake Forest has received a federal award in the amount of $2,175,000 for the dam mitigation project at Wake Forest Reservoir (Smith Creek Dam) (LPDM-PF-04-NC-2022-001), and

WHEREAS the Board of Commissioners wish to designate authorized agents to execute and file applications for federal and/or state assistance on behalf of the Town of Wake Forest, and

NOW, THEREFORE, BE IT RESOLVED the Board of Commissioners of the Town of Wake Forest authorizes the Town Manager, Kip Padgett as primary agent and the Assistant Town Manager/CFO, Aileen J. Staples as secondary agent to act on behalf of the Town of Wake Forest to execute and administer all documents related to obtaining certain state and federal assistance.

Duly adopted this 17th of October 2023.

_____
Vivian A. Jones
Mayor

(ATTEST)

_____
Theresa Savary
Town Clerk

RESOLUTION
DESIGNATION OF APPLICANT'S AGENT

North Carolina Division of Emergency Management

Organization Name (hereafter named Organization) Town of Wake Forest	Disaster Number: LPDM-PJ-04-NC-2022-001
Applicant's State Cognizant Agency for Single Audit purposes (If Cognizant Agency is not assigned, please indicate): not assigned	
Applicant's Fiscal Year (FY) Start Month: June Day: 30	
Applicant's Federal Employer's Identification Number 56 - 6001360	
Applicant's Federal Information Processing Standards (FIPS) Number 183 - 93880 - 00	

PRIMARY AGENT		SECONDARY AGENT	
Agent's Name	Kipling D Padgett	Agent's Name	Aileen J Staples
Organization	Town of Wake Forest	Organization	Town of Wake Forest
Official Position	Town Manager	Official Position	Assistant Town Manager / Chief Financial Officer
Mailing Address	301 S Brooks Street	Mailing Address	301 S Brooks Street
City ,State, Zip	Wake Forest, NC 27587	City ,State, Zip	Wake Forest, NC 27587
Daytime Telephone	(919) 435-9411	Daytime Telephone	(919) 435-9461
Facsimile Number	(919) 435-9419	Facsimile Number	(919) 435-9499
Pager or Cellular Number		Pager or Cellular Number	(919) 795-7903

BE IT RESOLVED BY the governing body of the Organization (a public entity duly organized under the laws of the State of North Carolina) that the above-named Primary and Secondary Agents are hereby authorized to execute and file applications for federal and/or state assistance on behalf of the Organization for the purpose of obtaining certain state and federal financial assistance under the Robert T. Stafford Disaster Relief & Emergency Assistance Act, (Public Law 93-288 as amended) or as otherwise available. BE IT FURTHER RESOLVED that the above-named agents are authorized to represent and act for the Organization in all dealings with the State of North Carolina and the Federal Emergency Management Agency for all matters pertaining to such disaster assistance required by the grant agreements and **the assurances printed on the reverse side hereof**. BE IT FINALLY RESOLVED THAT the above-named agents are authorized to act severally. PASSED AND APPROVED this _____ day of _____, 20__.

GOVERNING BODY	CERTIFYING OFFICIAL	
Name and Title	Name	Vivian A. Jones
Name and Title	Official Position	Mayor
Name and Title	Daytime Telephone	(919) 435-9431

CERTIFICATION

I, _____, (Name) duly appointed and _____ (Title) of the Governing Body, do hereby certify that the above is a true and correct copy of a resolution passed and approved by the Governing Body of _____ (Organization) on the _____ day of _____, 20__.

Date: _____ **Signature:_____**

Rev. 06/02

APPLICANT ASSURANCES

The applicant hereby assures and certifies that it will comply with the FEMA regulations, policies, guidelines and requirements including OMB's Circulars No. A-95 and A-102, and FMC 74-4, as they relate to the application, acceptance and use of Federal funds for this Federally assisted project. Also, the Applicant gives assurance and certifies with respect to and as a condition for the grant that:

1. It possesses legal authority to apply for the grant, and to finance and construct the proposed facilities; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body, authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

2. It will comply with the provisions of: Executive Order 11988, relating to Floodplain Management and Executive Order 11990, relating to Protection of Wetlands.

3. It will have sufficient funds available to meet the non-Federal share of the cost for construction projects. Sufficient funds will be available when construction is completed to assure effective operation and maintenance of the facility for the purpose constructed.

4. It will not enter into a construction contract(s) for the project or undertake other activities until the conditions of the grant program(s) have been met.

5. It will provide and maintain competent and adequate architectural engineering supervision and inspection at the construction site to insure that the completed work conforms with the approved plans and specifications; that it will furnish progress reports and such other information as the Federal grantor agency may need.

6. It will operate and maintain the facility in accordance with the minimum standards as may be required or prescribed by the applicable Federal, State and local agencies for the maintenance and operation of such facilities.

7. It will give the grantor agency and the Comptroller General, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the grant.

8. It will require the facility to be designed to comply with the "American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by the Physically Handicapped," Number A117.1-1961, as modified (41 CFR 101-17-7031). The applicant will be responsible for conducting inspections to insure compliance with these specifications by the contractor.

9. It will cause work on the project to be commenced within a reasonable time after receipt of notification from the approving Federal agency that funds have been approved and will see that work on the project will be prosecuted to completion with reasonable diligence.

10. It will not dispose of or encumber its title or other interests in the site and facilities during the period of Federal interest or while the Government holds bonds, whichever is the longer.

11. It agrees to comply with Section 311, P.L. 93-288 and with Title VI of the Civil Rights Act of 1964 (P.L. 83-352) and in accordance with Title VI of the Act, no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the applicant receives Federal financial assistance and will immediately take any measures necessary to effectuate this agreement. If any real property or structure is provided or improved with the aid of Federal financial assistance extended to the Applicant, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits.

12. It will establish safeguards to prohibit employees from using their positions for a purpose that is or gives the appearance of being motivated by a desire for private gain for themselves or others, particularly those with whom they have family, business, or other ties.

13. It will comply with the requirements of Title II and Title III of the Uniform Relocation Assistance and Real Property Acquisitions Act of 1970 (P.L. 91-646) which provides for fair and equitable treatment of persons displaced as a result of Federal and Federally assisted programs.

14. It will comply with all requirements imposed by the Federal grantor agency concerning special requirements of law, program requirements, and other administrative requirements approved in accordance with OMB Circular A-102, P.L. 93-288 as amended, and applicable Federal Regulations.

15. It will comply with the provisions of the Hatch Act which limit the political activity of employees.

16. It will comply with the minimum wage and maximum hours provisions of the Federal Fair Labor Standards Act, as they apply to hospital and educational institution employees of State and local governments.

17. (To the best of his/her knowledge and belief) the disaster relief work described on each Federal Emergency Management Agency (FEMA) Project Application for which Federal Financial assistance is requested is eligible in accordance with the criteria contained in 44 Code of Federal Regulations, Part 206, and applicable FEMA Handbooks.

18. The emergency or disaster relief work therein described for which Federal Assistance is requested hereunder does not or will not duplicate benefits received for the same loss from another source.

19. It will (1) provide without cost to the United States all lands, easements and rights-of-way necessary for accomplishments of the approved work; (2) hold and save the United States free from damages due to the approved work or Federal funding.

20. This assurance is given in consideration of and for the purpose of obtaining any and all Federal grants, loans, reimbursements, advances, contracts, property, discounts of other Federal financial assistance extended after the date hereof to the Applicant by FEMA, that such Federal Financial assistance will be extended in reliance on the representations and agreements made in this assurance and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear on the reverse as authorized to sign this assurance on behalf of the applicant.

21. It will comply with the flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973, Public Law 93-234, 87 Stat. 975, approved December 31, 1973. Section 102(a) requires, on and after March 2, 1975, the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any Federal financial assistance for construction or acquisition purposes for use in any area that has been identified by the Director, Federal Emergency Management Agency as an area having special flood hazards. The phrase "Federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance.

22. It will comply with the insurance requirements of Section 314, PL 93-288, to obtain and maintain any other insurance as may be reasonable, adequate, and necessary to protect against further loss to any property which was replaced, restored, repaired, or constructed with this assistance.

23. It will defer funding of any projects involving flexible funding until FEMA makes a favorable environmental clearance, if this is required.

24. It will assist the Federal grantor agency in its compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, (16 U.S.C. 470), Executive Order 11593, and the Archeological and Historic Preservation Act of 1966 (16 U.S.C. 469a-1 et seq.) by (a) consulting with the State Historic Preservation Officer on the conduct of investigations, as necessary, to identify properties listed in or eligible for inclusion in the National Register of Historic places that are subject to adverse effects (see 36 CFR Part 800.8) by the activity, and notifying the Federal grantor agency of the existence of any such properties, and by (b) complying with all requirements established by the Federal grantor agency to avoid or mitigate adverse effects upon such properties.

25. It will, for any repairs or construction financed herewith, comply with applicable standards of safety, decency and sanitation and in conformity with applicable codes, specifications and standards; and, will evaluate the natural hazards in areas in which the proceeds of the grant or loan are to be used and take appropriate action to mitigate such hazards, including safe land use and construction practices.

STATE ASSURANCES

The State agrees to take any necessary action within State capabilities to require compliance with these assurances and agreements by the applicant or to assume responsibility to the Federal government for any deficiencies not resolved to the satisfaction of the Regional Director.

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-272-
Submitted by: Joseph Guckavan
Submitting Department: Engineering
Meeting Date: October 17, 2023

SUBJECT

Approval of municipal infrastructure improvements at the u-turns on Hwy 98 near south franklin intersection

Recommendation:
Approval of municipal infrastructure improvements through a reimbursement agreement.

Item Summary:

ATTACHMENTS

- Attachment_A_summary_Signalized Uturns 98.docx
- Attachment_B_Resolution Uturns 98.docx
- Attachment_C_Reimbursement Agreement - Holding Village (Traffic Control Improvements).pdf
- Attachment D_Exhibit A_Construction Plans.pdf
- Attachment_E_Exhibit_B_Reimbursement Estimate.pdf
- Attachment_F_Exhibit C - NCDOT Traffic Agreement.pdf

Agenda Item: Consideration of Resolution authorizing the Town Manager to execute on behalf of the Town of Wake Forest a contract with HR Northlake, LLC for the construction and installation of traffic control devices and related municipal infrastructure at the intersection of Calvin Jones Hwy 98 (State Road R-2809B) and S. Franklin St.

Summary: At the request of the Town, NCDOT performed a signal warrant analysis for signals to be located at the U-turns associated with the intersection of Dr. Calvin Jones Hwy 98 and S. Franklin St. and determined additional signals are warranted.

The Town has determined that it is most cost effective to enter into agreement with the Developer to reimburse 50% of the cost for the installation of signals and pursuant to N.C.G.S. § 160A-309, the Town of Wake Forest, North Carolina (the "Town") may contract with a developer or property owner, or with a private party who is under contract with the developer or property owner, for public intersection or roadway improvements that are adjacent or ancillary to a private land development project."

The project is estimated to cost $399,300. The Town's estimated portion is $199,650. The agreement caps the Town's obligation for the project to $250,000.

Attachment: Attachment_A_summary_Signalized Uturns 98
Attachment_B_Resolution_Uturns 98
Attachment_C_Reimbursement Agreement - Holding Village (Traffic Control Improvements)
Attachment_D_Exhibit_A_Construction Plans
Attachment_E_Exhibit_B_Reimbursement Estimate
Attachment_F_Exhibit_C_NCDOT Traffic Agreement

RESOULTION 2023-XX

RESOLUTION OF THE BOARD OF COMMISSIONERS OF THE TOWN OF WAKE FOREST TO CONTRACT WITH AND APPROPRIATE MONEY TO HR NORTHLAKE, LLC FOR MUNICIPAL INFRASTRUCTURE IMPROVEMENTS

WHEREAS, pursuant to N.C.G.S. § 160A-309, the Town of Wake Forest, North Carolina (the "Town") may contract with a developer or property owner, or with a private party who is under contract with the developer or property owner, for public intersection or roadway improvements that are adjacent or ancillary to a private land development project."

WHEREAS, the Developer is the developer of a development in the Town known as Holding Village (the "Development"), and is the owner of certain real property located within the Development;

WHEREAS, in connection with the Development, the Developer desires to have constructed and installed certain traffic control devices and related municipal infrastructure at the intersection of NC Hwy. 98 and South Franklin Street in the Town (collectively, the "Improvements");

WHEREAS, in connection with the Development, at the request of the Town, the Developer performed a signal warrant study and determined that the Improvements are warranted;

WHEREAS, the North Carolina Department of Transportation ("NCDOT") has provided approved construction documents for the installation of the Improvements (the "Construction Plans"), which Construction Plans are attached hereto as Exhibit A and incorporated herein by reference; and

WHEREAS, the Town also desires for the Improvements to be constructed and installed, and has agreed to reimburse the Developer for fifty percent also desires for the Improvements (50%) of the costs of constructing and installing the Improvements, all as provided in this Agreement and pursuant to the reimbursement estimate set forth on Exhibit B attached hereto and incorporated herein by reference (the "Reimbursement Estimate").

WHEREAS, in the event of unforeseen circumstances beyond the Developer's control that materially increase the Project Budget, as further defined in the Reimbursement

Agreement, the Town's obligation to reimburse Developer for Reimbursement Costs shall be capped at $250,000.

BE IT RESOLVED by the Board of Commissioners of the Town of Wake Forest, North Carolina, that the terms of the Reimbursement Agreement, including without limitation the Project Budget and the Reimbursement Cap are hereby approved.

Duly adopted this 17th day of October 2023.

_____

Vivian A. Jones
Mayor

(ATTEST)

_____

Terry Savary

Town Clerk

STATE OF NORTH CAROLINA
COUNTY OF WAKE

REIMBURSEMENT AGREEMENT
(South Franklin Street Signal U-Turn Improvements)

THIS REIMBURSEMENT AGREEMENT (this "**Agreement**") is entered into as of _____, 2023 (the "**Effective Date**") by and between the **Town of Wake Forest**, a North Carolina municipal corporation (the "**Town**") and **HR Northlake, LLC**, a North Carolina limited liability company (the "**Developer**"). The Town and Developer are sometimes referred to collectively herein as the "**Parties**" and individually as a "**Party**".

RECITALS

WHEREAS, N.C.G.S. § 160A-309 states a city may contract with a developer or property owner, or with a private party who is under contract with the developer or property owner, for public intersection or roadway improvements that are adjacent or ancillary to a private land development project;

WHEREAS, the Developer is the developer of a development in the Town known as Holding Village (the "**Development**"), and is the owner of certain real property located within the Development;

WHEREAS, in connection with the Development, the Developer desires to have constructed and installed certain traffic control devices and related municipal infrastructure at the intersection of NC Hwy. 98 and South Franklin Street in the Town (collectively, the "**Improvements**");

WHEREAS, in connection with the Development, at the request of the Town, the Developer performed a signal warrant study and determined that the Improvements are warranted;

WHEREAS, the North Carolina Department of Transportation ("**NCDOT**") has provided approved construction documents for the installation of the Improvements (the "**Construction Plans**"), which Construction Plans are attached hereto as **Exhibit A** and incorporated herein by reference; and

WHEREAS, the Town also desires for the Improvements to be constructed and installed, and has agreed to reimburse the Developer for fifty percent (50%) of the costs of constructing and installing the Improvements, all as provided in this Agreement and pursuant to the reimbursement estimate set forth on **Exhibit B** attached hereto and incorporated herein by reference (the "**Reimbursement Estimate**").

THE AGREEMENT

NOW, THEREFORE in consideration of the mutual promises and covenants contained herein, the Town and Developer agree as follows:

1. **Recitals**. The recitals set forth above are hereby incorporated into this Agreement by reference.

2. **Construction of Improvements**.

a. Construction. The Developer shall design and cause to be constructed the Improvements in a good and workmanlike manner, in accordance with NCDOT's Signal Agreement process; the terms of the Town's Unified Development Ordinance adopted July 16, 2013 (as amended, the "**UDO**"); the Town's approved construction process; the Town's Manual of Specifications, Standards and Design; and the Construction Plans (collectively, the "**Approved Construction Process**"). NCDOT has

advised that they will allow the Improvements to be completed in accordance with Developer's existing Signal Agreement dated August 25, 2020, a copy of which is attached hereto as **Exhibit C** (the "**Signal Agreement**").

b. Project Manager. The Developer shall engage Reader & Partners, LLC (the "**Project Manager**") to manage and oversee the construction and installation of the Improvements, and to otherwise carryout any or all of the Developer's obligations set forth herein. The Developer and the Project Manager are sometimes referred to herein collectively as the "**Developer Parties**".

c. Engineer's Certificate. Following Substantial Completion (as defined hereafter) of the Improvements, the Project Manager shall cause NCDOT to complete and issue a final engineering certification or acceptance for the Improvements (the "**Engineer's Certificate**"). The Engineer's Certificate shall be certified to the Town and any other parties the Town reasonably requests, including NCDOT. "**Substantial Completion**" of the Improvements shall occur when all turning movements as a result of the Improvements are functional.

3. **Town's Acceptance**.

a. Maintenance and Inspection. The Developer shall be responsible for maintenance of the Improvements until Substantial Completion. Subject to Section 3.b., upon Substantial Completion the Town shall use commercially reasonable efforts to cause the NCDOT (or other applicable governmental entity) to be responsible for the maintenance of the Improvements. The Town or NCDOT may inspect the Improvements prior to Substantial Completion as either deems appropriate. In performing any maintenance to the Improvements, the Developer Parties shall adhere to the Town's and the NCDOT's rules and regulations, including without limitation the Town's and NCDOT's safety policies and road or lane closure policies.

b. Final Acceptance. Following Substantial Completion, the Project Manager shall provide notice to the Town and NCDOT of Substantial Completion and request that the Town and NCDOT promptly perform each's final inspection of the Improvements. Following the Town's and NCDOT's final inspection of the Improvements, the Town and NCDOT shall collectively issue to the Project Manager a single punch list for any remaining outstanding items required by the Construction Plans, if any (the "**Punch List**"). Once the Project Manager has completed each item set forth on the Punch List, Project Manager shall notify the Town and NCDOT of such completion and thereafter the Town and NCDOT shall promptly inspect the Punch List items. If the Punch List items are completed to the Town's and NCDOT's reasonable satisfaction, the Town and NCDOT shall formally notify the Project Manager in writing of such fact, and following the such written notifications and certifications that the Improvements are complete, the Improvements shall be deemed accepted by NCDOT (or other applicable governmental entity) ("**Final Acceptance**"). If neither the Town nor NCDOT issues a Punch List as set forth in this subsection, Final Acceptance shall be deemed to have occurred. Notwithstanding the foregoing, Final Acceptance shall be in accordance with NCDOT policy.

c. Cooperation. Notwithstanding anything to the contrary contained herein, the Town covenants and agrees to use good faith commercially reasonable efforts to cause NCDOT (or other applicable governmental entity) to comply with the provisions of this Agreement pertaining to the Approved Construction Process, Substantial Completion, and Final Acceptance.

4. **Reimbursement**.

a. Establishing Reimbursement Costs. The Town and Developer have agreed that the Reimbursement Estimate constitutes a commercially reasonable estimate of the entirety of the costs for

the design, engineering and construction of the Improvements (the "**Reimbursement Costs**"). Notwithstanding the foregoing or anything herein to the contrary, the Reimbursement Costs shall only include those costs actually and reasonably incurred by the Developer for the design, engineering and construction of the Improvements, but exclusive of legal fees and administrative costs (including, but not limited to, profit and overhead) of the Developer. Furthermore, and notwithstanding the foregoing or anything herein to the contrary, the Town's obligation to reimburse Developer for Reimbursement Costs shall be capped at $250,000.00 (the "**Reimbursement Costs Cap**").

b. Reimbursement Procedure. As Developer incurs Reimbursement Costs, each month the Developer shall provide to the Town for the work completed for that month: (i) payment application from Developer's contractor(s) with a description of the work sufficient to allow field verification, (ii) an interim (or in the case of final payment, final) lien waiver signed by Developer's contractor, (iii) certification from Developer that the expenses being requested for reimbursement are actual costs that qualify as Reimbursement Costs under this Agreement, and (iv) any other information reasonably requested by the Town (each a "**Developer Expense Submission**" and collectively "**Developer Expense Submissions**"). The Developer shall submit monthly Developer Expense Submissions to the Town at least fourteen (14) business days prior to the date on which the Developer requests the Town's payment of the Reimbursement Costs. The Town shall review the Developer Expense Submission and within fourteen (14) business days following its receipt of the Developer Expense Submission in good-faith either approve or disapprove the Developer Expense Submission as Reimbursement Costs in writing to Developer. Following the Town's approval or deemed approval of the Developer Expense Submission, the Town shall promptly document the Reimbursement Costs on the ledger of Reimbursement Costs accrued but unreimbursed (the "**Ledger**"), which Ledger is attached hereto as **Exhibit D** and incorporated herein by reference. The Town shall pay the approved Reimbursement Costs to Developer within fourteen (14) business days of its receipt of the Developer Expense Submission. If the Town disapproves the Developer Expense Submission, its written disapproval pursuant to this Section must be accompanied by a detailed explanation of the reason for the disapproval. The Town will not be required to approve a Developer Expense Submission in full if the result would bring the Reimbursement Costs beyond the Reimbursement Costs Cap. If the Town and Developer are unable to reach an agreement that an expense constitutes Reimbursements Costs within thirty (30) days of the Town's written disapproval of the Developer Expense Submission, the Town and Developer shall engage in the dispute resolution process set forth in Section 4.c. of this Agreement prior to pursuing any legal remedies.

c. Procedure for Disputed Developer Expense Submissions. If the Developer believes the Town is in default under this Agreement for failing to approve a Developer Expense Submission for Reimbursement Costs, the Developer and the Town shall make a good faith effort to negotiate and informally resolve the dispute as provided in Section 4.b. prior to terminating or modifying this Agreement or pursuing any available legal remedies. If the Town and the Developer cannot resolve the dispute through negotiation within thirty (30) days of the Town's written disapproval of the Developer Expense Submission as provided in Section 4.b., Developer will submit the applicable Developer Expense Submission, and the Town will submit a written rejection or partial approval of the Developer Expense Submission (the "**Town Developer Expense Submission**"), to Kimley Horn (the "**Third Party Project Engineer**"). The Third Party Project Engineer will then select either the Developer Expense Submission or the Town Expense Submission as being the most accurate, in his/her/its professional opinion (the "**Approved Expense Submission**"), which Approved Expense Submission will then be binding on the Parties. The Town shall add the amount of the Approved Expense Submission to the Ledger. The Third Party Project Engineer's costs and fees incurred in connection with this Section shall be paid in equal shares by the Town and Developer.

5. **Changes to the Reimbursement Estimate**. If, at any point during the design, engineering and construction of the Improvements, there is a material increase in the Reimbursement Estimate, then the

Developer shall promptly submit to the Town's Chief Financial Officer (or another party identified by the Town) a written request to amend the Reimbursement Estimate (a "**Change Request**"). A Change Request shall include sufficient detail (i.e., quotes, invoices, receipts, and/or such other documentation as may reasonably be requested by the Town) to allow the Town to determine whether the proposed increase in the Reimbursement Estimate is commercially reasonable and justified. The Town shall make a final determination, in writing, regarding the reasonableness of a Change Request within fifteen (15) days' receipt of such initial request (a "**Change Request Response**"). Failure to submit a Change Request as required herein shall constitute an acknowledgement by the Developer that such cost increase is commercially unreasonable and unjustified; in which case, the amount of such cost increase shall not constitute a portion of the Reimbursement Costs. For the purposes of this Section, a cost increase shall be considered material when it results in an increase of over five thousand dollars ($5,000.00) above and beyond the Reimbursement Estimate. Notwithstanding anything herein to the contrary, the terms and amount of the Reimbursement Costs, as set forth herein, may only be changed by the prior written consent of the Town's Chief Financial Officer.

6. **Bidding**. This Agreement is not subject to Article 8 of Chapter 143 of the General Statutes if the public cost will not exceed two hundred fifty thousand dollars ($250,000) and the city or its designated agency determines that: (i) the public cost will not exceed the estimated cost of providing for those public intersection or roadway improvements through either eligible force account qualified labor or through a public contract let pursuant to Article 8 of Chapter 143 of the General Statutes; or (ii) the coordination of separately constructed public intersection or roadway improvements, and the adjacent or ancillary private land development improvements would be impracticable.

7. **Default**. Subject to Sections 4.b. and 4.c. herein, if either Party defaults and fails to cure said default within thirty (30) days (or if such default cannot be cured within thirty (30) days using commercially reasonable diligence, then a commercially reasonable period of time) after receipt of written notice of such default from the non-defaulting Party, the non-defaulting Party may pursue any remedy available to it at law or in equity. The failure of either Party to enforce any provision of this Agreement will not be deemed a waiver or consent to a subsequent default or breach by the other Party.

8. **Notices**. All notices and other communications required or permitted by this Agreement shall be in writing and shall be given by either personal delivery, certified United States mail, return receipt requested, or overnight delivery by a nationally reputable overnight delivery service (e.g., UPS, FedEx) addressed as follows:

To the Town:
Town of Wake Forest
301 S. Brooks Street
Wake Forest, NC 27587
Attn: Town Manager

with copy to:

Town of Wake Forest
301 S. Brooks Street
Wake Forest, NC 27587
Attn: Town Attorney

To the Developer:
HR Northlake, LLC
5850 T.G. Lee Blvd., Suite 200
Orlando, FL 32822
Attn: Dean Barberree

with copy to:

Reader & Partners, LLC
8480 Honeycutt Road, Suite 200
Raleigh, NC 27651
Attn: Scott Lay

and with additional copy to:

Maynard Nexsen PC
4141 Parklake Ave., Suite 200
Raleigh, NC 27612
Attn: Keith Burns and Alex Serkes

A change of address or person to receive notice may be made by either Party by notice given to the other Party. Any notice or other communication under this Agreement shall be deemed given at the time of actual delivery, if it is personally delivered. If the notice or other communication is sent by US Mail, it shall be deemed given upon the third calendar day following the day on which such notice or other communication is deposited with the US Postal Service or upon actual delivery, whichever occurs first. If the notice or other communication is sent by overnight delivery, it shall be deemed given upon documented delivery to the overnight delivery service.

9. **Indemnification**. To the maximum extent allowed by law, the Developer shall indemnify and save harmless the Town, its agents, officers, and employees, from and against all charges that arise in any manner from, in connection with, or out of this Agreement proximately caused by the negligent acts or omissions of the Developer Parties, their agents, officers, or employees or anyone for whose acts any of them may be liable except for damage or injury caused solely by the negligence or intentional misconduct of the Town, its agents, officers, or employees. As used in this subsection, "charges" means claims, judgments, costs, damages, losses, demands, liabilities, duties, obligations, fines, penalties, royalties, settlements, expenses, interest, reasonable attorney's fees, and amounts for alleged violations of sedimentation pollution, erosion control, pollution, or other environmental laws, regulations, ordinances, rules, or orders. Nothing in this section shall affect any warranties in favor of the Town that are otherwise provided in or arise out of this Agreement. This Section is in addition to and shall be construed separately from any other indemnification provisions or remedies that may be in this Agreement. This Section shall remain in force despite termination of this Agreement (whether by expiration of the term or otherwise) and termination of the services of any supplemental agreement entered into under this Agreement.

10. **Choice of Law and Forum**. This Agreement shall be deemed made in Wake County, North Carolina. This Agreement shall be governed by and construed in accordance with the law of North Carolina. The exclusive forum and venue for all actions arising out of this Agreement shall be the appropriate division of the North Carolina General Court of Justice in Wake County. Such actions shall neither be commenced in nor removed to federal court. This section shall not apply to subsequent actions to enforce a judgment entered in actions heard pursuant to this section.

11. **Waiver**. No action or failure to act by the Town shall constitute a waiver of any of its rights or remedies that arise out of this Agreement, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

12. **Performance of Government Functions**. Nothing contained in this Agreement shall be deemed or construed in any way to stop, limit, or impair the Town from exercising or performing any regulatory, policing, legislative, governmental, or other powers or functions.

13. **Severability**. If any provision of this Agreement shall be unenforceable, the remainder of this Agreement shall be enforceable to the extent permitted by law.

14. **Assignment, Successors and Assigns**. Without the Town's written consent, the Developer shall not assign (which includes to delegate) any of its rights (including the right to payment) or duties that arise out this Agreement. Unless the Town otherwise agrees in writing, the Developer and all assigns shall be subject to all of the Town's defenses and shall be liable for all of the Developer's duties that arise out of this Agreement and all of the Town's claims that arise out of this Agreement. Without granting the Developer the right to assign, it is agreed that the duties of the Developer that arise out of this Agreement shall be binding upon it and its heirs, personal representatives, successors, and assigns.

15. **Compliance with Law**. In performing all of its obligations hereunder, the Developer shall comply with all applicable law.

16. **Town Policy**. THE TOWN OPPOSES DISCRIMINATION ON THE BASIS OF RACE AND SEX AND URGES ALL OF ITS DEVELOPERS TO PROVIDE A FAIR OPPORTUNITY FOR MINORITIES AND WOMEN TO PARTICIPATE IN THEIR WORK FORCE AND AS SUBCONTRACTORS AND VENDORS UNDER CITY CONTRACTS.

17. **EEO Provisions**. During the performance of this Agreement the Developer agrees as follows:

a. The Developer shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, political affiliation or belief, age, or handicap. The Developer shall take affirmative action to ensure that applicants are employed and that employees are treated equally during employment, without regard to race, color, religion, sex, national origin, political affiliation or belief, age, or handicap. The Developer shall post in conspicuous places available to employees and applicants for employment, notices setting forth these EEO provisions.

b. The Developer in all solicitations or advertisements for employees placed by or on behalf of the Developer, state all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, political affiliation or belief, age, or handicap.

18. **No Third Party Right Created**. This Agreement is intended for the benefit of the Town and the Developer and not any other person.

19. **Principles of Interpretation**. In this Agreement, unless the context requires otherwise, the singular includes the plural and the plural the singular. The pronouns "it" and "its" include the masculine and feminine. Reference to statutes or regulations include all statutory or regulatory provisions consolidating, amending, or replacing the statute or regulation. References to contracts and agreements shall be deemed to include all amendments to them. The word "person" includes natural persons, firms, companies, associations, partnerships, trusts, corporations, governmental agencies and units, and any other legal entities.

20. **Modifications, Entire Agreement**. A modification of this Agreement is not valid unless signed by both parties and otherwise in accordance with requirements of law. Further, a modification is not enforceable against the Town unless the Town Manager or other duly authorized official signs it for the Town. This Agreement contains the entire agreement between the parties pertaining to the subject matter of this Agreement. With respect to that subject matter, there are no promises, agreements, conditions, inducements, warranties, or understandings, written or oral, expressed or implied, between the parties, other than as set forth or referenced in this Agreement.

21. **E-Verify**. Developer shall comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes. Further, if Developer utilizes a subcontractor, Developer shall require the

subcontractor to comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes.

22. **Iran Divestment Act**. Developer certifies that; (i) it is not identified on the Final Divestment List or any other list of prohibited investments created by the NC State Treasurer pursuant to N.C.G.S. 147-86.58; (ii) it will not take any action causing it to appear on any such list during the term of this Agreement, and (iii) it will not utilize any subcontractor to provide goods or services hereunder that is identified on any list.

23. **Divestment from Companies that Boycott Israel**. Developer represents, covenants, and certifies that it is not listed on the list of restricted companies developed and published by the North Carolina State Treasurer as required by N.C.G.S. 147-86.81.

24. **Quality and Workmanship**. All work performed and/or services rendered shall be performed to the satisfaction of the Town. The work performed and/or services rendered shall not be considered complete, nor applicable payments rendered, until the Town is satisfied with the work performed and/or services rendered.

25. **Title VI**. During the performance of this Agreement, the Developer, for itself, its assignees and successors in interest agrees as follows:

a. Compliance with Regulations. The Developer shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Town Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the "**Regulations**"), which are herein incorporated by reference and made a part of this Agreement.

b. Nondiscrimination. The Developer, with regard to the work performed by it during the Agreement, shall not discriminate on the grounds of race, color, national origin, sex, religion, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Developer shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the Agreement covers a program set forth in Appendix B of the Regulations.

c. Solicitations for Subcontractors, Including Procurements of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the Developer for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Developer of the Developer's obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

d. Information and Reports. The Developer shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Town to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a Developer is in the exclusive possession of another who fails or refuses to furnish this information the Developer shall so certify to the Town as appropriate and shall set forth what efforts it has made to obtain the information.

e. Sanctions for Noncompliance. In the event of the Developer's noncompliance with the nondiscrimination provisions of this Agreement, the Town shall impose such contract sanctions as it or the Town may determine to be appropriate, including, but not limited to:

a. withholding of payments to the Developer under the Agreement until the Developer complies, and/or

b. cancellation, termination, or suspension of the Agreement, in whole or in part.

f. Incorporation of Provisions. The Developer shall include the provisions of subparagraphs (a) through (f) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The Developer shall take such action with respect to any subcontract or procurement as the Town may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event a Developer becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Developer may request the Town to enter into such litigation to protect the interests of the Town, and, in addition, the Developer may request the United States to enter into such litigation to protect the interests of the United States.

26. **Pre-Audit**. This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

27. **Non-appropriation clause**. Developer acknowledges that the Town is a governmental entity, and the Agreement validity is based upon the availability of public funding under the authority of its statutory mandate. In the event that public funds are unavailable and not appropriated for the performance of the Town's obligations under this Agreement, then this Agreement shall automatically expire without penalty to the Town thirty (30) days after written notice to Developer of the unavailability and non-appropriation of public funds. It is expressly agreed that the Town shall not activate this non-appropriation provision for its convenience or to circumvent the requirements of this Agreement, but only as an emergency fiscal measure during a substantial fiscal crisis, which affects generally its governmental operations. In the event of a change in the Town's statutory authority, mandate and mandated functions, by state and federal legislative or regulatory action, which adversely affects the Town's authority to continue its obligations under this Agreement, then this Agreement shall automatically terminate without penalty to the Town upon written notice to Developer of such limitation or change in the Town's legal authority.

28. **No pledge of taxing authority**. The taxing power of the Town is not pledged directly or indirectly to secure any monies due under this Agreement.

29. **No waiver of governmental immunity; Violation of law**. Except for waiver of governmental immunity resulting from the execution of a valid contract, the Town makes no other waiver of governmental immunity. If any provision of the Agreement or Agreement is in violation of any legal, statutory or state constitutional prohibition, then such provision(s) shall be unenforceable against the Town.

30. **Conflict of Interest**. If this is an Agreement for design, engineering, contract administration or similar services, the Developer will not enter into contracts or agreements with third parties that may present a potential for conflict of interest between the Town and the third parties regarding the subject matter of this Agreement.

31. **Public Record**. This Agreement is subject to disclosure under the public records laws of the State of North Carolina.

32. **Miscellaneous Provision**. In the event of any inconsistency, conflict, or ambiguity between these miscellaneous terms and conditions and other associated contract documents, the parties

agree that the terms and conditions of this Agreement shall prevail.

[SIGNATURE PAGE FOLLOWS. REMAINDER OF PAGE INTENTIONALLY BLANK.]

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the Effective Date.

ATTEST:

_____
Terry Savary, Town Clerk

THE TOWN:

TOWN OF WAKE FOREST,
a North Carolina municipal corporation

By: _____
Kip Padgett, Town Manager

THE DEVELOPER:

HR NORTHLAKE, LLC
a North Carolina limited liability company

By: HR Southeast, LLC, its sole Member

By: Reader & Partners, LLC, its Managing Member

By: _____
Name: Dean Barberree
Title: President

ACKNOWLEDGED AND AGREED TO BY THE PROJECT MANAGER:

READER & PARTNERS, LLC
a Florida limited liability company

By: _____
Name: Dean Barberree
Title: President

PREAUDIT CERTIFICATION

This instrument has been pre-audited in a manner required by applicable law.

_____
Aileen Staples, Chief Financial Officer

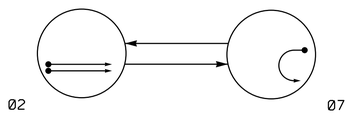
EXHIBIT A

The Construction Plans

See attached.

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig 3.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

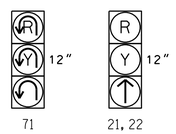
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 02	PHASE 07	FLASH
21, 22	↑	R	Y
71	(R)	↑	(R)

SIGNAL FACE I.D.

All Heads L.E.D.



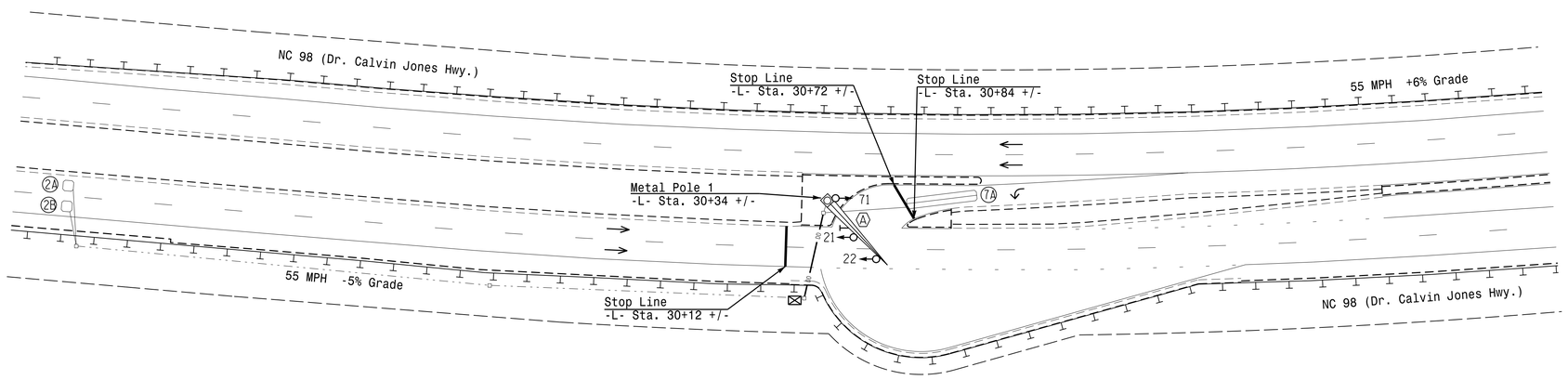
DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
2A	6X6	420	6	X	2	Yes	-	-	X	N	-	X
2B	6X6	420	6	X	2	Yes	-	-	X	N	-	X
7A	6X40	0	2-4-2	X	7	Yes	-	-	-	N	-	X

2 Phase
Fully Actuated
(Wake Forest Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
DD	Directional Drill	N/A
	Metal Pole with Mastarm	
A	No Left Turn Sign (R3-2)	A

TIMING CHART

FEATURE	PHASE 2	PHASE 7
Min Green *	14	7
Delayed Green *	-	-
Walk *	-	-
Ped Clear	-	-
Veh. Extension *	6.0	2.0
Max 1 *	90	30
Yellow	5.8	3.0
Red Clear	1.0	2.3
Red Revert	2.0	2.0
Actuations B4 Add *	-	-
Seconds /Actuation *	1.5	-
Max Initial *	46	-
Time Before Reduction *	15	-
Time To Reduce *	30	-
Minimum Gap	3.4	-
Locking Detector	X	-
Recall Position	VEH. RECALL	-
Dual Entry	-	-
Simultaneous Gap	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 2 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

This plan supersedes the plan signed and sealed on 6/13/22.

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared In the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40
1"=40'

NC 98 EB (Dr. Calvin Jones Hwy.)
at
U-Turn West of
South Franklin Street

Division 5 Wake County Wake Forest

PLAN DATE: June 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZELENKA

DocuSigned by:
06/22/2022
DATE

SIG. INVENTORY NO. 05-2073

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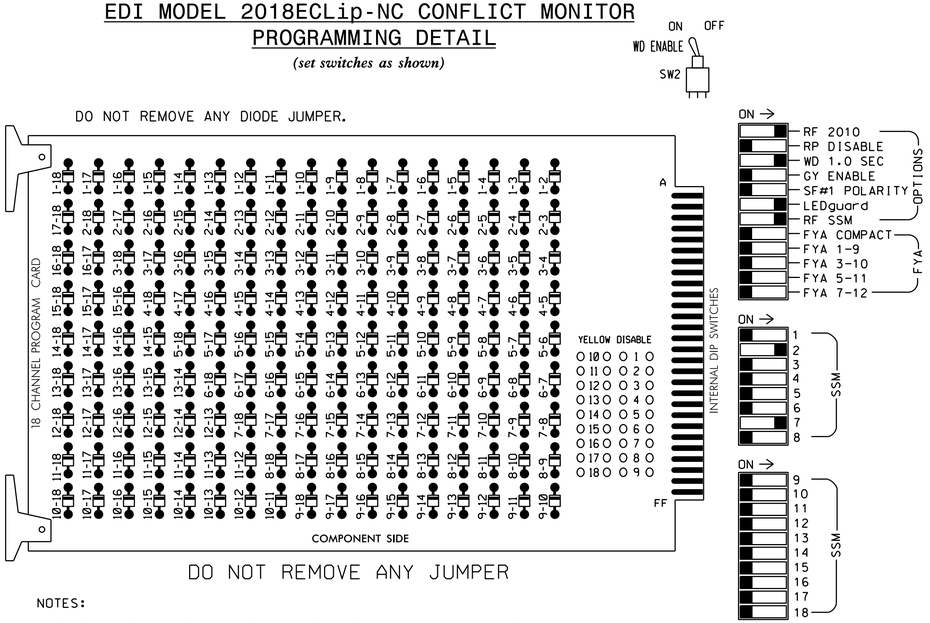
rzelenka

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig. 3.1

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(set switches as shown)



■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the Wake Forest Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S10
PHASES USED.....2,7
OVERLAPS.....NONE

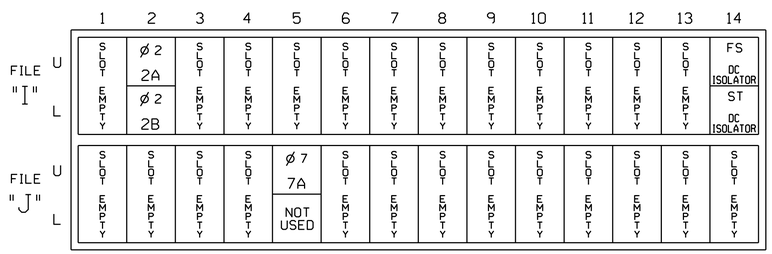
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	NU	NU	NU	71	NU	NU	NU	NU	NU	NU	NU	NU
RED		128																
YELLOW		129																
GREEN																		
RED ARROW										122								
YELLOW ARROW										123								
GREEN ARROW		130								124								

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
2A	TB2-5,6	I2U	39	2	2	YES			X	N
2B	TB2-7,8	I2L	43	I2	2	YES			X	N
7A	TB5-5,6	J5U	57	7	7	YES				N

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

This Plan Supersedes Electrical Detail Sealed on 6/15/2022

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2073
DESIGNED: June 2022
SEALED: 6/22/2022
REVISED: N/A

Electrical Detail

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 98 EB (Dr. Calvin Jones Hwy.)
at
U-Turn West of
South Franklin Street

Division 5 | Wake County | Wake Forest

PLAN DATE: June 2022 | REVIEWED BY:
PREPARED BY: Zarrar Zafar | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 06/23/2022
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DATE

SIG. INVENTORY NO. 05-2073

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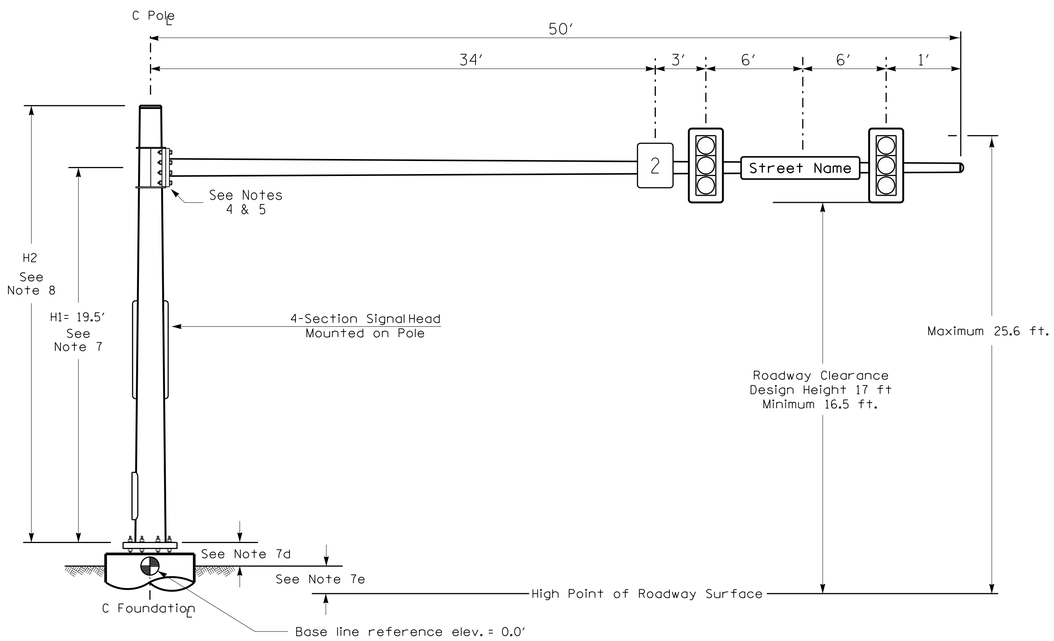
METAL POLE No. 1

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig 3.2

Design Loading for METAL POLE NO. 1



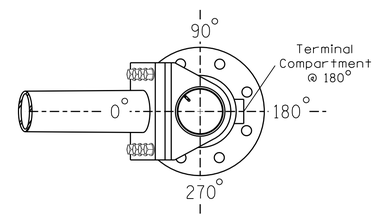
Elevation View

SPECIAL NOTE

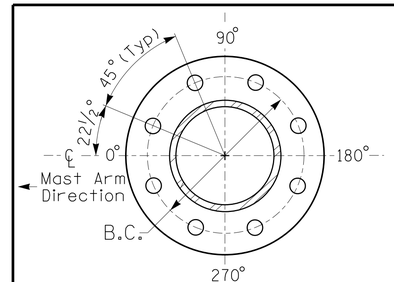
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1	
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	+0.6 ft.	
Elevation difference at Edge of travelway or face of curb	-0.2 ft.	

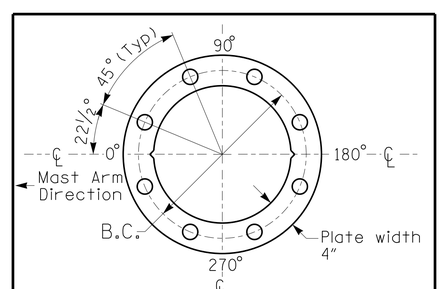


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0" W X 36.0" L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2018 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2018 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

This plan supersedes the plan signed and sealed on 6/16/22.

NCDOT Wind Zone 4 (90 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 EB (Dr. Calvin Jones Hwy.)
at
U-Turn West of
South Franklin Street

Division 5 Wake County Wake Forest

PLAN DATE: June 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMER

DocuSigned by: 06/23/2022
DATE

SIG. INVENTORY NO. 05-2073

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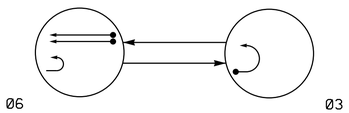
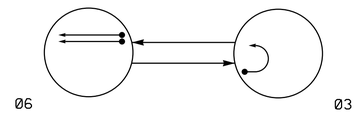
PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig 4.0

DEFAULT PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION			
SIGNAL FACE	PHASE 06	PHASE 03	FLASH
31	(R)	↑	(Y)
32	F	←	Y
61, 62	↑	R	Y

ALTERNATE PHASING DIAGRAM



ALTERNATE PHASING TABLE OF OPERATION			
SIGNAL FACE	PHASE 06	PHASE 03	FLASH
31	(R)	↑	(Y)
32	R	←	Y
61, 62	↑	R	Y

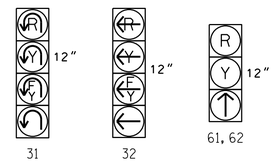
2 Phase
Fully Actuated
(Wake Forest Signal System)

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

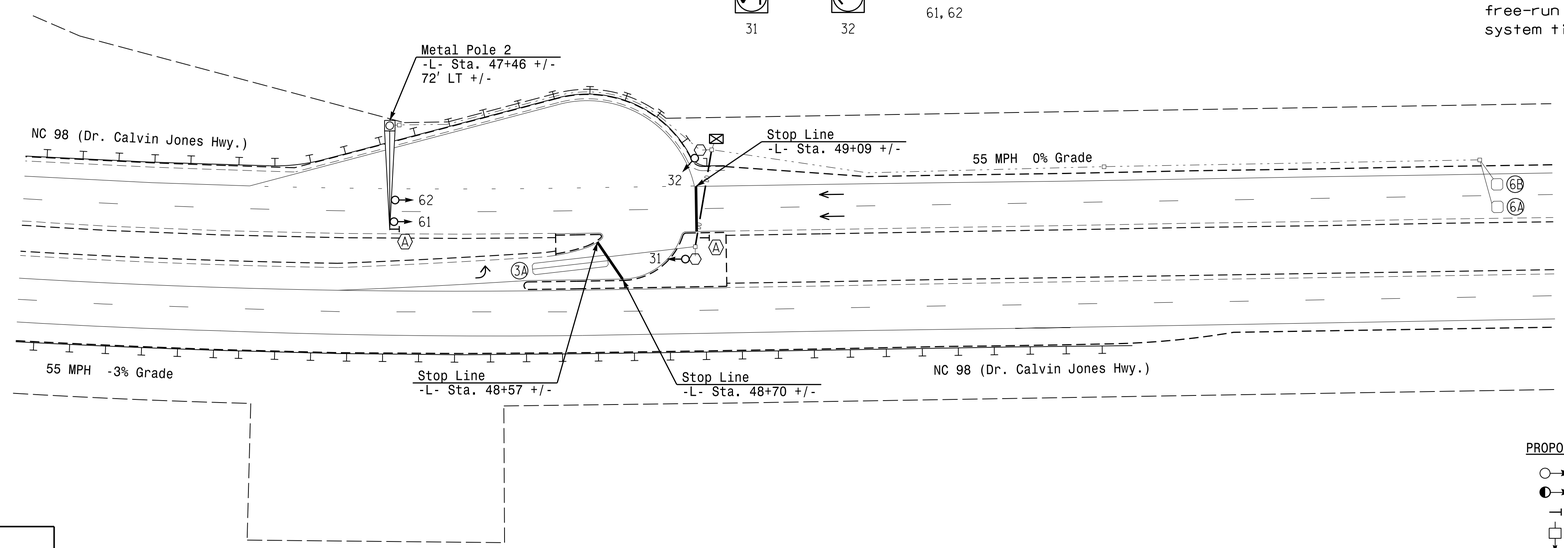
SIGNAL FACE I.D.

All Heads L.E.D.



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
DD	Directional Drill	N/A
	Metal Pole with Mastarm	
	Type II Signal Pedestal	
A	No Left Turn Sign (R3-2)	A

TIMING CHART

FEATURE	PHASE 3	PHASE 6
Min Green *	7	14
Delayed Green *	-	-
Walk *	-	-
Ped Clear	-	-
Veh. Extension *	2.0	6.0
Max 1 *	30	90
Yellow	3.0	5.2
Red Clear	2.4	1.0
Red Revert	2.0	2.0
Actuations B4 Add *	-	-
Seconds /Actuation *	-	1.5
Max Initial *	-	46
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.4
Locking Detector	-	X
Recall Position	-	VEH. RECALL
Dual Entry	-	-
Simultaneous Gap	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
3A	6X40	0	2-4-2	X	3	Yes	-	15 *	-	N	-	X
6A	6X6	420	6	X	6	Yes	-	-	X	N	-	X
6B	6X6	420	6	X	6	Yes	-	-	X	N	-	X

* Disable Delay during Alternate Phasing Operation.

This plan supersedes the plan signed and sealed on 6/13/22.

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared In the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 WB (Dr. Calvin Jones Hwy.) at U-Turn East of South Franklin Street

Division 5 Wake County Wake Forest

PLAN DATE: June 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

SCALE 1"=40' (0 – 40)

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by: 06/22/2022
DATE
SIG. INVENTORY NO. 05-2074

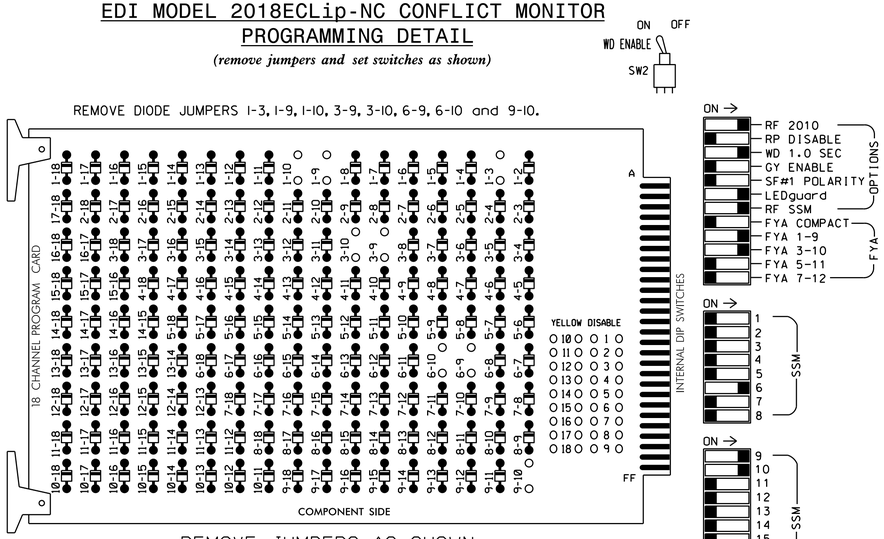
22-JUN-2022 10:51
#WFDOT#Groups-TEC#ITSASU#ITS Signals#Signal Design Sections#Central Region#Div 5#Wake Forest U-Turn#cogs#052074.sig.dsn.20220622.dgn
rziemba

412

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig. 4.1

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 6 Green.
3. Program phase 2 for Red Flash.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
5. The cabinet and controller are part of the Wake Forest Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S4,S8,AUX S1,AUX S2
PHASES USED.....3,6
OVERLAP "A".....NOT USED
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....NOT USED
OVERLAP "G".....3
OVERLAP "H".....3

* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	OLH	2	2 PED	OLG	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	32★	NU	NU	31★	NU	NU	NU	61,62	NU	NU	NU	NU	32★	31★	NU	NU	NU	NU
RED								134										
YELLOW	*			*				135										
GREEN																		
RED ARROW													A121	A124				
YELLOW ARROW													A122	A125				
FLASHING YELLOW ARROW													A123	A126				
GREEN ARROW	127			118				136										

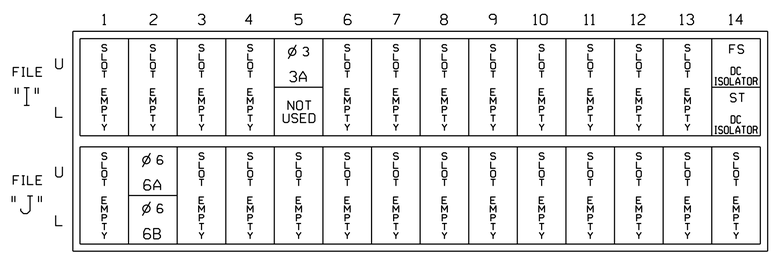
NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

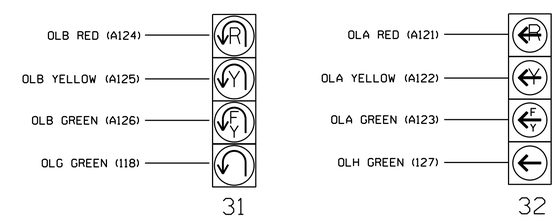
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
3A	TB4-5,6	I5U	58	3 ★	3	YES		15		N
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N

★ For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



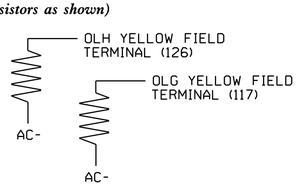
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2074
DESIGNED: June 2022
SEALED: 6/22/2022
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



This Plan Supersedes Electrical Detail Sealed on 6/15/2022

Electrical Detail - Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Traffic Engineering, Mobility and Safety Division
State of North Carolina Department of Transportation
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 WB (Dr. Calvin Jones Hwy.)
at
U-turn East of
South Franklin Street

Division 5 | Wake County | Wake Forest

PLAN DATE: June 2022 | REVIEWED BY:
PREPARED BY: Zarrar Zafar | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by:
D. Todd Joyce
A90CADFDBD4241D...
06/23/2022
DATE

SIG. INVENTORY NO. 05-2074

23-JUN-2022 08:35
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zzafar

413

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig. 4.2

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

Toggle Until Overlap 'G'

OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

```
TMG VEH OVLP...[G] TYPE: .......NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . X . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0
```

Toggle Once

OVERLAP H

Select TMG VEH OVLP [H] and 'NORMAL'

```
TMG VEH OVLP...[H] TYPE: .......NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . X . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0
```

Toggle Until Overlap 'A'

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   OVERLAP  H
OPPOSING THROUGH.......   PHASE    6

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 3
```

← NOTICE ACTION PLAN SF BIT "3"

Toggle Once

OVERLAP B

Select TMG VEH OVLP [B] and 'PPLT FYA'

```
TMG VEH OVLP...[B] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....   OVERLAP  G
OPPOSING THROUGH.......   PHASE    6

FLASHING ARROW OUTPUT.....CH10 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 3
```

← NOTICE ACTION PLAN SF BIT "3"

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOP 3A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select [8. UTILITIES]
2. From UTILITIES Submenu select [1. COPY/CLEAR]
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

```
COPY / CLEAR UTILITY
        FROM                TO
PHASE TIMING.... . > PHASE TIMING.... .
TIMING PLAN..... . > TIMING PLAN..... .
PH DET OPT PLAN. . > PH DET OPT PLAN. .
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
  TOGGLE TO SELECT A "FROM" AND A "TO"
            THEN PRESS ENTER
```

4. From Main Menu select [6. DETECTORS]
5. From DETECTOR Submenu select [2. VEHICLE DETECTOR SETUP]
6. Place cursor in VEH DET PLAN [ ] position and enter "2".

   - Place cursor in VEH DETECTOR [ ] position and enter "3".
   - Set delay time to "0".

```
VEH DETECTOR [ 3]   VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... X ECPI LOG.......   NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 3  3    . . . . . . . . . . . . . . . .
CALL OPTION.... YES DELAY TIME...    0.0
EXT OPTION. PASSAGE EXTENSION TIME.  0.0
USE ADDED INITIAL . CROSS SWITCH PH..  0
LOCK IN....... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
```

← NOTICE VEH DET PLAN 2

← ENSURE DELAY IS SET TO '0'

END PROGRAMMING

This Plan Supersedes Electrical Detail Sealed on 6/15/2022

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [3. LOAD SW ASSIGN]

NOTICE OVERLAP H ASSIGNED TO LD SWITCH 1 →

NOTICE OVERLAP G ASSIGNED TO LD SWITCH 3 →

LD SWITCH ASSIGN

	PHASE /OVLP	TYPE	DIMMING R	Y	G	D	---FLASH--- PWR	AUT	TGR
1	8	O	.	.	.	+	A	R	X
2	2	V	.	.	.	+	A	R	.
3	7	O	.	.	.	+	A	R	X
4	4	V	.	.	.	+	A	R	.
5	5	V	.	.	.	-	A	R	.
6	6	V	.	.	.	-	A	Y	X
7	7	V	.	.	.	-	A	R	.
8	8	V	.	.	.	-	A	R	X
9	1	O	.	.	.	+	A	R	X
10	2	O	.	.	.	+	A	R	X
11	3	O	.	.	.	-	A	R	.
12	4	O	.	.	.	-	A	R	.
13	2	P	.	.	.	+	A	.	.
14	4	P	.	.	.	-	A	.	.
15	6	P	.	.	.	+	A	.	.
16	8	P	.	.	.	-	A	.	.

← Ensure LD Switch 2 AUT set to 'R'

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2074
DESIGNED: June 2022
SEALED: 6/22/2022
REVISED: N/A

Electrical Detail - Sheet 2 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 98 WB (Dr. Calvin Jones Hwy.)
at
U-turn East of
South Franklin Street

Division 5 | Wake County | Wake Forest

PLAN DATE: June 2022 | REVIEWED BY:

PREPARED BY: Zarrar Zafar | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 06/23/2022
6DCADEDBD4241D... DATE

SIG. INVENTORY NO. 05-2074

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PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig. 4.3

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN. SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 3.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 3.

PHASING	VEH DET PLAN	SF BITS ENABLED
ACTIONS REQUIRED TO RUN DEFAULT PHASING	1	NONE
ACTIONS REQUIRED TO RUN ALTERNATE PHASING	2	3

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN SF BIT 3 AND VEH DET PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

SF BIT 3: Modifies overlap parent phases for heads 31 and 32 to run protected turns only.

VEH DET PLAN 2: Reduces delay time for phase 3 call on loop 3A to 0 seconds.

This Plan Supersedes Electrical Detail Sealed on 6/15/2022

ECONOLITE ASC/3-2070 ACTION PLAN PROGRAMMING DETAIL

1. From Main Menu select [5. TIME BASE]
2. From TIME BASE Submenu select [2. ACTION PLAN]

```
ACTION PLAN...[ *]
PATTERN..........AUTO   SYS OVERRIDE.... NO
TIMING PLAN........ 0   SEQUENCE........  0
VEH DETECTOR PLAN.. 2   DET LOG........NONE
FLASH...........   --   RED REST........ NO
VEH DET DIAG PLN... 0   PED DET DIAG PLN..0
DIMMING ENABLE..   NO   PRIORITY RETURN. NO
PED PR RETURN..    NO   QUEUE DELAY..... NO
PMT COND DELAY     NO
  PHASE   1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
PED RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
WALK 2    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEH RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
  PHASE   1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
MAX 3     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
CS INH    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
OMIT      .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
SPC FCT   .  .  X  .  .  .  .  .  (1-8)
AUX FCT   .  .  .  (1-3)
          1  2  3  4  5  6  7  8  9  0  1  2  3  4  5
LP 1-15   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 16-30  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 31-45  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 46-60  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 61-75  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 76-90  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 91-100 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
```

* The Action Plan number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2074
DESIGNED: June 2022
SEALED: 6/22/2022
REVISED: N/A

Electrical Detail - Sheet 3 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 98 WB (Dr. Calvin Jones Hwy.)
at
U-turn East of
South Franklin Street

Division 5 | Wake County | Wake Forest

PLAN DATE: June 2022 | REVIEWED BY:
PREPARED BY: Zarrar Zafar | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 06/23/2022
A90CADF0BD6241D...
DATE

SIG. INVENTORY NO. 05-2074

23-JUN-2022 08:38
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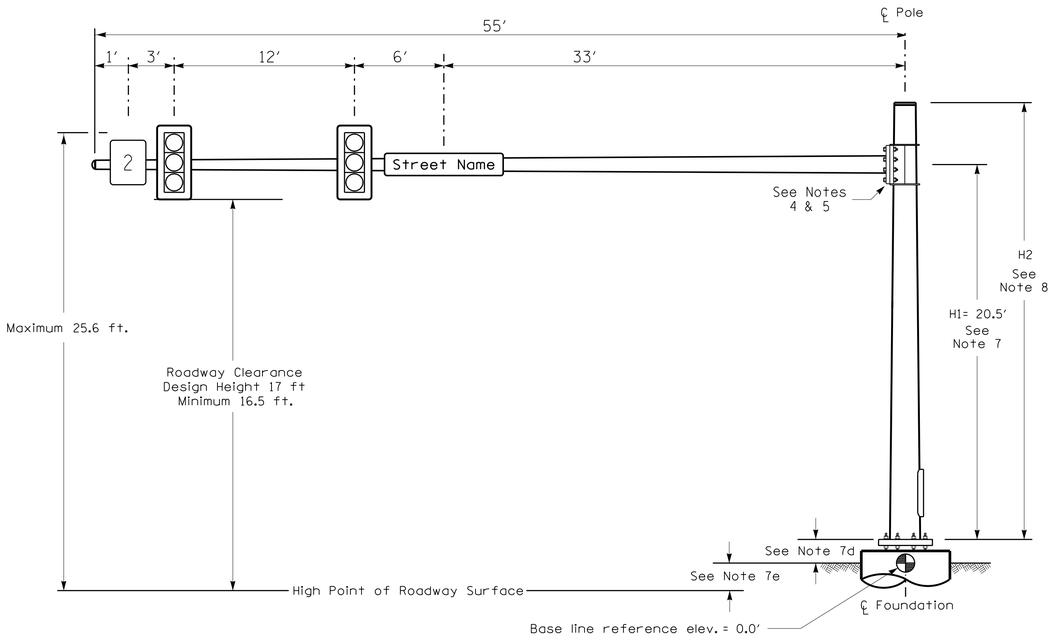
METAL POLE No. 2

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig 4.4

Design Loading for METAL POLE NO. 2



Elevation View

SPECIAL NOTE

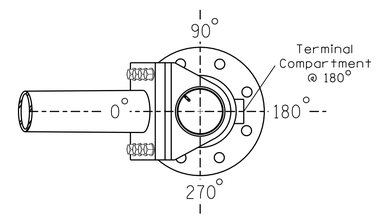
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

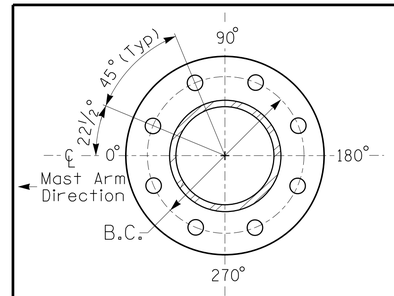
Elevation Differences for:	Pole 2	
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	+2.0 ft.	
Elevation difference at Edge of travelway or face of curb	+1.0 ft.	

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0" W X 36.0" L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS

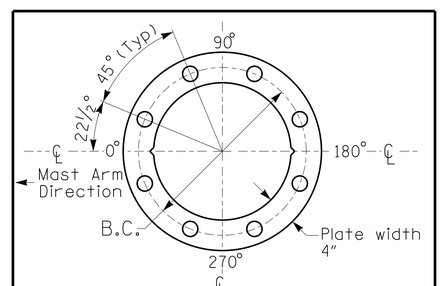


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2018 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2018 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 4 (90 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 WB (Dr. Calvin Jones Hwy.)
at
U-Turn East of
South Franklin Street

Division 5 Wake County Wake Forest

PLAN DATE: May 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by:
Robert J. Ziemba
1B9B4B6B274A494
06/16/2022
DATE

SIG. INVENTORY NO. 05-2074

13-JUN-2022 09:53
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jatohr

EXHIBIT B

The Reimbursement Estimate

See attached.

EXHIBIT B

The Reimbursement Estimate

ITEM	AMOUNT	NOTES
Signal Warrants, Engineering & Staking	$ 40,000	Kimley Horn & McAdams
Two Signal Poles, Mastarms & Appurtenances	$ 273,000	Signal Contractor Scope Complete
Traffic Control	$ 20,000	Allowance
Power Extension	$ 30,000	Allowance - Wake Forest Power
Subtotal	**$ 363,000**	
Contingency (10%)	**$ 36,300**	
Total	**$ 399,300**	

Developer (50%)	**$ 199,650**
Town of Wake Forest (50%)	**$ 199,650**

EXHIBIT C

The Signal Agreement

See attached.

DocuSign Envelope ID: 959125D7-CDAA-43E5-A5BA-515B0CFB1AFC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

June 29, 2020

Readers & Partners, LLC
c/o Scott Lay
8480 Honeycutt Road, Suite 200
Raleigh, NC 27615

Subject: Traffic Agreement between the North Carolina Department of Transportation and Readers & Partners, LLC – signal upgrades on NC 98 at Franklin Street and NC 98 at US 1A/US 1 in Wake Forest
Project 36249.4123, Wake County

Attached is a copy of a Traffic Agreement covering the above project. You have 45 days from the date of receipt to sign and return two originals of the agreement to our office.

Please have two originals properly executed and return both originals to this office for further handling. As stipulated in the agreement, please include a check for $14,000. The agreements cannot have handwritten revisions or crossed out words. If there are revisions to request, please email changes to eehoneycutt@ncdot.gov as soon as you can so we can update the agreement.

After execution of the agreements by the Department, one of the original agreements will be returned to your office for your records.

If you have any questions or additional information is needed, please contact Elizabeth Honeycutt at (919) 220-4623.

Sincerely,

DocuSigned by:
Jeremy Warren
40A076BA50CC46F...

Jeremy L. Warren, PE
Division Traffic Engineer

Enclosures

JLW:eeh

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION 5 OFFICE
2612 NORTH DUKE STREET
DURHAM, NC 27704

Telephone: (919) 220-4600
Fax: (919) 560-3371
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
2612 NORTH DUKE STREET
DURHAM, NC 27704

NORTH CAROLINA
WAKE COUNTY

TRAFFIC – REVIEW AND INSPECTION AGREEMENT

DATE: 6/29/2020

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

AND

WBS Elements: 36249.4123

READER & PARTNERS, LLC

THIS AGREEMENT is made and entered into on the last date executed below, by and between the North Carolina Department of Transportation, an agency of the State of North Carolina, hereinafter referred to as the "Department" and the Reader & Partners, LLC, hereinafter referred to as the "Developer".

W I T N E S S E T H:

WHEREAS, the Department and the Developer propose to make certain traffic control improvements under said project in Wake County; and,

WHEREAS, the Developer has agreed to participate in the cost of the project as hereinafter set out.

NOW, THEREFORE, the parties hereto, each in consideration of the promises and undertakings of the other as herein provided, do hereby covenant and agree, each with the other, as follows:

SCOPE OF PROJECT

1. The Project consists of upgrading the traffic signal on NC 98 at Franklin Street and NC 98 at US 1A/US 1. The design will include metal poles. The Department will review the traffic signal plans and inspect the traffic signal installation.

DESIGN AND EQUIPMENT PROCUREMENT

2. Project plans and traffic signal designs shall be prepared by the Developer, including electrical and programming details, (if applicable) metal poles with mast arm shop drawings, foundation designs, utility make-ready plans, communications cable routing plans, traffic signal coordination timing plans and Project Special Provisions (including, but not limited to: providing Synchro/Tru-Traffic files and programming data sheets; coordination timing plans, graphics package, downloading coordination timing plans onto system cabinets and/or onto central computer). All work shall be performed in accordance with Departmental standards and specifications. Said

plans and design shall be submitted to the Department for review and approval prior to any work being performed by the Developer. All work shall be done at no expense to the Department.

3. The Developer, at no expense to the Department, shall purchase or furnish from stock all traffic signal equipment necessary for the traffic signal revision. Said equipment shall be in reasonably close conformity with the standards and specifications of equipment and materials used by the Department. The Department reserves the right to reject the use of any equipment and materials it deems functionally inferior.

UTILITIES AND RIGHT OF WAY

4. The Developer, shall accomplish the relocation or adjustment of any and all utilities in conflict with the construction of the project. Said work shall be accomplished in a manner satisfactory to the Department, and without cost to the Department.

5. It is understood by the parties hereto that all work shall be contained within existing right of way. However, should it become necessary, the Developer, shall provide any required right of way and/or construction easements at no cost or liability whatsoever to the Department. Acquisition of right of way shall be accomplished in accordance with State procedures. The Developer, shall indemnify and save the Department harmless from any and all claims for damages that might arise on account of damage to public or private property and right of way acquisition, drainage, and construction easements for the construction of the project.

CONSTRUCTION

6. The Developer, at no expense to the Department, shall enter into and administer the contract for the installation of all equipment and perform such other work as required on the project in accordance with the approved project plans, the NCDOT "Standard Specifications for Roads and Structures", January 2018, "Roadway Standard Drawings", January 2018 and any addendum, all local codes and ordinances, and the procedures set out herein below shall be followed:

   A. No work shall be performed by the Developer prior to approval of the traffic signal design by the Department.

   B. Installation shall be done by a licensed electrical contractor familiar with traffic signal construction.

   C. All preliminary and construction engineering, supervision, and labor pertaining to the signal installation will be furnished by the Developer.

D. The Department's Division Engineer shall have the right to inspect, sample or test, and approve or reject any materials or construction methods used during the construction of the project.

E. Upon completion of the project, and prior to final acceptance by the Department, the Developer, will furnish to the Department's Division Engineer one (1) signal inventory control sheet and one (1) set of "Plan of Record" plans.

F. Prior to final acceptance by the Department, the Division Engineer shall have the right to make a final inspection of the completed work.

G. Failure on the part of the Developer, to comply with any of these provisions will be grounds for the Department to terminate the project.

H. The Developer, agrees to pursue the completion of the work covered by this Agreement as expeditiously as feasible and to complete all work within 180 Days of notice to proceed.

7. During installation of the signal equipment, the Department shall inspect the work being performed by the Developer to ensure compliance with the project plans, the current NCDOT traffic signal specifications, and the terms of this Agreement.

8. The Developer shall install thermoplastic pavement markings where pavement markings are required on the project.

FUNDING

9. The Developer shall reimburse the Department one hundred percent (100%) of the actual cost of all work performed by the Department, including administrative costs. Based on the estimated costs, the Developer shall submit a check for **$14,000** to the Department's Division Engineer upon **partial execution** of this Agreement by the Developer. Upon completion of the project, if actual costs exceed the amount of payment, the Developer shall reimburse the Department any underpayment within sixty (60) days of invoicing by the Department. If the actual cost of the work is less than $14,000, the Department shall reimburse the Developer any overpayment. The Department shall charge a late payment penalty and interest on any unpaid balance due in accordance with G.S. 147-86.23.

MAINTENANCE

10. Upon completion of the project, the Department shall own the traffic signal. Control and maintenance of the traffic signal will be accomplished in the same manner as maintenance of other state system signalized intersections.

11. In the event of damage to the metal poles, the Department shall install "in-kind" metal poles if funding is available from the damage claim or the Developer. However, if said funding is not available, the Department reserves the right to install wooden poles in lieu of metal poles (if applicable).

ADDITIONAL PROVISIONS

12. The other party to this Agreement shall comply with Title VI of the Civil Rights Act of 1964 (Title 49 CFR, Subtitle A, Part 21) and related nondiscrimination authorities. Title VI and related authorities prohibit discrimination on the basis of race, color, national origin, disability, gender, and age in all programs or activities of any recipient of Federal assistance.

13. A copy or facsimile copy of the signature of any party shall be deemed an original with each fully executed copy of the Agreement as binding as an original, and the parties agree that this Agreement can be executed in counterparts, as duplicate originals, with facsimile signatures sufficient to evidence an agreement to be bound by the terms of the Agreement.

14. By Executive Order 24, issued by Governor Perdue, and N.C. G.S.§ 133-32, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e., Administration, Commerce, Environmental Quality, Health and Human Services, Information Technology, Military and Veterans Affairs, Natural and Cultural Resources, Public Safety, Revenue, Transportation, and the Office of the Governor).

IT IS UNDERSTOOD AND AGREED that the approval of the project by the Department and the Developer is subject to the conditions of this Agreement.

IN WITNESS WHEREOF, this Agreement has been executed, in duplicate, the day and year heretofore set out, on the part of the Department and the Developer by authority duly given.

ATTEST:

BY: _____

TITLE: _____

READER & PARTNERS, LLC

BY: _____

TITLE: SVP

DATE: 7/1/20

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

(SEAL)

Federal Tax Identification Number

84-3277121

Remittance Address:

Reader & Partners, LLC

8480 HONEYCUTT ROAD, SUITE 200
RALEIGH, NC 27615

DEPARTMENT OF TRANSPORTATION

BY: _____
(CHIEF ENGINEER)

DATE: _____

PRESENTED TO BOARD OF TRANSPORTATION ITEM O: _____

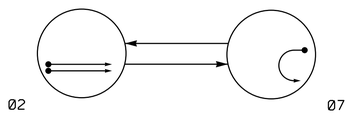
EXHIBIT D

Form of Ledger

Date	Unreimbursed Reimbursement Costs	Amount Reimbursed	Balance of Town Reimbursement Costs Responsibility

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig 3.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

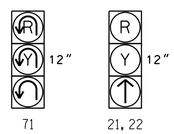
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 02	PHASE 07	FLASH
21, 22	↑	R	Y
71	(R)	↶	(R)

SIGNAL FACE I.D.

All Heads L.E.D.



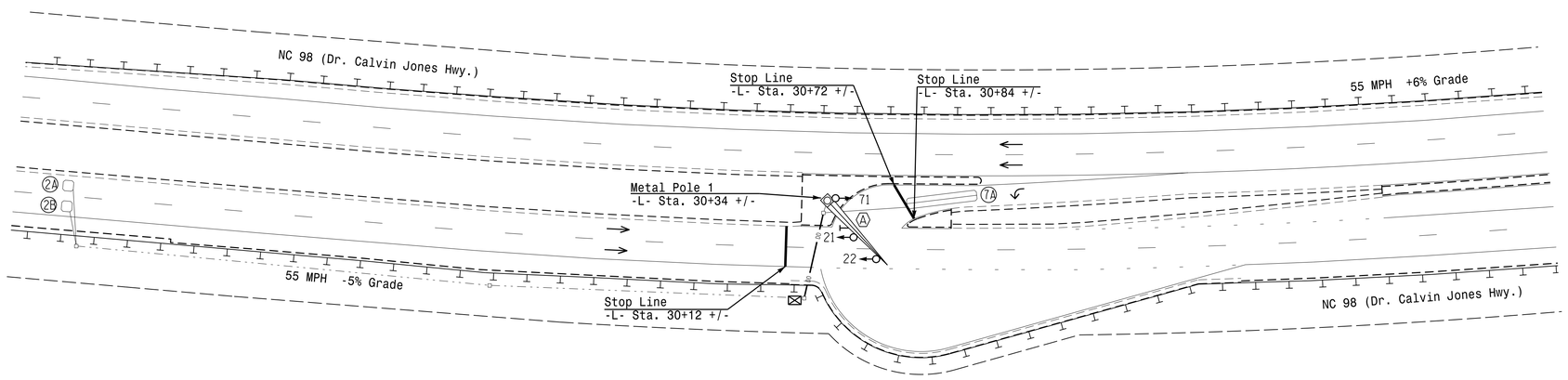
DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
2A	6X6	420	6	X	2	Yes	-	-	X	N	-	X
2B	6X6	420	6	X	2	Yes	-	-	X	N	-	X
7A	6X40	0	2-4-2	X	7	Yes	-	-	-	N	-	X

2 Phase
Fully Actuated
(Wake Forest Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
DD	Directional Drill	N/A
	Metal Pole with Mastarm	
A	No Left Turn Sign (R3-2)	A

TIMING CHART

FEATURE	PHASE 2	PHASE 7
Min Green *	14	7
Delayed Green *	-	-
Walk *	-	-
Ped Clear	-	-
Veh. Extension *	6.0	2.0
Max 1 *	90	30
Yellow	5.8	3.0
Red Clear	1.0	2.3
Red Revert	2.0	2.0
Actuations B4 Add *	-	-
Seconds /Actuation *	1.5	-
Max Initial *	46	-
Time Before Reduction *	15	-
Time To Reduce *	30	-
Minimum Gap	3.4	-
Locking Detector	X	-
Recall Position	VEH. RECALL	-
Dual Entry	-	-
Simultaneous Gap	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 2 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

This plan supersedes the plan signed and sealed on 6/13/22.

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared In the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40
1"=40'

NC 98 EB (Dr. Calvin Jones Hwy.)
at
U-Turn West of
South Franklin Street

Division 5 Wake County Wake Forest

PLAN DATE: June 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZELENKA

DocuSigned by: 06/22/2022
DATE

SIG. INVENTORY NO. 05-2073

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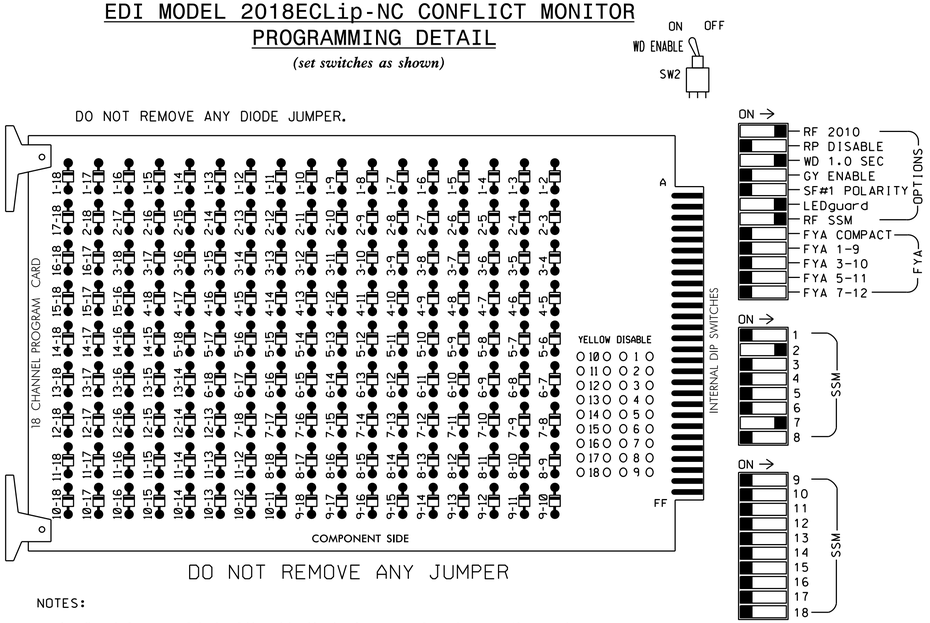
rzelenka

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig. 3.1

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(set switches as shown)



■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the Wake Forest Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S10
PHASES USED.....2,7
OVERLAPS.....NONE

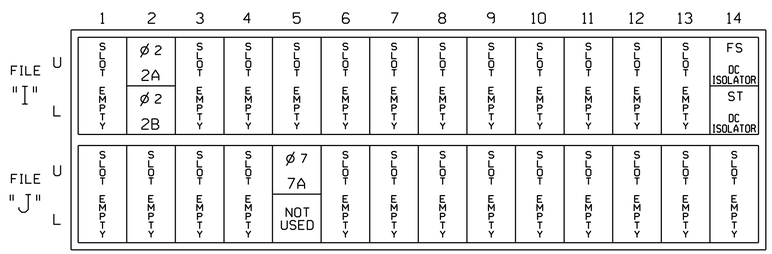
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	NU	NU	NU	71	NU	NU	NU	NU	NU	NU	NU	NU
RED		128																
YELLOW		129																
GREEN																		
RED ARROW										122								
YELLOW ARROW										123								
GREEN ARROW		130								124								

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
2A	TB2-5,6	I2U	39	2	2	YES			X	N
2B	TB2-7,8	I2L	43	I2	2	YES			X	N
7A	TB5-5,6	J5U	57	7	7	YES				N

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

This Plan Supersedes Electrical Detail Sealed on 6/15/2022

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2073
DESIGNED: June 2022
SEALED: 6/22/2022
REVISED: N/A

Electrical Detail

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 98 EB (Dr. Calvin Jones Hwy.)
at
U-Turn West of
South Franklin Street

Division 5 | Wake County | Wake Forest

PLAN DATE: June 2022 | REVIEWED BY:
PREPARED BY: Zarrar Zafar | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 06/23/2022
A90CADEDBD62410...
DATE

SIG. INVENTORY NO. 05-2073

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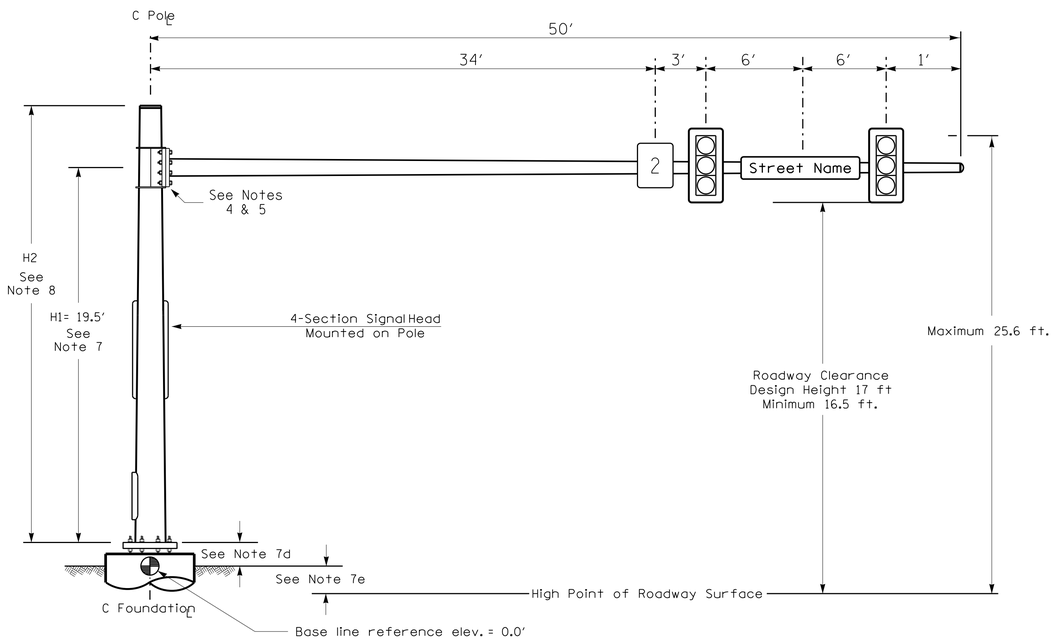
zzafar

METAL POLE No. 1

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig 3.2

Design Loading for METAL POLE NO. 1



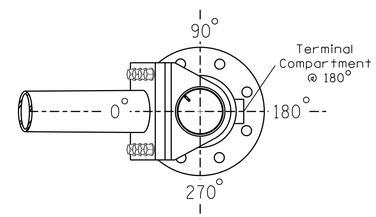
Elevation View

SPECIAL NOTE

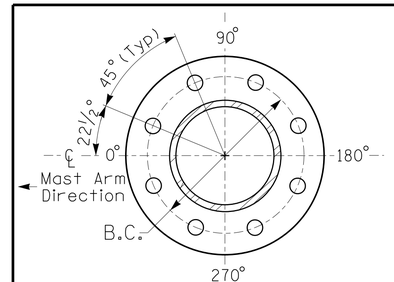
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1	
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	+0.6 ft.	
Elevation difference at Edge of travelway or face of curb	-0.2 ft.	

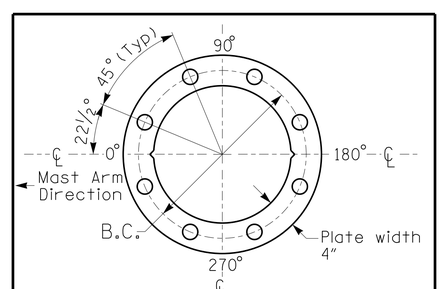


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0" W X 36.0" L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2018 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2018 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

This plan supersedes the plan signed and sealed on 6/16/22.

NCDOT Wind Zone 4 (90 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 EB (Dr. Calvin Jones Hwy.)
at
U-Turn West of
South Franklin Street

Division 5 Wake County Wake Forest

PLAN DATE:	June 2022	REVIEWED BY:	
PREPARED BY:	J.A. Lohr	REVIEWED BY:	

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMER

DocuSigned by: Robert J. Ziemer 06/23/2022
DATE

SIG. INVENTORY NO. 05-2073

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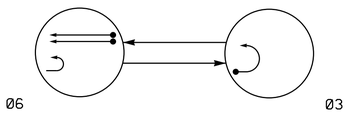
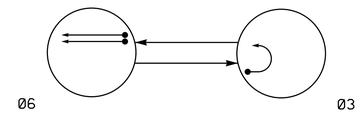
PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig 4.0

DEFAULT PHASING DIAGRAM



DEFAULT PHASING TABLE OF OPERATION			
SIGNAL FACE	PHASE 06	PHASE 03	FLASH
31	(R)	↑	(Y)
32	R	←	Y
61, 62	↑	R	Y

ALTERNATE PHASING DIAGRAM



ALTERNATE PHASING TABLE OF OPERATION			
SIGNAL FACE	PHASE 06	PHASE 03	FLASH
31	(R)	↑	(Y)
32	R	←	Y
61, 62	↑	R	Y

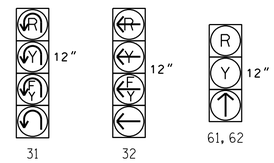
2 Phase
Fully Actuated
(Wake Forest Signal System)

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

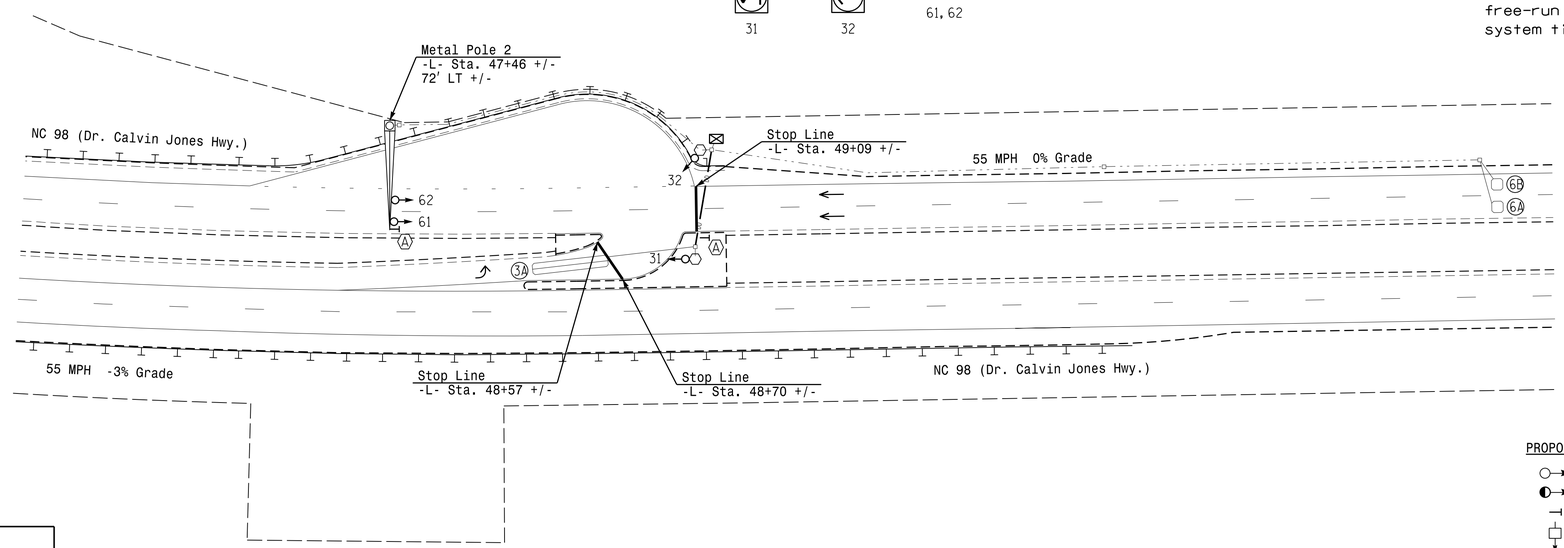
SIGNAL FACE I.D.

All Heads L.E.D.



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
	Directional Drill	N/A
	Metal Pole with Mastarm	
	Type II Signal Pedestal	
	No Left Turn Sign (R3-2)	

TIMING CHART

FEATURE	PHASE 3	PHASE 6
Min Green *	7	14
Delayed Green *	-	-
Walk *	-	-
Ped Clear	-	-
Veh. Extension *	2.0	6.0
Max 1 *	30	90
Yellow	3.0	5.2
Red Clear	2.4	1.0
Red Revert	2.0	2.0
Actuations B4 Add *	-	-
Seconds /Actuation *	-	1.5
Max Initial *	-	46
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.4
Locking Detector	-	X
Recall Position	-	VEH. RECALL
Dual Entry	-	-
Simultaneous Gap	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phase 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
3A	6X40	0	2-4-2	X	3	Yes	-	15 *	-	N	-	X
6A	6X6	420	6	X	6	Yes	-	-	X	N	-	X
6B	6X6	420	6	X	6	Yes	-	-	X	N	-	X

* Disable Delay during Alternate Phasing Operation.

This plan supersedes the plan signed and sealed on 6/13/22.

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared In the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 WB (Dr. Calvin Jones Hwy.) at U-Turn East of South Franklin Street

Division 5 Wake County Wake Forest

PLAN DATE: June 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

SCALE 1"=40' (0 – 40)

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by: 06/22/2022
DATE
SIG. INVENTORY NO. 05-2074

22-JUN-2022 10:51
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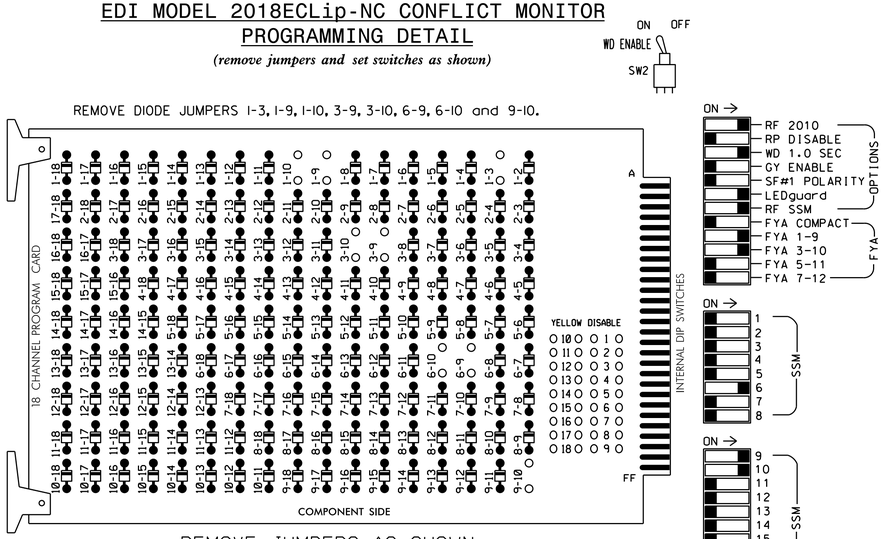
430

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig. 4.1

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 6 Green.
3. Program phase 2 for Red Flash.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
5. The cabinet and controller are part of the Wake Forest Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S4,S8,AUX S1,AUX S2
PHASES USED.....3,6
OVERLAP "A".....NOT USED
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....NOT USED
OVERLAP "G".....3
OVERLAP "H".....3

* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	OLH	2	2 PED	OLG	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	32★	NU	NU	31★	NU	NU	NU	61,62	NU	NU	NU	NU	32★	31★	NU	NU	NU	NU
RED								134										
YELLOW	*			*				135										
GREEN																		
RED ARROW													A121	A124				
YELLOW ARROW													A122	A125				
FLASHING YELLOW ARROW													A123	A126				
GREEN ARROW	127			118				136										

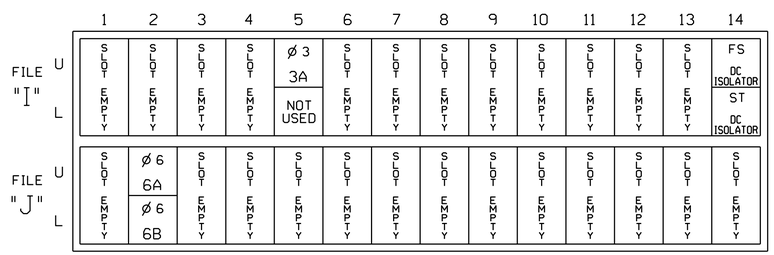
NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

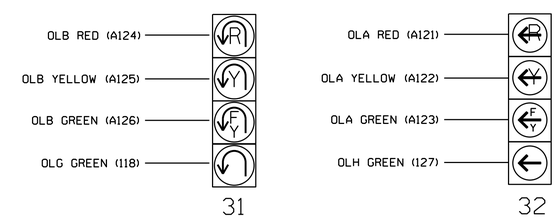
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
3A	TB4-5,6	I5U	58	3 ★	3	YES		15		N
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N

★ For the detectors to work as shown on the signal design plan, see the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

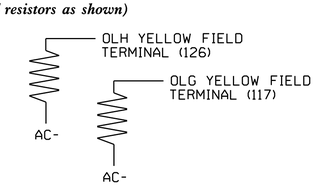


LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



This Plan Supersedes Electrical Detail Sealed on 6/15/2022

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2074
DESIGNED: June 2022
SEALED: 6/22/2022
REVISED: N/A

Electrical Detail - Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 WB (Dr. Calvin Jones Hwy.)
at
U-turn East of
South Franklin Street

Division 5 | Wake County | Wake Forest

PLAN DATE: June 2022 | REVIEWED BY:
PREPARED BY: Zarrar Zafar | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by:
D. Todd Joyce
A90CADFDBD4241D...
06/23/2022
DATE

SIG. INVENTORY NO. 05-2074

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431

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig. 4.2

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select [2. CONTROLLER]
2. From CONTROLLER Submenu select [2. VEHICLE OVERLAPS]

Toggle Until Overlap 'G'

OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

```
TMG VEH OVLP...[G] TYPE: .......NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . X . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0
```

Toggle Once

OVERLAP H

Select TMG VEH OVLP [H] and 'NORMAL'

```
TMG VEH OVLP...[H] TYPE: .......NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . X . . . . . . . . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0
```

Toggle Until Overlap 'A'

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

```
TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....    OVERLAP  H
OPPOSING THROUGH.......    PHASE    6

FLASHING ARROW OUTPUT.....CH9  ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 3
```

← NOTICE ACTION PLAN SF BIT "3"

Toggle Once

OVERLAP B

Select TMG VEH OVLP [B] and 'PPLT FYA'

```
TMG VEH OVLP...[B] TYPE: .....PPLT FYA

PROTECTED LEFT TURN....    OVERLAP  G
OPPOSING THROUGH.......    PHASE    6

FLASHING ARROW OUTPUT.....CH10 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE........... 3
```

← NOTICE ACTION PLAN SF BIT "3"

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOP 3A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select [8. UTILITIES]
2. From UTILITIES Submenu select [1. COPY/CLEAR]
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

```
COPY / CLEAR UTILITY
        FROM                TO
PHASE TIMING.... . > PHASE TIMING.... .
TIMING PLAN..... . > TIMING PLAN..... .
PH DET OPT PLAN. . > PH DET OPT PLAN. .
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
  TOGGLE TO SELECT A "FROM" AND A "TO"
            THEN PRESS ENTER
```

4. From Main Menu select [6. DETECTORS]
5. From DETECTOR Submenu select [2. VEHICLE DETECTOR SETUP]
6. Place cursor in VEH DET PLAN [ ] position and enter "2".

   - Place cursor in VEH DETECTOR [ ] position and enter "3".
   - Set delay time to "0".

```
VEH DETECTOR [ 3]   VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... X ECPI LOG.......   NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 3  3    . . . . . . . . . . . . . . . .
CALL OPTION.... YES DELAY TIME...    0.0
EXT OPTION. PASSAGE EXTENSION TIME.  0.0
USE ADDED INITIAL . CROSS SWITCH PH..  0
LOCK IN....... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
```

← NOTICE VEH DET PLAN 2

← ENSURE DELAY IS SET TO '0'

END PROGRAMMING

This Plan Supersedes Electrical Detail Sealed on 6/15/2022

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

1. From Main Menu select [1. CONFIGURATION]
2. From CONFIGURATION Submenu select [3. LOAD SW ASSIGN]

NOTICE OVERLAP H ASSIGNED TO LD SWITCH 1 →

NOTICE OVERLAP G ASSIGNED TO LD SWITCH 3 →

LD SWITCH ASSIGN

	PHASE /OVLP	TYPE	DIMMING R	Y	G	D	---FLASH--- PWR	AUT	TGR
1	8	O	.	.	.	+	A	R	X
2	2	V	.	.	.	+	A	R	.
3	7	O	.	.	.	+	A	R	X
4	4	V	.	.	.	+	A	R	.
5	5	V	.	.	.	-	A	R	.
6	6	V	.	.	.	-	A	Y	X
7	7	V	.	.	.	-	A	R	.
8	8	V	.	.	.	-	A	R	X
9	1	O	.	.	.	+	A	R	X
10	2	O	.	.	.	+	A	R	X
11	3	O	.	.	.	-	A	R	.
12	4	O	.	.	.	-	A	R	.
13	2	P	.	.	.	+	A	.	.
14	4	P	.	.	.	-	A	.	.
15	6	P	.	.	.	+	A	.	.
16	8	P	.	.	.	-	A	.	.

← Ensure LD Switch 2 AUT set to 'R'

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2074
DESIGNED: June 2022
SEALED: 6/22/2022
REVISED: N/A

Electrical Detail - Sheet 2 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 98 WB (Dr. Calvin Jones Hwy.)
at
U-turn East of
South Franklin Street

Division 5 | Wake County | Wake Forest

PLAN DATE: June 2022 | REVIEWED BY:

PREPARED BY: Zarrar Zafar | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 06/23/2022
6DCADEDBD4241D... DATE

SIG. INVENTORY NO. 05-2074

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ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN. SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 3.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 3.

PHASING	VEH DET PLAN	SF BITS ENABLED
ACTIONS REQUIRED TO RUN DEFAULT PHASING	1	NONE
ACTIONS REQUIRED TO RUN ALTERNATE PHASING	2	3

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN SF BIT 3 AND VEH DET PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

SF BIT 3: Modifies overlap parent phases for heads 31 and 32 to run protected turns only.

VEH DET PLAN 2: Reduces delay time for phase 3 call on loop 3A to 0 seconds.

This Plan Supersedes Electrical Detail Sealed on 6/15/2022

ECONOLITE ASC/3-2070 ACTION PLAN PROGRAMMING DETAIL

1. From Main Menu select [5. TIME BASE]
2. From TIME BASE Submenu select [2. ACTION PLAN]

```
ACTION PLAN...[ *]
PATTERN..........AUTO   SYS OVERRIDE.... NO
TIMING PLAN........ 0   SEQUENCE........  0
VEH DETECTOR PLAN.. 2   DET LOG........NONE
FLASH...........   --   RED REST........ NO
VEH DET DIAG PLN... 0   PED DET DIAG PLN..0
DIMMING ENABLE..   NO   PRIORITY RETURN. NO
PED PR RETURN..    NO   QUEUE DELAY..... NO
PMT COND DELAY     NO
  PHASE   1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
PED RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
WALK 2    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEH RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
  PHASE   1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
MAX 3     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
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LP 16-30  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 31-45  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 46-60  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 61-75  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 76-90  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 91-100 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
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* The Action Plan number(s) are to be determined by the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2074
DESIGNED: June 2022
SEALED: 6/22/2022
REVISED: N/A

Electrical Detail - Sheet 3 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 WB (Dr. Calvin Jones Hwy.)
at
U-turn East of
South Franklin Street

Division 5 | Wake County | Wake Forest

PLAN DATE:	June 2022	REVIEWED BY:	
PREPARED BY:	Zarrar Zafar	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 06/23/2022
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DATE

SIG. INVENTORY NO. 05-2074

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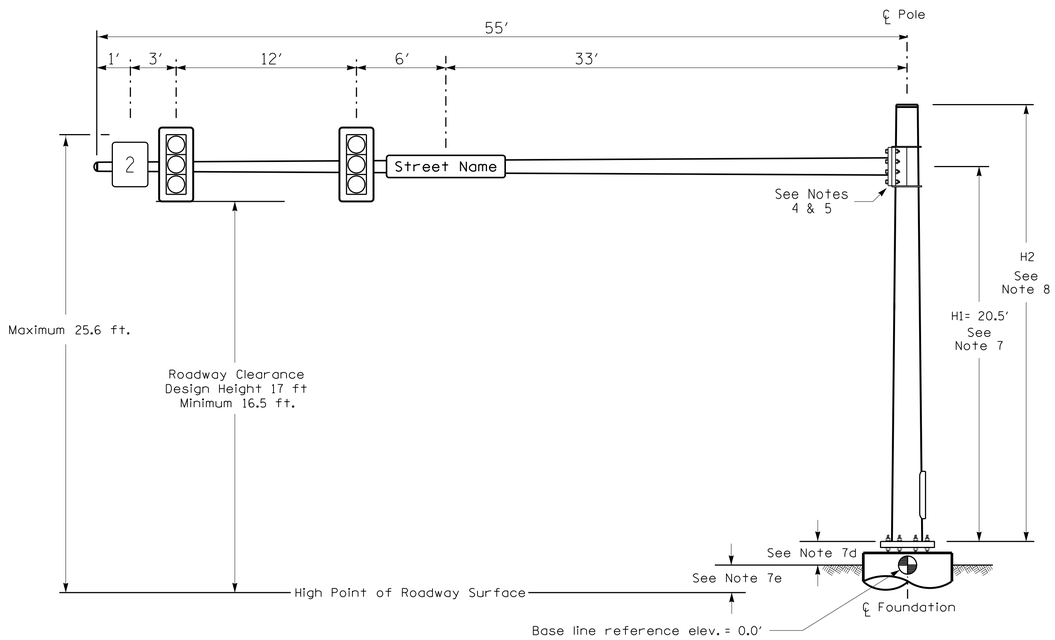
zzafar

METAL POLE No. 2

PROJECT REFERENCE NO.	SHEET NO.
Holdings Village	Sig 4.4

Design Loading for METAL POLE NO. 2



Elevation View

SPECIAL NOTE

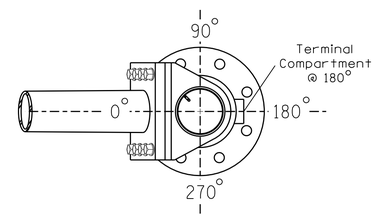
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

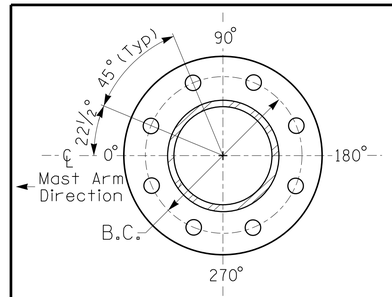
Elevation Differences for:	Pole 2	
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	+2.0 ft.	
Elevation difference at Edge of travelway or face of curb	+1.0 ft.	

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0" W X 36.0" L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS

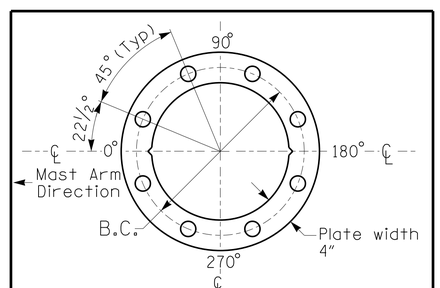


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2018 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2018 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 4 (90 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 98 WB (Dr. Calvin Jones Hwy.)
at
U-Turn East of
South Franklin Street

Division 5 Wake County Wake Forest

PLAN DATE: May 2022 REVIEWED BY:
PREPARED BY: J.A. Lohr REVIEWED BY:

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by:
18984B6274A494
06/16/2022
DATE

SIG. INVENTORY NO. 05-2074

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jalohr

EXHIBIT B

The Reimbursement Estimate

ITEM	AMOUNT	NOTES
Signal Warrants, Engineering & Staking	$ 40,000	Kimley Horn & McAdams
Two Signal Poles, Mastarms & Appurtenances	$ 273,000	Signal Contractor Scope Complete
Traffic Control	$ 20,000	Allowance
Power Extension	$ 30,000	Allowance - Wake Forest Power
Subtotal	**$ 363,000**	
Contingency (10%)	**$ 36,300**	
Total	**$ 399,300**	

Developer (50%)	**$ 199,650**
Town of Wake Forest (50%)	**$ 199,650**

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

June 29, 2020

Readers & Partners, LLC
c/o Scott Lay
8480 Honeycutt Road, Suite 200
Raleigh, NC 27615

Subject: Traffic Agreement between the North Carolina Department of Transportation and Readers & Partners, LLC – signal upgrades on NC 98 at Franklin Street and NC 98 at US 1A/US 1 in Wake Forest
Project 36249.4123, Wake County

Attached is a copy of a Traffic Agreement covering the above project. You have 45 days from the date of receipt to sign and return two originals of the agreement to our office.

Please have two originals properly executed and return both originals to this office for further handling. As stipulated in the agreement, please include a check for $14,000. The agreements cannot have handwritten revisions or crossed out words. If there are revisions to request, please email changes to eehoneycutt@ncdot.gov as soon as you can so we can update the agreement.

After execution of the agreements by the Department, one of the original agreements will be returned to your office for your records.

If you have any questions or additional information is needed, please contact Elizabeth Honeycutt at (919) 220-4623.

Sincerely,

DocuSigned by:
Jeremy Warren
40A076BA50CC46F...

Jeremy L. Warren, PE
Division Traffic Engineer

Enclosures

JLW:eeh

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION 5 OFFICE
2612 NORTH DUKE STREET
DURHAM, NC 27704

Telephone: (919) 220-4600
Fax: (919) 560-3371
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
2612 NORTH DUKE STREET
DURHAM, NC 27704

NORTH CAROLINA
WAKE COUNTY

TRAFFIC – REVIEW AND INSPECTION AGREEMENT

DATE: 6/29/2020

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

AND

WBS Elements: 36249.4123

READER & PARTNERS, LLC

THIS AGREEMENT is made and entered into on the last date executed below, by and between the North Carolina Department of Transportation, an agency of the State of North Carolina, hereinafter referred to as the "Department" and the Reader & Partners, LLC, hereinafter referred to as the "Developer".

W I T N E S S E T H:

WHEREAS, the Department and the Developer propose to make certain traffic control improvements under said project in Wake County; and,

WHEREAS, the Developer has agreed to participate in the cost of the project as hereinafter set out.

NOW, THEREFORE, the parties hereto, each in consideration of the promises and undertakings of the other as herein provided, do hereby covenant and agree, each with the other, as follows:

SCOPE OF PROJECT

1. The Project consists of upgrading the traffic signal on NC 98 at Franklin Street and NC 98 at US 1A/US 1. The design will include metal poles. The Department will review the traffic signal plans and inspect the traffic signal installation.

DESIGN AND EQUIPMENT PROCUREMENT

2. Project plans and traffic signal designs shall be prepared by the Developer, including electrical and programming details, (if applicable) metal poles with mast arm shop drawings, foundation designs, utility make-ready plans, communications cable routing plans, traffic signal coordination timing plans and Project Special Provisions (including, but not limited to: providing Synchro/Tru-Traffic files and programming data sheets; coordination timing plans, graphics package, downloading coordination timing plans onto system cabinets and/or onto central computer). All work shall be performed in accordance with Departmental standards and specifications. Said

plans and design shall be submitted to the Department for review and approval prior to any work being performed by the Developer. All work shall be done at no expense to the Department.

3. The Developer, at no expense to the Department, shall purchase or furnish from stock all traffic signal equipment necessary for the traffic signal revision. Said equipment shall be in reasonably close conformity with the standards and specifications of equipment and materials used by the Department. The Department reserves the right to reject the use of any equipment and materials it deems functionally inferior.

UTILITIES AND RIGHT OF WAY

4. The Developer, shall accomplish the relocation or adjustment of any and all utilities in conflict with the construction of the project. Said work shall be accomplished in a manner satisfactory to the Department, and without cost to the Department.

5. It is understood by the parties hereto that all work shall be contained within existing right of way. However, should it become necessary, the Developer, shall provide any required right of way and/or construction easements at no cost or liability whatsoever to the Department. Acquisition of right of way shall be accomplished in accordance with State procedures. The Developer, shall indemnify and save the Department harmless from any and all claims for damages that might arise on account of damage to public or private property and right of way acquisition, drainage, and construction easements for the construction of the project.

CONSTRUCTION

6. The Developer, at no expense to the Department, shall enter into and administer the contract for the installation of all equipment and perform such other work as required on the project in accordance with the approved project plans, the NCDOT "Standard Specifications for Roads and Structures", January 2018, "Roadway Standard Drawings", January 2018 and any addendum, all local codes and ordinances, and the procedures set out herein below shall be followed:

   A. No work shall be performed by the Developer prior to approval of the traffic signal design by the Department.

   B. Installation shall be done by a licensed electrical contractor familiar with traffic signal construction.

   C. All preliminary and construction engineering, supervision, and labor pertaining to the signal installation will be furnished by the Developer.

D. The Department's Division Engineer shall have the right to inspect, sample or test, and approve or reject any materials or construction methods used during the construction of the project.

E. Upon completion of the project, and prior to final acceptance by the Department, the Developer, will furnish to the Department's Division Engineer one (1) signal inventory control sheet and one (1) set of "Plan of Record" plans.

F. Prior to final acceptance by the Department, the Division Engineer shall have the right to make a final inspection of the completed work.

G. Failure on the part of the Developer, to comply with any of these provisions will be grounds for the Department to terminate the project.

H. The Developer, agrees to pursue the completion of the work covered by this Agreement as expeditiously as feasible and to complete all work within 180 Days of notice to proceed.

7. During installation of the signal equipment, the Department shall inspect the work being performed by the Developer to ensure compliance with the project plans, the current NCDOT traffic signal specifications, and the terms of this Agreement.

8. The Developer shall install thermoplastic pavement markings where pavement markings are required on the project.

FUNDING

9. The Developer shall reimburse the Department one hundred percent (100%) of the actual cost of all work performed by the Department, including administrative costs. Based on the estimated costs, the Developer shall submit a check for **$14,000** to the Department's Division Engineer upon **partial execution** of this Agreement by the Developer. Upon completion of the project, if actual costs exceed the amount of payment, the Developer shall reimburse the Department any underpayment within sixty (60) days of invoicing by the Department. If the actual cost of the work is less than $14,000, the Department shall reimburse the Developer any overpayment. The Department shall charge a late payment penalty and interest on any unpaid balance due in accordance with G.S. 147-86.23.

MAINTENANCE

10. Upon completion of the project, the Department shall own the traffic signal. Control and maintenance of the traffic signal will be accomplished in the same manner as maintenance of other state system signalized intersections.

11. In the event of damage to the metal poles, the Department shall install "in-kind" metal poles if funding is available from the damage claim or the Developer. However, if said funding is not available, the Department reserves the right to install wooden poles in lieu of metal poles (if applicable).

ADDITIONAL PROVISIONS

12. The other party to this Agreement shall comply with Title VI of the Civil Rights Act of 1964 (Title 49 CFR, Subtitle A, Part 21) and related nondiscrimination authorities. Title VI and related authorities prohibit discrimination on the basis of race, color, national origin, disability, gender, and age in all programs or activities of any recipient of Federal assistance.

13. A copy or facsimile copy of the signature of any party shall be deemed an original with each fully executed copy of the Agreement as binding as an original, and the parties agree that this Agreement can be executed in counterparts, as duplicate originals, with facsimile signatures sufficient to evidence an agreement to be bound by the terms of the Agreement.

14. By Executive Order 24, issued by Governor Perdue, and N.C. G.S.§ 133-32, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e., Administration, Commerce, Environmental Quality, Health and Human Services, Information Technology, Military and Veterans Affairs, Natural and Cultural Resources, Public Safety, Revenue, Transportation, and the Office of the Governor).

IT IS UNDERSTOOD AND AGREED that the approval of the project by the Department and the Developer is subject to the conditions of this Agreement.

IN WITNESS WHEREOF, this Agreement has been executed, in duplicate, the day and year heretofore set out, on the part of the Department and the Developer by authority duly given.

ATTEST:

BY: _____

TITLE: _____

READER & PARTNERS, LLC

BY: _____

TITLE: SVP

DATE: 7/1/20

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

(SEAL)

Federal Tax Identification Number

84-3277121

Remittance Address:

Reader & Partners, LLC

8480 HONEYCUTT ROAD, SUITE 200
RALEIGH, NC 27615

DEPARTMENT OF TRANSPORTATION

BY: _____
(CHIEF ENGINEER)

DATE: _____

PRESENTED TO BOARD OF TRANSPORTATION ITEM O: _____

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-273-
Submitted by: Joseph Guckavan
Submitting Department: Engineering
Meeting Date: October 17, 2023

SUBJECT
Approval of municipal infrastructure improvements along South Franklin

Recommendation:
Consider approval of the resolution to authorize the Town Manager to enter into a contract with RPHV Lakeside, LLC for S. Franklin Infrastructure improvements to widen South Franklin Street.

Item Summary:

ATTACHMENTS

- Summary_S._Franklin_Exp__3_.docx
- Attachment_A_Resolution Franklin Exp.docx
- Attachment_B_DA S. Franklin Exp.pdf
- Attachment_C_CIP Franklin Exp.pdf

Agenda Item: Consideration of Resolution to approve the S. Franklin Widening Reimbursement Agreement and authorizing the Town Manager to enter into a contract with RP HV Lakeside, LLC for S. Franklin Infrastructure improvements.

Summary: The Town may contract with a developer or property owner for public intersection or roadway improvements that are adjacent or ancillary to a private land development project. Additionally, the 2023-2028 Capital Improvements Program (CIP) includes the widening of S. Franklin St. as a high priority project that will help relieve traffic congestion and accommodate new development in the area.

The Town has determined that the cost to the Town in reimbursing the Developer for the design and construction of the portion of the project that the town is responsible for would cost less than if the Town were to design and construct the widening through a contract pursuant to N.C.G.S. § 143-128.

The developer has provided an initial cost estimate for the project of $5,414,319. The actual cost will be determined at the time of bidding. The estimate for the Town's portion of the project $3,464,309 which is 56.24% of the initial estimate.

Attachment: Attachment_A_Resolution Franklin Exp
Attachment_B_DA S. Franklin Exp
Attachment_C_CIP Franklin Expansion

RESOULTION 2023-XX

RESOLUTION OF THE BOARD OF COMMISSIONERS OF THE TOWN OF WAKE FOREST TO CONTRACT WITH AND APPROPRIATE MONEY TO RPHV LAKESIDE, LLC FOR MUNICIPAL INFRASTRUCTURE IMPROVEMENTS

WHEREAS, pursuant to N.C.G.S. § 160A-309 a city may contract with a developer or property owner for public intersection or roadway improvements that are adjacent or ancillary to a private land development project;

WHEREAS, the Developer is the developer of a development in the Town known as Holding Village (the "Development"), and is the owner of certain real property located within the Development;

WHEREAS, in connection with the Development, the Developer is required to design, widen and construct a portion of S. Franklin Street adjacent to the Development, which is presently a 2-lane rural road (the "Road"), into a 5-lane section of the Road limited to the Development's frontage of the Road;

WHEREAS, the Developer is responsible for the design, widening and construction of the portion of the Road west of the center line and fronting the Development only (the "Developer Improvements");

WHEREAS, the Town is responsible for the design, widening and construction of the portion of the Road east of the center line on the opposite side of the Development only and terminating at the existing curb-cut entry to Wake County PIN 1840514169 on the Road, consistent with the Town Comprehensive Transportation Plan (the "Town Improvements");

WHEREAS, the Town Improvements and the Developer Improvements (collectively, the "Improvements") collectively shall create a full 5-lane section of the Road extending to the existing curb-cut entry to Wake County PIN 1840514169 on the Road;

WHEREAS, the Parties have agreed to jointly design, construct and fund the Improvements in accordance with the terms of this Agreement;

WHEREAS, the construction plans for the Improvements are more precisely delineated on the constructions drawings entitled "Town of Wake Forest South Franklin Street Improvements Wake Forest Project Number: SP-22-09" prepared by The John R.

McAdams Company, Inc. (the "Project Engineer"), the cover sheet of which is attached hereto as Exhibit A and incorporated herein by reference (the "Construction Plans");

WHEREAS, to allow for a more defined scope and allocation of the Improvements the Developer has engaged and funded certain contractors that have commenced with the design, engineering, and permitting of the Improvements (the "Engineering and Permitting"), which Engineering and Permitting costs will be allocated and reimbursed by the Parties as set forth in this Agreement; and

WHEREAS, the Town is responsible for the design, widening and construction of the portion of the Road east of the center line on the opposite side of the Development only and terminating at the existing curb-cut entry to Wake County PIN 1840514169 on the Road, consistent with the Town Comprehensive Transportation Plan (the "Town Improvements")

WHEREAS, N.C.G.S. § 160A-20.1 enables the Town to contract with and appropriate money to any person, association, or corporation, in order to carry out any public purpose that the Town is authorized to engage in.

BE IT RESOLVED by the Board of Commissioners of the Town of Wake Forest, North Carolina, hereby authorizes the Town Manager to execute the developers agreement with RPHV Lakeside, LLC for the expansion of South Franklin Street.

Duly adopted this 17th day of October 2023.

_____

Vivian A. Jones
Mayor

(ATTEST)

_____

Terry Savary

Town Clerk

STATE OF NORTH CAROLINA
COUNTY OF WAKE

JOINT DEVELOPMENT AGREEMENT
(South Franklin St. Road Improvements)

THIS JOINT DEVELOPMENT AGREEMENT (this "**Agreement**") is entered into as of _____, 2023 (the "**Effective Date**") by and between the **Town of Wake Forest**, a North Carolina municipal corporation (the "**Town**") and **RP HV Lakeside, LLC**, a Florida limited liability company (the "**Developer**"). The Town and Developer are sometimes referred to collectively herein as the "**Parties**" and individually as a "**Party**".

RECITALS

WHEREAS, pursuant to N.C.G.S. § 160A-309 a city may contract with a developer or property owner for public intersection or roadway improvements that are adjacent or ancillary to a private land development project;

WHEREAS, the Developer is the developer of a development in the Town known as Holding Village (the "**Development**"), and is the owner of certain real property located within the Development;

WHEREAS, in connection with the Development, the Developer is required to design, widen and construct a portion of S. Franklin Street adjacent to the Development, which is presently a 2-lane rural road (the "**Road**"), into a 5-lane section of the Road limited to the Development's frontage of the Road;

WHEREAS, the Developer is responsible for the design, widening and construction of the portion of the Road west of the center line and fronting the Development only (the "**Developer Improvements**");

WHEREAS, the Town is responsible for the design, widening and construction of the portion of the Road east of the center line on the opposite side of the Development only and terminating at the existing curb-cut entry to Wake County PIN 1840514169 on the Road, consistent with the Town Comprehensive Transportation Plan (the "**Town Improvements**");

WHEREAS, the Town Improvements and the Developer Improvements (collectively, the "**Improvements**") collectively shall create a full 5-lane section of the Road extending to the existing curb-cut entry to Wake County PIN 1840514169 on the Road;

WHEREAS, the Parties have agreed to jointly design, construct and fund the Improvements in accordance with the terms of this Agreement;

WHEREAS, the construction plans for the Improvements are more precisely delineated on the constructions drawings entitled "Town of Wake Forest South Franklin Street Improvements Wake Forest Project Number: SP-22-09" prepared by The John R. McAdams Company, Inc. (the "**Project Engineer**"), the cover sheet of which is attached hereto as **Exhibit A** and incorporated herein by reference (the "**Construction Plans**");

WHEREAS, to allow for a more defined scope and allocation of the Improvements the Developer has engaged and funded certain contractors that have commenced with the design, engineering, and permitting of the Improvements (the "**Engineering and Permitting**"), which Engineering and Permitting costs will be allocated and reimbursed by the Parties as set forth in this Agreement; and

WHEREAS, N.C.G.S. § 160A-20.1 enables the Town to contract with and appropriate money to

any person, association, or corporation, in order to carry out any public purpose that the Town is authorized to engage in.

THE AGREEMENT

NOW, THEREFORE in consideration of the mutual promises and covenants contained herein, the Town and Developer agree as follows:

1. **Recitals**. The recitals set forth above are hereby incorporated into this Agreement by reference.

2. **Construction of Improvements**.

a. Construction. The Developer shall cause for the hiring of the Project Manager (as defined herein) to complete or cause to be completed the Engineering and Permitting and the construction of the Improvements. These efforts shall be carried out in a good and workmanlike manner, in accordance with the terms of the Town's Unified Development Ordinance adopted July 16, 2013 (as amended, the "**UDO**"); the Town's Approved Construction Process; the Town's Manual of Specifications, Standards and Design; and the Construction Plans approved by the Town for the construction of the Improvements (collectively, the "**Approved Construction Process**").

b. Project Manager. The Developer shall engage Reader & Partners, LLC (the "**Project Manager**") to manage and oversee the construction and installation of the Improvements, and to otherwise carryout any or all of the Developer's obligations set forth herein. The Developer and the Project Manager are sometimes referred to herein collectively as the "**Developer Parties**". The Town shall pay the Project Manager a Management Fee as detailed on the Cost Estimate (defined herein).

c. Engineer's Certificate. Following Substantial Completion (as defined hereafter) of the Improvements, the Project Manager shall cause the Project Engineer to complete and issue a final engineering certification for the Improvements (the "**Engineer's Certificate**"). The Engineer's Certificate shall be certified to the Town and any other parties the Town reasonably requests. "**Substantial Completion**" of the Improvements is defined as when all 5 through lanes of the Road may be opened to through traffic.

3. **Town's Acceptance**.

a. Maintenance and Inspection. Following the beginning of construction of the Improvements, but prior to Substantial Completion, the Developer shall be responsible for maintenance of the Developer Improvements, and the Town shall be responsible for maintenance of the Town Improvements, all in accordance with the Construction Plans. Subject to Section 4.d., upon Substantial Completion the Town shall be responsible for the maintenance of the Improvements, the Developer's Bond (defined in Section 4.d.) shall be released, and the Town shall be solely responsible for any warranty periods for the Improvements. The Town may inspect the Improvements prior to Substantial Completion. In performing any maintenance to the Improvements prior to Substantial Completion, the Developer Parties shall adhere to the Town's standards, rules and regulations, including without limitation the Town's safety policies and road or lane closure policies. Notwithstanding anything to the contrary contained herein, the Town shall continue to be solely responsible for the payment of streetlight usage fees applicable to the Road, if any.

b. Final Acceptance. Following Substantial Completion, the Project Manager shall provide notice to the Town of Substantial Completion and request that the Town promptly perform its final

inspection of the Improvements. Following the Town's final inspection of the Improvements, the Town shall issue to the Project Manager a punch list for any remaining outstanding items required by the Construction Plans, if any (the "**Punch List**"). Once the Project Manager has completed each item set forth on the Punch List, Project Manager shall notify the Town of such completion and thereafter the Town shall promptly inspect the Punch List items. If the Punch List items are completed to the Town's reasonable satisfaction, the Town shall formally notify the Project Manager in writing of such fact, and following the Town's written notification and certification that the Improvements are complete, the Improvements shall be deemed accepted by the Town ("**Final Acceptance**"). Notwithstanding the foregoing, if the Town does not issue a Punch List as set forth in this subsection, Final Acceptance shall be deemed to have occurred. Furthermore, and notwithstanding the foregoing, but subject to Section 3.a. and Section 4.d. herein, Final Acceptance shall be in accordance with Town policy.

4. **Funding**.

a. Establishing Allocation and Funding of Costs.

i. Prior Engineering and Permitting Costs. The Town confirms that the Developer has funded the Engineering and Permitting costs prior to the effective date of this Agreement. The Town shall reimburse Developer for its respective share of the Engineering and Permitting costs as provided in Section 4.a.iii. herein.

ii. Future Design and Construction Funding. The Parties shall fund all future costs and expenses related to the design, engineering and construction of its portions of the Improvements as shown on the Construction Plans (e.g. the Developer Improvements on the portion of the Road west of the center line along the Development frontage, and the Town Improvements on the portion of the Road east of the center line and its extension past the Development to Rodgers Road), pursuant to this Section 4. The estimated costs shown in **Exhibit B-1** attached hereto and incorporated herein by this reference (the "**Costs Estimate**") constitute a commercially reasonable estimate of the entirety of the costs for the design, engineering and construction of the Improvements (the "**Improvements Work Costs**"). Notwithstanding the foregoing or anything herein to the contrary, the Improvements Work Costs shall only include those costs actually and reasonably incurred by the Parties for the design, engineering, project management, and construction of the Improvements, but exclusive of legal fees and administrative costs (including, but not limited to, profit and overhead) of the Parties.

iii. Prior Design Funding. The Town acknowledges that the Developer has previously funded certain costs for the Engineering and Permitting (collectively, the "**Prior Design Costs**"). An accounting of the Prior Design Costs is set forth on **Exhibit B-2** attached hereto and incorporated herein by this reference. The Town and Developer further agree that the Town shall reimburse the Developer pursuant to this subsection on the first Draw Request (defined herein) for the Engineering and Permitting based on the following formula:

A. The Town shall be responsible for 56.24% of the Prior Design Costs, based on an allocation to the Town of 3,380 linear feet of the total 6,010 linear feet of the Improvements as shown on the Construction Plans.

B. The Developer shall be responsible for 43.76% of the Prior Design Costs, based on an allocation to the Developer of 2,630 linear feet of the total 6,010 linear feet of the Improvements as shown on the Construction Plans.

b. Funding Procedure. The Project Manager shall plan and carry out the construction of the Improvements pursuant to this Agreement. In connection with the Project Manager's duties hereunder, the Project Manager shall submit monthly Draw Requests (defined below) to the Town at least fourteen (14) business days prior to the date on which the Project Manager requests the Town's payment of the Draw Request in order to fund the portions of the Improvements Work Costs applicable to the Town Improvements. For purposes clarity, the Town's share of the Improvements Work Costs shall be based on the percentage set forth in Section 4.a.iii.A. above, and the Developer's share of the Improvement Work Costs shall be based on the percentage set forth in Section 4.a.iii.B. above. A "**Draw Request**" or "**Draw Requests**" means a written request setting forth the costs incurred or to be incurred by the Project Manager in completing the Improvements that constitute Improvements Work Costs and specifying each line item for which the disbursement is requested, consistent with the line items in the Costs Estimate. Together with the Draw Request, the Project Manager shall submit to the Town: (i) a certificate executed by the Project Manager and the Project Engineer stating the costs of the work to be funded by the applicable Draw Request are Improvements Work Costs that have been paid, or will be immediately paid, upon receipt of the disbursement pursuant to the Draw Request; (ii) an interim (or in the case of final payment, final) lien waiver signed by the applicable contractor(s); and (iii) any other information reasonably requested by the Town. The Town shall review the Draw Request and within fourteen (14) business days following its receipt of the Draw Request in good-faith either approve and pay or disapprove the Draw request in writing to the Project Manager. Following the Town's approval of the Draw Request, the Town shall promptly process the Draw Request's payment to the Project Manager.

c. Procedure for Disputed Draw Requests. If the Developer believes the Town is in default under this Agreement for failing to approve a Draw Request, the Developer and the Town shall make a good faith effort to negotiate and informally resolve the dispute prior to pursuing any available legal remedies. If the Town and the Developer cannot resolve the dispute through negotiation within thirty (30) days of the Town's written disapproval of the Draw Request as provided in Section 4.b., Developer will submit the applicable Draw Request (the "**Developer Draw Request Submission**"), and the Town will submit a written rejection or partial approval of the Draw Request or other mark-up of the Draw Request (the "**Town Draw Request Submission**"), to the Project Engineer. The Project Engineer will then select either the Developer Draw Request Submission or the Town Draw Request Submission as being the most accurate in its professional opinion (the "**Approved Expense Submission**"), which Approved Expense Submission will then be binding on the Parties. Thereafter, the Town shall promptly provide funding for the amount of the Approved Expense Submission. The Project Engineer's costs and fees incurred in connection with this Section shall be paid by the Parties in equal shares.

d. Bonding and Performance Guarantees. The Developer has currently posted Completion Bond No. 800132213 in the amount of $1,513,110.00 for the Developer Improvements, with the Town named as beneficiary (the "**Developer's Bond**"). The Developer's Bond shall continue to serve as the Developer's security for the Developer Improvements. Upon incremental completion of the Developer Improvements in Developer's discretion, and upon notice to the Town, the Developer may apply to partially reduce Developer's Bond to cover only 110% of the remaining work for the Developer Improvements at a given time, which remaining work and the amount thereof shall be certified in writing to the Town by the Project Engineer. The Developer's Bond shall be released in full upon Substantial Completion of the Developer Improvements. The Project Manager's contractors performing the work for the Improvements shall pay for and post performance and payment bonds for the Town Improvements only and naming the Town as beneficiary. The Developer's Bond is the only bond required from the Developer Parties in connection with the Improvements, and the Developer Parties shall not be required to post any additional bonds with respect to the Improvements.

5. **Changes to the Costs Estimate**. If, at any point during the design, engineering and construction of the Improvements, there is a material increase in the Costs Estimate as it relates to the Town

Improvements, then the Project Manager shall promptly submit to the Town's Chief Financial Officer (or another party identified by the Town) a written request to amend the Costs Estimate (a "**Change Request**"). A Change Request shall include sufficient detail (i.e., quotes, invoices, receipts, and/or such other documentation as may reasonably be requested by the Town) to allow the Town to determine whether the proposed increase in the Costs Estimate is commercially reasonable and justified. The Town shall make a final determination, in writing, regarding the reasonableness of a Change Request within fifteen (15) days' receipt of such initial request (a "**Change Request Response**"). Failure to submit a Change Request as required herein shall constitute an acknowledgement by the Project Manager that such cost increase is commercially unreasonable and unjustified; in which case, the amount of such cost increase shall not constitute a portion of the Improvements Work Costs. For the purposes of this Section, a cost increase shall be considered material when it results in either an increase to the Town Improvements of over Five Thousand Dollars ($5,000) after contingency is deployed as set forth on **Exhibit B-1**. Notwithstanding anything herein to the contrary, the terms and amount of the Improvements Work Costs, as set forth herein, may only be changed by the prior written consent of the Town's Chief Financial Officer.

6. **Bidding**. This Agreement is not subject to Article 8 of Chapter 143 of the North Carolina General Statutes, except that the Project Manager shall solicit bids in accordance with Article 8 of Chapter 143 of the General Statutes when awarding contracts for the Town Improvements that would have required competitive bidding if the contract had been awarded by the Town.

7. **Default**. Subject to Sections 4.b. and 4.c. herein, if either Party defaults and fails to cure said default within thirty (30) days (or if such default cannot be cured within thirty (30) days using commercially reasonable diligence, then a commercially reasonable period of time) after receipt of written notice of such default from the non-defaulting Party, the non-defaulting Party may pursue any remedy available to it at law or in equity. The failure of either Party to enforce any provision of this Agreement will not be deemed a waiver or consent to a subsequent default or breach by the other Party.

8. **Notices**. All notices and other communications required or permitted by this Agreement shall be in writing and shall be given by either personal delivery, certified United States mail, return receipt requested, or overnight delivery by a nationally reputable overnight delivery service (e.g., UPS, FedEx) addressed as follows:

To the Town:
Town of Wake Forest
301 S. Brooks Street
Wake Forest, NC 27587
Attn: Town Manager

with copy to:

Town of Wake Forest

301 S. Brooks Street
Wake Forest, NC 27587
Attn: Town Attorney

To the Developer:
RP HV Lakeside, LLC
5850 T.G. Lee Blvd., Suite 200
Orlando, FL 32822
Attn: Dean Barberree

with copy to:

To Project Manager:
Reader & Partners, LLC
8480 Honeycutt Road, Suite 200
Raleigh, NC 27651
Attn: Scott Lay

and with additional copy to:

Maynard Nexsen PC
4141 Parklake Ave., Suite 200
Raleigh, NC 27612
Attn: Keith Burns and Alex Serkes

A change of address or person to receive notice may be made by either Party by notice given to the other Party. Any notice or other communication under this Agreement shall be deemed given at the time of actual delivery, if it is personally delivered. If the notice or other communication is sent by US Mail, it shall be deemed given upon the third calendar day following the day on which such notice or other communication is deposited with the US Postal Service or upon actual delivery, whichever occurs first. If the notice or other communication is sent by overnight delivery, it shall be deemed given upon documented delivery to the overnight delivery service.

9. **Indemnification**. To the maximum extent allowed by law, the Project Manager shall indemnify and save harmless the Town, its agents, officers, and employees, from and against all charges that arise in any manner from, in connection with, or out of this Agreement proximately caused by the negligent acts or omissions of the Project Manager, their agents, officers, or employees or anyone for whose acts any of them may be liable except for damage or injury caused solely by the negligence or intentional misconduct of the Town, its agents, officers, or employees. As used in this subsection, "charges" means claims, judgments, costs, damages, losses, demands, liabilities, duties, obligations, fines, penalties, royalties, settlements, expenses, interest, reasonable attorney's fees, and amounts for alleged violations of sedimentation pollution, erosion control, pollution, or other environmental laws, regulations, ordinances, rules, or orders. Nothing in this section shall affect any warranties in favor of the Town that are otherwise provided in or arise out of this Agreement. This Section is in addition to and shall be construed separately from any other indemnification provisions or remedies that may be in this Agreement. This Section shall remain in force despite termination of this Agreement (whether by expiration of the term or otherwise) and termination of the services of any supplemental agreement entered into under this Agreement.

10. **Choice of Law and Forum**. This Agreement shall be deemed made in Wake County, North Carolina. This Agreement shall be governed by and construed in accordance with the law of North Carolina. The exclusive forum and venue for all actions arising out of this Agreement shall be the appropriate division of the North Carolina General Court of Justice in Wake County. Such actions shall neither be commenced in nor removed to federal court. This section shall not apply to subsequent actions to enforce a judgment entered in actions heard pursuant to this section.

11. **Waiver**. No action or failure to act by the Town shall constitute a waiver of any of its rights or remedies that arise out of this Agreement, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

12. **Performance of Government Functions**. Nothing contained in this Agreement shall be deemed or construed in any way to stop, limit, or impair the Town from exercising or performing any regulatory, policing, legislative, governmental, or other powers or functions.

13. **Severability**. If any provision of this Agreement shall be unenforceable, the remainder of this Agreement shall be enforceable to the extent permitted by law.

14. **Assignment, Successors and Assigns**. Without the Town's written consent, the Developer shall not assign (which includes to delegate) any of its rights (including the right to payment) or duties that arise out this Agreement. Unless the Town otherwise agrees in writing, the Developer and all assigns shall be subject to all of the Town's defenses and shall be liable for all of the Developer's duties

that arise out of this Agreement and all of the Town's claims that arise out of this Agreement. Without granting the Developer the right to assign, it is agreed that the duties of the Developer that arise out of this Agreement shall be binding upon it and its heirs, personal representatives, successors, and assigns.

15. **Compliance with Law**. In performing all of its obligations hereunder, the Developer shall comply with all applicable law.

16. **Town Policy**. THE TOWN OPPOSES DISCRIMINATION ON THE BASIS OF RACE AND SEX AND URGES ALL OF ITS DEVELOPERS TO PROVIDE A FAIR OPPORTUNITY FOR MINORITIES AND WOMEN TO PARTICIPATE IN THEIR WORK FORCE AND AS SUBCONTRACTORS AND VENDORS UNDER CITY CONTRACTS.

17. **EEO Provisions**. During the performance of this Agreement the Developer agrees as follows:

a. The Developer shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, political affiliation or belief, age, or handicap. The Developer shall take affirmative action to ensure that applicants are employed and that employees are treated equally during employment, without regard to race, color, religion, sex, national origin, political affiliation or belief, age, or handicap. The Developer shall post in conspicuous places available to employees and applicants for employment, notices setting forth these EEO provisions.

b. The Developer in all solicitations or advertisements for employees placed by or on behalf of the Developer, state all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, political affiliation or belief, age, or handicap.

18. **No Third Party Right Created**. This Agreement is intended for the benefit of the Town and the Developer and not any other person.

19. **Principles of Interpretation**. In this Agreement, unless the context requires otherwise, the singular includes the plural and the plural the singular. The pronouns "it" and "its" include the masculine and feminine. Reference to statutes or regulations include all statutory or regulatory provisions consolidating, amending, or replacing the statute or regulation. References to contracts and agreements shall be deemed to include all amendments to them. The word "person" includes natural persons, firms, companies, associations, partnerships, trusts, corporations, governmental agencies and units, and any other legal entities.

20. **Modifications, Entire Agreement**. A modification of this Agreement is not valid unless signed by both parties and otherwise in accordance with requirements of law. Further, a modification is not enforceable against the Town unless the Town Manager or other duly authorized official signs it for the Town. This Agreement contains the entire agreement between the parties pertaining to the subject matter of this Agreement. With respect to that subject matter, there are no promises, agreements, conditions, inducements, warranties, or understandings, written or oral, expressed or implied, between the parties, other than as set forth or referenced in this Agreement.

21. **E-Verify**. Developer shall comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes. Further, if Developer utilizes a subcontractor, Developer shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes.

22. **Iran Divestment Act**. Developer certifies that; (i) it is not identified on the Final Divestment List or any other list of prohibited investments created by the NC State Treasurer pursuant to

N.C.G.S. 147-86.58; (ii) it will not take any action causing it to appear on any such list during the term of this Agreement, and (iii) it will not utilize any subcontractor to provide goods or services hereunder that is identified on any list.

23. **Divestment from Companies that Boycott Israel**. Developer represents, covenants, and certifies that it is not listed on the list of restricted companies developed and published by the North Carolina State Treasurer as required by N.C.G.S. 147-86.81.

24. **Quality and Workmanship**. All work performed and/or services rendered shall be performed to the satisfaction of the Town. The work performed and/or services rendered shall not be considered complete, nor applicable payments rendered, until the Town is satisfied with the work performed and/or services rendered.

25. **Title VI**. During the performance of this Agreement, the Developer, for itself, its assignees and successors in interest agrees as follows:

a. Compliance with Regulations. The Developer shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Town Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the "**Regulations**"), which are herein incorporated by reference and made a part of this Agreement.

b. Nondiscrimination. The Developer, with regard to the work performed by it during the Agreement, shall not discriminate on the grounds of race, color, national origin, sex, religion, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Developer shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the Agreement covers a program set forth in Appendix B of the Regulations.

c. Solicitations for Subcontractors, Including Procurements of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the Developer for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Developer of the Developer's obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

d. Information and Reports. The Developer shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Town to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a Developer is in the exclusive possession of another who fails or refuses to furnish this information the Developer shall so certify to the Town as appropriate and shall set forth what efforts it has made to obtain the information.

e. Sanctions for Noncompliance. In the event of the Developer's noncompliance with the nondiscrimination provisions of this Agreement, the Town shall impose such contract sanctions as it or the Town may determine to be appropriate, including, but not limited to:

a. withholding of payments to the Developer under the Agreement until the Developer complies, and/or

b. cancellation, termination, or suspension of the Agreement, in whole or in

part.

f. Incorporation of Provisions. The Developer shall include the provisions of subparagraphs (a) through (f) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The Developer shall take such action with respect to any subcontract or procurement as the Town may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event a Developer becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Developer may request the Town to enter into such litigation to protect the interests of the Town, and, in addition, the Developer may request the United States to enter into such litigation to protect the interests of the United States.

26. **Pre-Audit**. This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

27. **Non-appropriation clause**. Developer acknowledges that the Town is a governmental entity, and the Agreement validity is based upon the availability of public funding under the authority of its statutory mandate. In the event that public funds are unavailable and not appropriated for the performance of the Town's obligations under this Agreement, then this Agreement shall automatically expire without penalty to the Town thirty (30) days after written notice to Developer of the unavailability and non-appropriation of public funds. It is expressly agreed that the Town shall not activate this non-appropriation provision for its convenience or to circumvent the requirements of this Agreement, but only as an emergency fiscal measure during a substantial fiscal crisis, which affects generally its governmental operations. In the event of a change in the Town's statutory authority, mandate and mandated functions, by state and federal legislative or regulatory action, which adversely affects the Town's authority to continue its obligations under this Agreement, then this Agreement shall automatically terminate without penalty to the Town upon written notice to Developer of such limitation or change in the Town's legal authority.

28. **No pledge of taxing authority**. The taxing power of the Town is not pledged directly or indirectly to secure any monies due under this Agreement.

29. **No waiver of governmental immunity; Violation of law**. Except for waiver of governmental immunity resulting from the execution of a valid contract, the Town makes no other waiver of governmental immunity. If any provision of the Agreement or Agreement is in violation of any legal, statutory or state constitutional prohibition, then such provision(s) shall be unenforceable against the Town.

30. **Conflict of Interest**. If this is an Agreement for design, engineering, contract administration or similar services, the Developer will not enter into contracts or agreements with third parties that may present a potential for conflict of interest between the Town and the third parties regarding the subject matter of this Agreement.

31. **Public Record**. This Agreement is subject to disclosure under the public records laws of the State of North Carolina.

32. **Miscellaneous Provision**. In the event of any inconsistency, conflict, or ambiguity between these miscellaneous terms and conditions and other associated contract documents, the parties agree that the terms and conditions of this Agreement shall prevail.

[SIGNATURE PAGE FOLLOWS. REMAINDER OF PAGE INTENTIONALLY BLANK.]

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the Effective Date.

ATTEST:

_____
Terry Savary, Town Clerk

THE TOWN:

TOWN OF WAKE FOREST,
a North Carolina municipal corporation

By: _____
Kip Padgett, Town Manager

THE DEVELOPER:

RP HV LAKESIDE, LLC
a Florida limited liability company

By: Reader & Partners, LLC, its Manager

By: _____
Name: Dean Barberree
Title: President

ACKNOWLEDGED AND AGREED TO BY THE PROJECT MANAGER:

READER & PARTNERS, LLC
a Florida limited liability company

By: _____
Name: Dean Barberree
Title: President

PREAUDIT CERTIFICATION

This instrument has been pre-audited in a manner required by applicable law.

_____
Aileen Staples, Chief Financial Officer

EXHIBIT A

The Construction Plans

See attached.

TOWN OF WAKE FOREST SOUTH FRANKLIN STREET IMPROVEMENTS

0 SOUTH FRANKLIN STREET
WAKE FOREST, NORTH CAROLINA

CONSTRUCTION DRAWINGS

PROJECT NUMBER: RAP-19000
WAKE FOREST PROJECT NUMBER: SP-22-08
DATE: MARCH 24, 2023

SHEET INDEX

C0.10	TYPICAL SECTIONS	
C1.00	EXISTING CONDITONS	STA. 15+00 THRU STA. 26+00
C1.01	EXISTING CONDITIONS	STA. 26+00 THRU STA. 46+00
C2.00	ROAD WIDENING PLAN	STA. 15+00 THRU STA. 26+00
C2.01	ROAD WIDENING PLAN	STA. 26+00 THRU STA. 46+00
C2.10	PAVEMENT MARKING PLAN	STA. 10+00 THRU STA. 26+00
C2.11	PAVEMENT MARKING PLAN	STA. 26+00 THRU STA. 46+00
C3.00	GRADING AND STORM DRAINAGE PLAN	STA. 10+00 THRU STA. 26+00
C3.01	GRADING AND STORM DRAINAGE PLAN	STA. 26+00 THRU STA. 46+00
C4.00	DEMOLITION AND UTILITY CONFLICT PLAN	STA. 10+00 THRU STA. 26+00
C4.01	DEMOLITION AND UTILITY CONFLICT PLAN	STA. 26+00 THRU STA. 46+00
C7.00	CROSS SECTIONS	STA. 14+00 THRU STA. 15+50
C7.01	CROSS SECTIONS	STA. 15+64.11 THRU STA. 16+00
C7.02	CROSS SECTIONS	STA. 16+50 THRU STA. 17+50
C7.03	CROSS SECTIONS	STA. 18+00 THRU STA. 19+50
C7.04	CROSS SECTIONS	STA. 20+00 THRU STA. 21+50
C7.05	CROSS SECTIONS	STA. 22+00 THRU STA. 23+50
C7.06	CROSS SECTIONS	STA. 24+00 THRU STA. 25+00
C7.07	CROSS SECTIONS	STA. 25+50 THRU STA. 26+50
C7.08	CROSS SECTIONS	STA. 27+00 THRU STA. 28+50
C7.09	CROSS SECTIONS	STA. 28+85.95 THRU STA. 29+50
C7.10	CROSS SECTIONS	STA. 30+00 THRU STA. 30+50
C7.11	CROSS SECTIONS	STA. 31+00
C7.12	CROSS SECTIONS	STA. 31+50
C7.13	CROSS SECTIONS	STA. 32+00
C7.14	CROSS SECTIONS	STA 32+29.91
C7.15	CROSS SECTIONS	STA. 32+50
C7.16	CROSS SECTIONS	STA. 33+00 THRU STA. 33+50
C7.17	CROSS SECTIONS	STA. 34+00 THRU STA. 35+00
C7.18	CROSS SECTIONS	STA. 35+50 THRU STA. 37+00
C7.19	CROSS SECTIONS	STA. 37+50 THRU STA. 39+00
C7.20	CROSS SECTIONS	STA. 39+50 THRU STA. 40+50
C7.21	CROSS SECTIONS	STA. 41+00 THRU STA. 42+50
C7.22	CROSS SECTIONS	STA. 43+00 THRU STA. 44+00
C8.00	SITE DETAILS	
C8.01	SITE DETAILS	
C8.02	PAVEMENT MARKING DETAILS	
C8.03	STORM DRAINAGE DETAILS	
C8.04	STORM DRAINAGE DETAILS	
C8.05	EROSION CONTROL DETAILS	
C8.06	SEEDING SCHEDULE	
L5.00	CODE LANDSCAPE PLAN	
L5.01	CODE LANDSCAPE PLAN	
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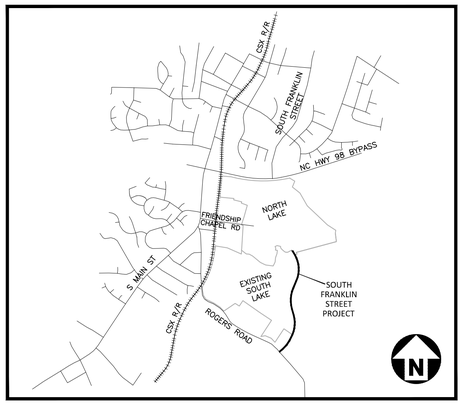
C10.00	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND INDEX OF SHEETS)	
C10.01	TRAFFIC CONTROL PHASING & SECTIONS	
C10.10	TRAFFIC CONTROL PLAN PHASE 1	STA. 10+00 THRU STA. 26+00
C10.11	TRAFFIC CONTROL PLAN PHASE 1	STA. 26+00 THRU STA. 46+00
C10.20	TRAFFIC CONTROL PLAN PHASE 2	STA. 10+00 THRU STA. 26+00
C10.21	TRAFFIC CONTROL PLAN PHASE 2	STA. 26+00 THRU STA. 46+00
C10.30	TRAFFIC CONTROL PLAN PHASE 3	STA. 10+00 THRU STA. 26+00
C10.31	TRAFFIC CONTROL PLAN PHASE 3	STA. 26+00 THRU STA. 46+00



VICINITY MAP
N.T.S.

Know what's **below.**
Call before you dig.

NO SUBSURFACE UTILITY SURVEY (SUE) HAS BEEN PERFORMED FOR THE PREPARATION OF THESE PLANS. ADDITIONAL UNDERGROUND UTILITIES MAY BE IN THE AREA. CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR TO CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT TOWN OF WAKE FOREST, CITY OF RALEIGH AND NCDOT (WHERE APPLICABLE) ENGINEERING DESIGN AND CONSTRUCTION STANDARDS

These plans have been electronically approved for construction by the Town of Wake Forest Public Works and Engineering Department. This approval may not be edited once issued.

Public Works/Engineering

These plans have been electronically approved for construction by the Town of Wake Forest Planning Department. This approval may not be edited once issued.

Planning

FINAL DRAWING - RELEASED FOR CONSTRUCTION

McADAMS
The John R. McAdams Company, Inc.
2905 Meridian Parkway
Durham, NC 27713

phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

www.mcadamsco.com

CONTACT

JEREMY FINCH
jfinch@mcadamsco.com
PHONE: 919. 361. 5000

CLIENT

TOWN OF WAKE FOREST
301 S. BROOKS STREET
WAKE FOREST, NC 27587-2901
Patrick Reidy
PHONE: 919. 435. 9510

PROJECT DIRECTORY

NORTH CAROLINA PROFESSIONAL SEAL 031452 ENGINEER JEREMY V. FINCH

Jeremy V Finch

Digitally signed by Jeremy V Finch
DN: cn=Jeremy V Finch, o=US, o=North Carolina, email=jfinch@mcadamsco.com
Date: 2023.03.24 08:24:48 -04'00'

REVISIONS

NO.	DATE
1	
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CONSTRUCTION DRAWINGS FOR:
TOWN OF WAKE FOREST SOUTH FRANKLIN STREET IMPROVEMENTS
0 SOUTH FRANKLIN STREET
WAKE FOREST, NORTH CAROLINA
PROJECT NUMBER: RAP-19000

X:\Projects\RAP\RAP-19000\04-Production\Engineering\Construction Drawings\Current Drawings\South Franklin Office\RAP-19000-SF-CS1.dwg, 3/24/2023 7:18:28 AM, Dwayne Peterson

EXHIBIT B-1

The Costs Estimate

See attached.

EXHIBIT B-1 - THE COST ESTIMATE (ACTUAL COST TO BE DETERMINED AT BIDDING)

S. FRANKLIN STREET
ROADWORK
9/14/2023

ROW LENGTH	
RP HV LS	TOWF
2630 LF	3380 LF
43.76%	56.24%

	INITIAL BUDGET			
ITEM	**TOTAL**	**RP HV LAKESIDE**	**TOWN OF WF**	**NOTES**
SITEWORK CONTRACTOR				
General Conditions	$ 225,000	$ 98,460	$ 126,540	
Clearing & Grubbing	$ 93,000	$ 40,697	$ 52,303	
Erosion Control	$ 119,209	$ 52,166	$ 67,043	
Grading & Earthwork	$ 651,228	$ 284,977	$ 366,250	
Storm Drainage	$ 615,665	$ 269,415	$ 346,250	
Roadwork	$ 1,328,858	$ 581,508	$ 747,349	
Road Signs	$ 20,000	$ 8,752	$ 11,248	
Flatwork	$ 323,120	$ 141,397	$ 181,723	
Traffic Control	$ 450,000	$ 196,920	$ 253,080	
Change Orders	$ -	$ -	$ -	
Sitework Contractor Total	**$ 3,826,079**	**$ 1,674,292**	**$ 2,151,787**	
OTHER SCOPE & ALLOWANCES	**TOTAL**	**RP HV LAKESIDE**	**TOWN OF WF**	**NOTES**
Rock & Unsuitable Allowance	$ 20,000	$ 8,752	$ 11,248	Allowance
Landscaping	$ 80,000	$ 35,008	$ 44,992	Allowance
OTHER SCOPE TOTAL	**$ 100,000**	**$ 43,760**	**$ 56,240**	
PROFESSIONAL SERVICES	**TOTAL**	**RP HV LAKESIDE**	**TOWN OF WF**	**NOTES**
McAdams Construction Services	$ 62,150	$ 27,197	$ 34,953	
CMT	$ 10,000	$ 4,376	$ 5,624	Allowance
NPDES Monitoring	$ 10,000	$ 4,376	$ 5,624	Allowance
Bond Fees	$ -	$ -	$ 50,000	Allowance
Professional Services Total	**$ 82,150**	**$ 35,949**	**$ 96,201**	
SUBTOTAL (1)	**$ 4,008,229**	**$ 1,754,001**	**$ 2,304,228**	

(1) Total cost share based on right of way frontage.

HERITAGE	**TOTAL**	**RP HV LAKESIDE**	**TOWN OF WF**	**NOTES**
Heritage Retaining Walls	$ 371,621	$ -	$ 371,621	
Heritage Retaining Wall Fence	$ 20,000	$ -	$ 20,000	400 Linear Feet
Heritage Retaining Wall Landscape	$ 50,000	$ -	$ 50,000	Allowance
	$ -	$ -	$ -	
Professional Services Total	**$ 441,621**	**$ -**	**$ 441,621**	
SUBTOTAL	**$ 4,449,850**	**$ 1,754,001**	**$ 2,745,849**	

CONTINGENCY (10%)	**$ 444,985**	**$ 175,400**	**$ 274,585**	
SITEWORK - SUBTOTAL	**$ 4,894,835**	**$ 1,929,401**	**$ 3,020,434**	

CONSTRUCTION MANAGEMENT (10%)	**$ 489,484**	**$ 192,940**	**$ 302,043**	
SITEWORK - TOTAL (2)	**$ 5,384,319**	**$ 2,122,341**	**$ 3,322,477**	

(2) Bid bond and public bidding process only required for the Town of Wake Forest portion of the improvements.

DESIGN	**TOTAL**	**RP HV LAKESIDE**	**TOWN OF WF**	**NOTES**
McAdams - Town Reimbursement	$ -	$ (172,332)	$ 172,332	Actual Cost Incurred
McAdams - Town Expense	$ 30,000	$ -	$ 30,000	Allowance to Finish with Heritage Residents
ADJUSTED SITEWORK - TOTAL	**$ 5,414,319**	**$ 1,950,009**	**$ 3,524,809**	

EXHIBIT B-2

The Prior Design Costs

See attached.

35.425

EXHIBIT B-2

** Town (Heritage) - $45,606.25
* Town (Cost Share - 56.24%) - $172,332.20
Town Total = $172,332.20

* Developer (Cost Share - 43.76%) - $98,604.68

MCADAMS

Scott Lay (2)
Reader & Partners, LLC
5850 T.G. Lee Blvd
Suite 200
Orlando, FL 32822

RPLake

August 14, 2023
Project No: 00RAP19000.01
Invoice No: 142241

Invoice Total **$4,673.75**

Job Code: NC013
Class: 35.425
Amt $: 4563.73
Mgr. Approval:
Date:

Project Manager Jeremy Finch

Project 00RAP19000.01 Holding Village - SF

email: marlene@readercommunities.com ; scott@readercommunities.com

Professional Services from July 01, 2023 to July 31, 2023

Phase 001 Professional Services

Fee

Description	Fee	Percent Comp.	Total Billed		Prior Billed	Current Fee Billing
B2.41 S. Franklin St Topographic Survey	0.00	0.00	30,432.50	*	30,432.50	0.00
J3.40 S. Franklin St Design	0.00	0.00	138,693.75	*	136,463.75	2,230.00
B2.30 SUE	0.00	0.00	25,051.25	*	25,051.25	0.00
J3.41 Heritage Exhibits + Coordination	0.00	0.00	39,282.50	**	36,948.75	2,333.75
J4.10 NCDOT Culvert Analysis	0.00	0.00	8,638.75	*	8,638.75	0.00
J2.10 Add'l Heritage Lots Backyard Surve	0.00	0.00	8,657.50	**	8,657.50	0.00
D14.10 Traffic Control Plan Sheet & NCDO	8,500.00	100.00	8,500.00	*	8,500.00	0.00
L4.40 Stream/Wetland/Buffer Delineation & Impact Permitting	0.00	0.00	14,014.38	*	14,014.38	0.00
Total Fee	8,500.00		273,270.63		268,706.88	4,563.75

Total Fee **4,563.75**

Total this Phase **$4,563.75**

Phase 999 Reimbursables

Reimbursable Expenses

Submittal Fees

6/2/2023	Finch, Jeremy	Town Of Wake Forest Custo	110.00	
	Total Reimbursables		**110.00**	**110.00**

Total this Phase **$110.00**

Thank you for your business!

Project	00RAP19000.01	Holding Village - SF	Invoice	142241
			Total this Invoice	**$4,673.75**

Outstanding Invoices

Number	Date	Balance
140964	7/14/2023	1,522.50
Total		**1,522.50**

	Current	Prior	Total
Billings to Date	**4,673.75**	**268,706.88**	**273,380.63**

TOWN OF WAKE FOREST
CAPITAL IMPROVEMENTS PROGRAM
CIP UPDATE FY 2023-2028

DEPARTMENT	PROJECT MANAGER	DEPARTMENTAL PRIORITY
GTP	Joe Guckavan	High

PROJECT TITLE
S. Franklin ST. Expansion

	TYPE OF PROJECT
	1 -Health/Safety/Welfare
	2 - Maintenance/Replacement
	3 - Existing Programs Expansion
X	4 - New Program

PROJECT DESCRIPTION
Widen S. Franklin St to increase LOS to accommodate increased traffic. The project includes widening the road from two lanes to 4 lanes with a median, sidewalk on both sides, and landscaping.

JUSTIFICATION
S. Franklin St connects the new development Holding Village to Rogers Rd. This expansion would provide an increased LOS to help relieve traffic congestion, and accommodate the new development in that area. This is consistent with the CTP. The TIA for Holding Village requires they contribute to the expansion to accommodate the additional traffic generated. This project is through a private/public partnership and will be constructed by a private developer.

PROJECT ALTERNATIVES
Construct as a Town Project at a higher cost.

OPERATING IMPACT/OTHER COMMENTS
Reimbursement over three years.

PROJECT STATUS New Project - FY 2024

Funds Approved to Date $ -

Funds Expended to Date $ -

CAPITAL COST BREAKDOWN	Prior to July 2023	2023-24	2024-25	2025-26	2026-27	2027-28	Future Years
Planning & Engineering	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Purchase	-	-	-	-	-	-	-
Construction	-	900,000	900,000	900,000	-	-	-
Equipment	-	-	-	-	-	-	-
Contingency	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
Total Project Costs	$ -	$ 900,000	$ 900,000	$ 900,000	$ -	$ -	$ 2,700,000

FUNDING SOURCE(S)	Prior to July 2023	2023-24	2024-25	2025-26	2026-27	2027-28	Future Years
General Fund	$ -	$ 900,000	$ 900,000	$ 900,000	$ -	$ -	$ -
Other (PILOT) - Fee In-Lieu Payment	-	-	-	-	-	-	-
Total Funding Sources	$ -	$ 900,000	$ 900,000	$ 900,000	$ -	$ -	$ -

TOTAL PROJECT COST: **$ 2,700,000**

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-249-
Submitted by: Monica Sarna
Submitting Department: Engineering
Meeting Date: October 17, 2023

SUBJECT
Approval of a resolution for the Town Manager to enter into an agreement for the FY24 Streets Resurfacing Project.

Recommendation:
Approve resolution to enter into an agreement with Fred Smith Company.

Item Summary:

ATTACHMENTS
- Summary.docx
- Attachment_A_2023-xx_Resolution__5_.docx
- Attachment B_Street Resurfacing_Bid_0002-2023.pdf
- Attachment C_Bid Tab_FY24.pdf

ITEM TITLE: Approval of the Resolution to award the Proposed Streets Resurfacing contract FY24

ITEM SUMMARY: The Engineering Department put together a scope of work for the Annual Street Resurfacing Project FY 24. The scope was advertised on August 24th, 2023, and the bid opening was on September 28th, 2023. The October 17th Board Meeting will include the resolution to authorize the Town Manager to award the bid.

ATTACHMENTS: Attachment_A_2023-xx Resolution

Attachment B__ Street Resurfacing_Bid_0002-2023

Attachment C_Bid Tab_FY 24

RESOLUTION 2023-XX

RESOLUTION AUTHORIZING THE TOWN MANAGER TO EXECUTE ON BEHALF OF THE TOWN OF WAKE FOREST, THE CONTRACT FOR THE STREET RESURFACING PROJECT, BID #0002-2023

WHEREAS, the Engineering Department posted a call for bids for a street resurfacing project as an opportunity to collect competitive bids for construction services as specified in the bid documents; and

WHEREAS, consistent with the Town's purchasing policy, on August 24th, the Town published a Notice to Bidders inviting interested and qualified contractors to submit; and

WHEREAS, on September 28th at 2:00pm the bid opening was closed, and Town had received a total of 7 submissions; and

WHEREAS, a bid tabulation was completed, and all bids were reviewed to confirm receipt of required bid documentation; and

WHEREAS, the lowest bidder was selected as the contractor to perform the street resurfacing with a total of $4,807,627.60; and

NOW, THEREFORE, BE IT RESOLVED by the governing body of the Town of Wake Forest hereby authorizes the Town Manager to execute a contract with FSC II, LLC DBA Fred Smith Company for the Bid #0002-2023 Street Resurfacing Project.

This the 17th day of October 2023.

_____
Vivian A. Jones
Mayor

(ATTEST)

_____
Theresa Savary
Town Clerk

TOWN *of*
WAKE FOREST

Engineering Department

301 S. Brooks Street | Wake Forest, NC 27587

NAME OF BIDDER: _____

Address _____

N.C. License No. _____

BID DOCUMENT AND SPECIFICATION FOR

STREET RESURFACING PROJECT

BID # 0002-2023

DATE OF ADVERTISING

August 24, 2023

DATE OF BID OPPENING

September 28, 2023

TABLE OF CONTENTS

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BIDDER'S CERTIFICATION
BID BOND
INSTRUCTIONS TO CONTRACTORS
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E-VERIFY AFFIDAVIT
MWBE DOCUMENTATION FORMS
PERFORMANCE BOND
PAYMENT BOND
PROCEDURE FOR REPORTING SALES TAX
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SCHEDULE OF PRICES----------SOP-1-2

GENERAL INFORMATION SHEET----------GIS-1-6

STREET ESTIMATE TOTAL SHEET----------SET-1-7

GENERAL CONDITIONS---------- GC-1-22

STANDARD GENERAL PROVISIONS---------- SGP-1-4

PROJECT SPECIAL PROVISIONS---------- PSP-1-24

GIS STREET MAPS---------- GSM-1-51

STANDARD DETAILS---------- PSP-1-93

NO PARKING SIGN & NOTIFICATION LETTER

TOWN *of*
WAKE FOREST

REQUEST FOR BIDS

Street Resurfacing Project

BID # 0002-2023

Sealed Bids to be received until

Thursday, September 28, 2023, at 2:00 p.m.

NOTICE TO BIDDERS

Sealed bids will be received by the Town of Wake Forest, North Carolina, at the Town of Wake Forest Purchasing Department, 234 Friendship Chapel Road, Wake Forest, NC 27587 until 1:00 p.m.
Afterward, they will be received at the Wake Forest Town Hall Meeting Rooms A & B, Wake Forest, NC 27587 from 1:00 p.m. until 2:00 p.m. on Thursday, September 28, 2023, where the bids will be publicly opened and read aloud for the following:

Bid # 0002-2023

STREET RESURFACING PROJECT

Bidding Documents may be obtained in printed or digital form from Duncan Parnell's bid room at ***https://www.dpibidroom.com/View/Default.aspx*** for the non-refundable price as listed on their website. All payments are to be made to Duncan Parnell, via their bid room. Prospective bidders must purchase Bidding Documents directly through Duncan Parnell to be considered an official plan holder. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including any Addenda, obtained from any other source. All payments are to be made to Duncan Parnell, via their bid room at ***http://www.dpibidroom.com*.** If you need any assistance ordering or getting registered, please email **raleigh@Duncan-Parnell.com.**

The Town of Wake Forest reserves the right to reject any or all bids and to make the award as deemed in the best interest of the Town of Wake Forest.

Instruction to Bidders

1. SUBMITTAL

All bids must be submitted by ***September 28, 2023 @ 2:00 p.m.*** *Bids may be submitted until 1:00 p.m.* to Town of Wake Forest Purchasing Department, 234 Friendship Chapel Road Wake Forest, NC 27587 Attn: Randy Driver, Purchasing Manager or submitted at the bid opening location at Wake Forest Town Hall, Meeting Rooms A-B, 301 S. Brooks Street from 1:00 p.m. until bid closing at 2:00 p.m. All *bids* must be submitted in a sealed envelope marked: **Bid # 0002-2023** – **STREET RESURFACING PROJECT**.

2. USE OF CONTRACT DOCUMENTS

These Bidding Documents are to be used only for the purpose of understanding this bid and consideration toward submitting a proposal. They may not be used for any other purpose.

3. SPECIFICATIONS

The Specifications are intended to describe the complete project including all materials, processes, equipment, etc. Bidders are expected to carefully examine the Contract Documents, visit the site of the proposed construction, and determine the availability of materials and method required, in order to become thoroughly familiar with the project, the requirements, and to include the cost thereof in the proposal. Bidders shall contact the Project Coordinator at least five (5) days prior to the bid date for clarification of any item not fully understood.

4. BIDDER'S QUALIFICATIONS

For projects exceeding $30,000, consideration will be given only to Contractors who submit evidence that they are properly licensed as required by Chapter 87 of the North Carolina Licensed General Statutes to bid and perform the work described herein as the general contractor. In addition, the Owner may make such other investigations as he deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish the Owner all such information and data for this purpose as the Owner may request.

The Owner reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his own forces a minimum of ten percent (10%) of the work involved in construction of the improvements embraced in this contract.

Awarded contractor shall be authorized to conduct business in the state of North Carolina as found by checking the Secretary of State records and/or Register of Deeds office, indicating proper registration and active status. This is a condition of executing the contract.

5. FAMILIARITY WITH LAWS

It is assumed that the Bidders are familiar with local, state, and federal laws, rules, ordinances, and regulations that may in any manner affect those engaged or employed in the work, or the materials or equipment used in or upon the work, or in any way affects the conduct of the work. No plea for misunderstanding or ignorance on the part of the Contractor will in any way serve to modify the provisions of this contract.

The Contractor agrees that in carrying out this contract he will comply with all applicable Federal, state, and local laws, specifically including, without limitation, the Occupational Safety and Health Act of 1970 and Section 1324A, the Immigration Reform and Control Act.

6. AMERICAN WITH DISABILITIES ACT (ADA)

The Contractor shall comply with the provisions of the Americans with Disabilities Act (ADA) (www.ADA.gov) as amended from time to time and all rules and regulations promulgated thereunder. The contractor hereby agrees to indemnify the Owner from and against all claims, suits, damages, costs, losses and expenses in any manner arising out of or connected with the failure of the contractor, its subcontractors, agents, successors, assigns, officers or employees to comply with the provisions of the ADA or rules and regulations promulgated thereunder.

7. MINORITY PARTICIPATION

The Town of Wake Forest's minority participation goal is **10%** of the bid amount.

8. ADDENDA

No oral interpretation will be made to any Bidder as to the meaning of the Bidding Documents. Questions and requests for such interpretation should be made in writing to the Project Coordinator Listed. Any Addenda will be provided to known interested parties, but it shall be the Bidder's responsibility to make inquiry as to any Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda whether or not received or acknowledged. ***All addendums will be posted by 3:00 p.m. on Friday, September 20, 2023***.

9. UNBALANCED BIDS

The Contractor shall not submit a bid containing any unbalanced bid prices. Any unit or lump sum bid price that does not reflect reasonable actual costs that the Contractor anticipates for the performance of the item(s) in question along with a reasonable proportional share of the Contractor's anticipated profit, overhead cost, and other indirect costs is an unbalanced bid price. Any bid containing unbalanced bid prices may be deemed non-responsive and rejected.

10. COLLUSIVE AGREEMENTS

Each bidder submitting a bid shall execute and attach the Non-Collusion Affidavit of Prime Bidder affidavit attesting that he has not entered into a collusive agreement with any other person, firm or corporation in regard to any bid submitted.

11. BID Bond

5% of bid amount.

12. PERFORMANCE AND PAYMENT BOND

100% of bid amount.

13. PREPARATION OF BID

The Town's bid forms must be used when provided – submit one original. Bidders shall label their bid proposal with business name, bid name and bid date, then seal their bid proposal inside an envelope. If mailing a bid proposal, provide a sealed envelope within the postal envelope.

14. ITEMS REQUIRED TO BE SUBMITTED WITH THE BID

Failure to submit the following with the bid is considered a non-responsive bid and the bid will not be considered:

- ❑ Bid Form with bid price(s) written or typed

- ❑ Signatures on Forms and notarized where noted
- ❑ Non-Collusion Affidavit of Prime Bidder
- ❑ Addendums (if issued)
- ❑ Minority Participation forms
- ❑ E-589 CI Form

15. RECEIPT AND OPENING OF BIDS

Each Bid is to be submitted in a sealed envelope and plainly marked with the project name, bid number, and bid opening time. If mailed, the sealed envelope containing the Bid is to be enclosed in another envelope to avoid it being opened before the advertised time. Bids received prior to the advertised bid opening will be securely kept as sealed. Bids received after the advertised bid opening time will be returned to the Bidder unopened.

16. WITHDRAWAL OF BIDS

Bids may be withdrawn by written request prior to or within seventy-two hours (72) after the opening of bids by contacting the bidding officer. To withdraw an opened bid, proof must be given of a mathematical error or omission as opposed to judgment or interpretation error.

17. MINIMUM NUMBER OF BIDS (FORMAL CONTRACTS ONLY)

North Carolina General Statute 143-129 and 143-132 prohibits the awarding of a formal contract unless at least three (3) competitive bids are received from reputable and qualified contractors. Therefore, if fewer than three (3) such bids are received, they will not be opened but returned to the contractors; and the project may be re advertised. The Town's formal contract limit is $500,000.

18. ALTERNATIVE BIDS

No alternative bids will be considered unless alternative bids are specifically requested.

19. AWARD OF CONTRACT; REJECTION OF BIDS

The Town reserves the right to hold bids for a period of sixty (60) days for the purpose of reviewing the bids and investigating the qualifications of the Bidders. The Town reserves the right to reject any or all bids, for any reason. The Town intends to award a contract to the lowest responsive, responsible bidder, complying with the conditions of the bidding documents. The Town reserves the right to award a contract that is deemed in its best interest.

20. BID PROTEST PROCEDURE

Prospective bidders or suppliers who feel disadvantaged by the solicitation must submit a written protest within five (5) calendar days prior to the opening of proposals. Actual bidders or subcontractors who are aggrieved by the award of a contract must submit a written protest within five (5) days of the Town announcing its intent to award. The protest must be addressed to the Purchasing Manager, Town of Wake Forest, who will make the final determination after consulting with counsel.

21. EXECUTION OF AGREEMENT

The successful Bidder is required to execute a Contract within ten days (10) days after notice of award. Failure to do so constitutes a default and the Owner may elect to award to the next lowest bidder or re- advertise the bid.

22. LIQUIDATED DAMAGES

$500 per day after scheduled completion date of project. Any exceptions must be issued in writing by the Town of Wake Forest.

23. INSURANCE REQUIRMENTS

A. Workers' Compensation: Insurance covering all employees meeting Statutory limits in compliance with the applicable state and federal laws. The coverage must include employer's liability with a minimum limit of $1,000,000 for each accident.

B. Commercial General Liability: Coverage shall have minimum limits of $1,000,000 per occurrence, general aggregate, products/completed operations aggregate, personal and advertising injury. This shall include premises and operations, independent contractors, products and completed operations, broad form property damage, XCU coverage and contractual liability. The coverage shall be written on an occurrence basis. This limit should apply on a per project or per location aggregate basis. **The Town of Wake Forest shall be listed as an additional insured, under this coverage.**

C. Business Auto Liability: Coverage shall have a minimum limit of $500,000 per occurrence, combined single limit for bodily injury liability and property damage liability. This shall include owned vehicles, hired vehicles and non-owned vehicles.

D. Umbrella/Excess Liability: At the option of the contractor, the limits of the primary general liability, auto liability and employers' liability may be less than stipulated herein, with an excess policy providing the additional limits needed. This form of coverage must be approved by the municipality and will only be acceptable when both the primary and excess policies include the coverage and endorsements required herein.

E. Professional Liability: Coverage shall have a minimum limit of $1,000,000 per occurrence, unless a higher limit is required by the Town. This coverage is only required for contracts that include professional services.

F. Special Requirements

1. Current, valid insurance policies meeting the requirements herein identified shall be maintained to be considered an "eligible contractor". Renewal certificates shall be sent to the Town 30 days prior to any expiration date. There shall also be a 30-day notification to the Town in the event of cancellation or modification of any stipulated insurance coverage. Certificates of insurance meeting the required insurance provisions shall be forwarded to the Town of Wake Forest. Wording on the certificate, which states that no liability shall be imposed upon the company for failure to provide such notice, is not acceptable.

2. It shall be the responsibility of the contractor to ensure that all subcontractors comply with the same insurance requirements that he is required to meet.

3. The Town of Wake Forest shall be listed as certificate holder on the certificate of insurance.

24. INDEMNIFICATION

To the extent permitted by law, the Contractor agrees to defend, pay on behalf of, indemnify, and

hold- harmless the Town of Wake Forest, its elected and appointed officials, employees, agents, and volunteers against any and all claims, demands, suits or losses, including all costs connected therewith, for any damages which may be asserted, claimed or recovered against or from the Town of Wake Forest, its elected or appointed officials, employees, agents, and volunteers by reason of personal injury, including bodily injury or death and/or property damage, including loss of use thereof resulting from the negligence of the Contractor.

25. MATERIALS

The name of a certain brand, make, manufacturer or definite specification is to denote the quality standard of the article desired and not to restrict competitive bidding. It is set forth and conveyed to prospective bidders the general style, type, character and quality of the article desired. Bidders, however, may submit to the Project Coordinator evidence that proposed substitutions are fully up to standards specified and obtain his approval before placing orders.

26. ERRORS, OMISSIONS, AND DEVIATIONS

The Contractor is responsible for all errors, omissions, and deviations from the Contract requirements.

27. OSHA COMPLIANCE PLAN/POLICY

Contractor hereby acknowledges that it has reviewed and agrees to abide by all OSHA safety regulations and Town of Wake Forest safety regulations. Contractor may be required to submit a copy of the company's current written OSHA Compliance Plan/Policy within 48 hours of request. If requested, no field work shall take place until the plan has been submitted and reviewed by the Town's Safety Officer.

28. NON-COLLUSION and ANTI-DISCRIMINATION

Bidder certifies that this proposal is made in good faith and without collusion or in connection with any other person bidding on the same work, nor will any official or employee of the Town of Wake Forest be admitted to share any part of this contract should an award be made to the undersigned. Bidder further certifies that in connection with the performance of this contract not to discriminate against any employee or applicant for employment because of race, creed, color, religion, national origin, gender, age, political affiliation or handicap.

29. TAXES

FEDERAL: The Town of Wake Forest is exempt from and will not pay Federal Excise or Transportation taxes. **STATE:** Applicable North Carolina Sales and Use Taxes shall not be shown on bids, but shall be added to invoices as a separate item. The Town is not tax exempt.

NORTH CAROLINA SALES TAX

The Owner may apply for a refund of all sales and/or use taxes paid in North Carolina by the Contractor on purchases of items which are annexed to, affixed to, or in some manner become a part of any building or structure being erected, altered or repaired under Contract with the Owner; and these taxes shall not be included in the bid amounts or the Contract sum. The Contractor shall include and pay all other taxes imposed by governmental authorities, which are applicable to the work.

The Contractor will be reimbursed for applicable sales and/or use taxes he has paid in North Carolina based on the following. **The Contractor should apply for reimbursement by itemizing and completing a notarized sales and use tax report form and submitting it with each pay request. Failure to submit this form will result in the invoice not being paid.** The contractor will be required to complete a sales and use tax report

affidavit in order to receive the last payment of the project.

A Sales Tax Affidavit must be completed and submitted for this project before final payment will be released.

30. PAYMENT

N.C.G.S. 143-134.1 prohibits retainage on public projects that cost less than $100,000.00 in total. Prior to final payment, the Contractor will be required to submit any forms, warranties, etc. that the Owner requires. The payment of the final amount due the Contractor shall release the Owner from any and all claims or liabilities on account of the work performed and the materials furnished upon the work. The payment terms shall be Net 30 days.

31. ETHICS POLICY / CODE OF CONDUCT

The Town of Wake Forest has established guidelines for ethical standards of conduct in that Town *representatives should maintain high standards of personal integrity, truthfulness, honesty, and fairness* in carrying out public duties; avoid any improprieties in their roles as public servants including the appearance of impropriety; and never use their position or power for improper gain. In establishing an ethics policy, the Town of Wake Forest desires to protect the public against decisions that are affected by undue influence, conflicts of interest, or any other violation of these policies as well as promote and strengthen the confidence of the public in their governing body.

32. E-VERIFY

Contractor shall comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes. Further, if Contractor utilizes a subcontractor, Contractor shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes.

33. HUBSCO REPORTING

All **building** construction and repair projects ($30,000 & Over) require a E-Verify. Contractor shall comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes. Further, if Contractor utilizes a subcontractor, Contractor shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the NC General Statutes. If a minority participation report is required to be submitted to the State of NC Department of Administration HUB Office, any information that is requested from the contractor must be provided before the last invoice will be paid.

34. IRAN DIVESTMENT ACT.

Contractor certifies that; (i) it is not identified on the Final Divestment List or any other list of prohibited investments created by the NC State Treasurer pursuant to N.C.G.S. 143-6A-4; (ii) it will not take any action causing it to appear on any such list during the term of this Purchase Order, and (iii) it will not utilize any subcontractor to provide goods or services hereunder that is identified on any list.

35. DIVESTMENT FROM COMPANIES THAT BOYCOTT ISRAEL.

Contractor represents, covenants, and certifies that it is not listed on the list of restricted companies developed and published by the North Carolina State Treasurer as required by N.C.G.S. 147-86.81.

36. STANDARD TERMS AND CONDITIONS

The Town of Wake Forest's Standard Terms and Conditions listed at: https://www.wakeforestnc.gov/sites/default/files/uploads/residents/finance/8-2622_towf_standard_terms_and_conditions.pdf will govern all matters related to the goods and/or services provided by you or your company (the "Vendor") to the Town of Wake Forest (the "Town") under a Town purchase order. Additional Terms and Conditions stated on the face of a Town purchase order shall take precedence over any conflicting Standard Terms and Conditions stated. Any Terms and Conditions not stated, but incorporated by reference therein, shall be binding only if provided or signed by the Town and attached hereto. In the event that a binding written contract signed by both the Vendor and the Town exists, the Terms and Conditions of that contract shall supersede any conflicting Standard Terms and Conditions.

37. PROJECT COORDINATOR / CONTACT

Htun, Min – mhtun@wakeforestnc.gov

38. QUESTIONS AND CLARIFICATIONS

Any questions regarding this bid must be submitted ***by email*** to the Project Coordinator. All questions may be submitted ***starting on Monday September 11, 2023 and ending on Friday, September 15 @ 2:00 p.m.***

All questions will be answered individually and then combined and posted in an addendum.

39. REFERENCES

All bidders must submit a minimum of three references for similar public projects. Please submit the name of the project, the city/town the project was for and contact information for the person that was responsible for the project for the client.

PROPOSAL FORM

STREET RESURFACING PROJECT

BID # 0002-2023

The undersigned bidder affirms and declares that he has carefully examined all bidding documents and Instructions to Bidders which are acknowledged to be a part of this proposal, and agrees to provide all labor, materials, equipment, supervision, permits; abide by all local, state and federal laws, rules, regulations, and ordinances applicable to perform the work listed in the specifications and scope of work for the following sum to wit:

TOTAL BASE BID – Lump Sum

_____ Dollars $_____

Construction Duration from NTP _____

Address technical questions about the project to the Project Engineer: **Monica Sarna / Min Htun.**

Monica Sarna, PE
Assistant Engineering Director
msarna@wakeforestnc.gov

Min Htun
Civil Engineer
mhtun@wakeforestnc.gov

ITEM 1- Scope of Project

Town's various streets will be resurfaced.

ITEM 2- Addendums

All addendums must be acknowledged in order for the proposal to be considered.

Addendum #1 _____

Addendum #2 _____

Addendum#3 _____

The Town of Wake Forest intends to award a contract to the overall lowest responsible, responsive bidder taking into consideration quality, performance, and the time specified in this bid. The Town of Wake Forest reserves the right to reject or all proposals and to make the award as deemed in the best interest of the Town of Wake Forest.

All bidders MUST complete and submit with their bid the enclosed Non-Collusion Affidavit of Prime Bidder.

SIGNATURE PAGE

The undersigned certifies that they have read and understood all the provided bidding documents, the project specifications, and agree to the terms and conditions stated herein.

This bid must be signed by a responsible official of the bidding organization and notarized.

_____ **(SEAL)**

Date

_____

Company

_____	_____
Authorized Signature	Federal Identification #
_____	_____
Printed Name and Title	Email Address
_____	_____
Street Mailing Address	City, State, Zip Code
_____	_____
Contactor's NC License No.	Telephone Number

On this day of_____, 20___, before me_____(name) appeared and, being duly sworn, did execute the foregoing proposal, and did so state that he/she was properly authorized by _____ _____(name of company) to execute the proposal and did so on his/her free act and deed.

Notary Public_____My Commission Expires_____(SEAL)

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

attach to bid (required)

State of_____)

County of_____)

Project: Bid # 0002-2023-Street Resurfacing Project

_____, being first duly sworn, deposes and says that:

1. He is (owner, partner, officer, representative or agent) of_____, the Bidder that has submitted the attached Bid;

2. He is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such Bid;

3. Such Bid is genuine and is not a collusive or sham Bid;

4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this Affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bids of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Town of Wake Forest or any person interested in the proposed Contract; and

5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees or parties in interest, including this Affiant.

_____ _____

Name Title

Subscribed and Sworn to before me this_____Day of_____, 20_____

Notary Public:_____ (Seal)

My Commission Expires:_____

IDENTIFICATION OF MINORITY BUSINESS PARTICIPATION

Project: _____

I, _____
(Name of Bidder)

do hereby certify that on this project, we ***intend to*** use the following M/WBE firms as construction subcontractors, vendors, suppliers, or providers of professional services.

Minority Firm Name and Address	Minority Category*	Phone Number	Type of Work

* Minority Categories: Black or African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), and Socially and Economically Disadvantaged (D).

The total value of M/WBE firms contracting is proposed to be $_____

The total percentage of M/WBE firms contracting is proposed to be _____%

Identification of HUB Certified/ Minority Business Participation

I,_____,

(Name of Bidder)

do hereby certify that on this project, we will use the following HUB Certified/ minority business as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work Type	Minority Category	HUB Certified (Y/N)	$ Amount

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

** HUB Certification with the state HUB Office required to be counted toward state participation goals.

The total value of minority business contracting will be ($)_____.

The total percentage of minority business contracting will be (%)_____.

Town of Wake Forest -AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

(Name of Bidder)

Affidavit of_____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- ❑ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- ❑ **2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses or providing these documents to them at least 10 days before the bids are due.
- ❑ **3** – **(15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- ❑ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- ❑ **5** – **(10 pts)** Attended Prebid meetings scheduled by the public owner.
- ❑ **6** – **(20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- ❑ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- ❑ **8** – **(25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- ❑ **9** – **(20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- ❑ **10** - **(20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____Name of Authorized Officer:_____

Signature:_____

SEAL

Title:_____

State of _____***, County of*** _____

Subscribed and sworn to before me this _____***day of*** _____***20*** _____

Notary Public _____

My commission expires _____

Town of Wake Forest --AFFIDAVIT B-- Intent to Perform Contract With Own Workforce

County of _____

Affidavit of_____
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____contract.

(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement. The Bidder agrees to make a Good Faith Effort to utilize minority suppliers where possible.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date:_____Name of Authorized Officer:_____

SEAL

Signature:_____

Title:_____

State of_____, County of_____ Subscribed and sworn to before me

this_____day of_____20_____Notary Public _____

My commission expires._____.

STATE OF NORTH CAROLINA

TOWN OF WAKE FOREST

AFFIDAVIT

I,_____(the individual attesting below), being duly authorized by and

on behalf of_____(the entity bidding on project hereinafter "Employer") after first being duly sworn hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).

2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E- Verify in accordance with NCGS§64-26(a).

3. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. (Mark Yes or No)

a) YES_____, or
b) NO _____

4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This_____day of_____, 20_____.

_____
Signature of Affiant

Print or Type Name: _____

State of_____ County of _____ (Affix Seal)

Signed and sworn to (or affirmed) before me, this the _____

day of_____, 20_____.
My Commission Expires:
Notary Public

_____ _____

TOWN of
WAKE FOREST

301 S. Brooks Street
Wake Forest, NC 27587
t 919.435.9400

www.wakeforestnc.gov

[Organization Name] [Address]
[City, State Zip] [Date]

Dear [Vendor Name],

We would like to thank you for your work on the [project name]. Below you will find the sales tax verification to be completed for the project. Prior to the official closeout and the issuance of the final payment, the Town of Wake Forest must receive a copy of this document with a notarized signature of an authorized official of your organization.

Sales Tax Affidavit

The Town of Wake Forest will not accept any transfer of liability for taxes due on admissions that the lessee has failed to charge and remit to the State of North Carolina or other taxing jurisdictions.

All users of facilities are solely responsible for collecting and remitting any and all applicable sales and use taxes to the North Carolina Department of Revenue and that the Town of Wake Forest assumes no obligation or responsibility for said taxes.

Authorized Official Name: _____

Authorized Official Signature: _____

Date: _____

Subscribed and sworn before me this_____day of_____,_____.

Notary Public: _____

My Commission Expires: _____

TOWN OF WAKE FOREST,NC
CERTIFICATE FOR NORTH CAROLINA SALES TAX

Project or Contract Number:_____ **Date:**_____

Contractor:_____ **Period Covered:**_____

Invoice	Invoice Number	Name of Vendor	Item Cost	State Tax	County Tax	Extra Tax	Total Invoice	County Paid
							-	
							-	
							-	

TOWN OF WAKE FOREST
2023 STREET RESURFACING PROJECT
SCHEDULE OF PRICES

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT BID PRICE	BID AMOUNT
	RESURFACING				
1	ASPHALT CONCRETE SURFACE MIX S9.5B	13,468	TON		$ -
2	ASPHALT CONCRETE SURFACE MIX S9.5C	5,878	TON		$ -
3	ASPHALT BINDER	1,180	TON		$ -
	RESURFACING SECTION SUBTOTAL				**$ -**
	UTILITY ADJUSTMENTS				
4	MANHOLE ADJUSTMENT (RAISE ONLY)		EA		$ -
5	WATER VALVE BOX ADJUSTMENT (RAISE ONLY)		EA		$ -
6	MANHOLE ADJUSTMENT (LOWER/RAISE)	258	EA		$ -
7	WATER VALVE BOX ADJUSTMENT (LOWER/RAISE)	325	EA		$ -
8	MILLING / CHIPPING AROUND UTILITY NOT ADJUSTED		EA		$ -
9	MANHOLE ADJUSTMENT - OVERSIZE (LOWER/RAISE)		EA		$ -
10	PROVIDE AND INSTALL MANHOLE RISER		EA		$ -
11	PROVIDE AND INSTALL WATER VALVE RISER		EA		$ -
12	PROVIDE NEW 7.5" MANHOLE FRAME & COVER		EA		$ -
13	PROVIDE NEW 4" MANHOLE FRAME & COVER		EA		$ -
	UTILITY ADJUSTMENTS SECTION SUBTOTAL				**$ -**
	SIDEWALK IMPROVEMENTS				
14	SIDEWALK REMOVAL		SY		$ -
15	4" SIDEWALK REPLACEMENT		SY		$ -
16	6" SIDEWALK REPLACEMENT		SY		$ -
17	6" CONCRETE DRIVEWAY	183	SY		$ -
18	SAWCUT & REMOVAL OF CONCRETE CURB		LF		$ -
19	SAWCUT & REMOVAL OF GRANITE CURB		LF		$ -
20	CURB & GUTTER REMOVAL / REPLACEMENT	5,904	LF		$ -
21	CONCRETE SIDEWALK ACCESS RAMPS WITH DETECTABLE WARNING SURFACE	346	EA		$ -
22	5" CONCRETE MONOLITHIC ISLAND		SY		$ -
	SIDEWALK IMPROVEMENTS SECTION SUBTOTAL				**$ -**
	MILLING				
23	MILLING (0-2") EDGE	3,545	SY		$ -
24	MILLING (0-2") FULL WIDTH	191,593	SY		$ -
25	MILLING (0-2") MILL & FILL		SY		$ -
26	INCIDENTAL MILLING	6,500	SY		$ -
	MILLING SECTION SUBTOTAL				**$ -**
	PAVEMENT PATCHING				
27	PAVEMENT PATCHING	554	TN		$ -
	PAVEMENT PATCHING SECTION SUBTOTAL				**$ -**
	PAVEMENT MARKINGS				

28	THERMOPLASTIC PAVEMENT MARKINGS - 4", 90 MILS	3,756	LF		$ -
29	THERMOPLASTIC PAVEMENT MARKINGS - 8", 90 MILS	4,243	LF		$ -
30	THERMOPLASTIC PAVEMENT MARKINGS - 24", 90 MILS	3,811	LF		$ -
31	THERMOPLASTIC SYMBOLS - 90 MILS	1	EA		$ -
32	THERMOPLASTIC CHARACTERS - 90 MILS	4	EA		$ -
33	SPEED HUMP SYMBOL - 90 MILS		EA		$ -
34	BIKE LANE ARROW - 90 MILS		EA		$ -
35	BIKE SYMBOL - 90 MILS	4	EA		$ -
36	BIKE SHARROW - 90 MILS		EA		$ -
37	GREEN PAINT, 24"		LF		$ -
38	SHARK TEETH SYMBOL, 24"		EA		$ -
39	TEMPORARY PAINT, 4"		LF		$ -
40	TEMPORARY PAINT, 8"		LF		$ -
41	TEMPORARY PAINT, 24"		LF		$ -
42	TEMPORARY PAINT SYMBOLS		EA		$ -
43	TEMPORARY PAINT CHARACTERS		EA		$ -
44	THERMOPLASTIC ERADICATION, LINES (4-24")	3,700	LF		$ -
45	THERMOPLASTIC ERADICATION, SYMBOLS		EA		$ -
46	THERMOPLASTIC ERADICATION, CHARACTERS		EA		$ -
47	FLEXIBLE DELINEATORS		EA		$ -
	PAVEMENT MARKINGS SECTION SUBTOTAL				**$ -**
	SIGNALS & INTELLIGENT TRANSPORTATION SYSTEMS				
48	INDUCTIVE LOOP SAWCUT		LF		$ -
49	BIKE COUNT LOOP SAWCUT		LF		$ -
50	DETECTOR CARD (2070)		EA		$ -
51	JUNCTION BOX, STANDARD		EA		$ -
	SIGNALS & INTELLIGENT TRANS SYSTEMS SECTION SUBTOTAL				**$ -**
	SPEED HUMPS				
52	REMOVE SPEED HUMP	6	EA		$ -
53	INSTALL SPEED HUMP		EA		$ -
	SPEED HUMPS SECTION SUBTOTAL				**$ -**
	TRAFFIC CONTROL				
54	TEMPORARY TRAFFIC CONTROL		LS		$ -
55	LAW ENFORCEMENT		HR		$ -
56	PORTABLE LIGHTING, IF USED		LS		$ -
57	SHALLOW UNDERCUT		CY		$ -
58	FABRIC FOR SOIL STABILIZATION		SY		$ -
69	GEOGRID FOR SOIL STABILIZATION		SY		$ -
60	CLASS IV STONE FOR SOIL STABILIZATION		TN		$ -
	TRAFFIC CONTROL SECTION SUBTOTAL				**$ -**

TOWN OF WAKE FOREST
RESURFACING CONTRACT
GENERAL INFORMATION SHEET

STREET	FROM	TO	MAP NO.	LENGTH (ft)	LENGTH (mi)	AREA (SY)	MILLING TYPE	MILLING TREATMENT	OVERLAY DEPTH	TRAFFIC MARKS	SIGNAL LOOPS	ASPHALT IN/ABOVE GUTTER
AMHERST CREEK DR	FORBES RD	CIMARRON PKWY	1	1,698.00	0.32	5,394.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	yes	no	no
BACARDI CT	TILLAMOOK DR	CDS	2	250.00	0.05	1,000.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
BARDEEN CT	FAIRLAKE DR	CDS	3	227.00	0.04	893.00	Full width	Mill 1.25" and replace with 1.5"	1.5 inch	no	no	no
BARLEY GREEN ST	GREEN MOUNTAIN DR	GREEN EDGE TRL East Intersection	4	801.00	0.15	2,225.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	yes	no	no
BARNES HOUSE CT	HARTSFIELD FOREST DR	CDS	5	153.00	0.03	729.00	Full width	Mill 1" and replace with 1.25"	1.25 inch	no	no	no
BERMONDSEY MARKET WAY	CREEK MOSS AVE	CDS	6	532.00	0.10	1,689.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
BLUE RAVINE RD	FAIRLAKE DR	CDS	7	478.00	0.09	1,451.00	Full width	Mill 1.0” and replace with 1.5"	1.5 inch	no	no	no

BUGGY RUN CIR	CARRIAGE MEADOWS DR	CDS	8	569.00	0.11	1,780.00	Full width	Mill 1.5" and replace with 1.5"	1.5 inch	no	no	no
BUGGY WHIP CT	WHITE CARRIAGE DR	CDS	9	446.00	0.08	1,479.00	Full width	Mill 1.5" and replace with 1.5"	1.5 inch	no	no	no
CAPCOM AVE	S MAIN ST	CDS	10	1,704.00	0.32	6,881.00	Full width	Mill 1.75" and replace with 2.0"	2.0 inch	yes	no	no
CARRIAGE MEADOWS DR	WHITE CARRIAGE DR	2929 CARRIAGE MEADOWS DR	11	811.00	0.15	2,027.00	Full width	Mill 1.0" and replace 1.5"	1.5 inch	yes	no	no
CIMARRON PKWY	S MAIN ST	S MAIN ST	12	3,167.00	0.60	14,074.00	Full width	Mill 1.0" and replace with 2.0"	2.0 inch	yes	no	no
COACH LANTERN AVE	LIGON MILL RD	KEMBLE RIDGE DR	13	4,012.00	0.76	14,040.00	Full width	Mill 1.25" and replace with 1.5"	1.5 inch	yes	no	no
COLONIAL CLUB RD	MARSHALL FARM ST	CDS	14	4,115.00	0.78	11,081.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
CREEK MOSS AVE	LIGON MILL RD	CDS	15	2,359.00	0.45	7,320.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
DARGAN HILLS DR	CREEK MOSS AVE	CDS	16	1,946.00	0.37	5,546.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
DAVIS HOUSE LN	HARTSFIELD FOREST DR	CDS	17	275.00	0.05	1,000.00	Full width	Mill 1.0" and replace with 1.25"	1.25 inch	no	no	no

DEER LAKE TRL	STUDBURY HALL CT	4905 DEER LAKE TRL	18	315.00	0.06	744.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
E DUNPATRICK PL	ST CATHERINES DR	CDS	19	214.00	0.04	1,031.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	no	no	no
FAIRLAKE DR	PURNELL RD	CDS	20	3,985.00	0.75	11,256.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	yes	no	no
FAITHFUL PL	SIENA DR	TILLAMOOK DR	21	616.00	0.12	2,161.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
GREEN APPLE CT	COACH LANTERN AVE	CDS	22	245.00	0.05	988.00	Full width	Mill 1.0" and replace with 1.25"	1.25 inch	yes	no	no
GREEN EDGE TRL	CDS	BARLEY GREEN ST.E	23	926.00	0.18	2,402.00	Full width	Mill 1.25" and replace with 2"	2.0 inch	yes	no	no
GREEN MOUNTAIN DR	MAIN DIVIDE DR	JONES DAIRY RD	24	1,235.00	0.23	4,382.00	Full width	Mill 1.5" and replace with 1.5"	1.5 inch	yes	no	no
GROVETON TRL (N)	N FRANKLIN ST	CDS	25	860.00	0.16	2,433.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	yes	no	no
GUINNESS PL	ST CATHERINES DR	CDS	26	490.00	0.09	1,859.00	Edge Mill	0.75" taper mill 4’ to 5' from gutter, 1.5" overlay	1.5 inch	no	no	no
HARTSFIELD FOREST DR	HERITAGE CLUB AVE	MARSHALL FARM ST	27	1,340.00	0.25	2,978.00	Full width	Mill 1.25" and replace with 1.5"	1.5 inch	yes	no	no

HERITAGE LINKS DR	HERITAGE LAKE RD	1616 HERITAGE LINKS DR	28	4,161.00	0.79	12,226.00	Full width	Mill 1.5" and replace with 2.0”	2.0 inch	yes	no	no
JAFFILEY CT	N FRANKLIN ST	CDS	29	382.00	0.07	1,238.00	Edge Mill	0.75" taper mill 4’ to 5' from gutter, 1.5" overlay	1.5 inch	no	no	no
KEMBLE RIDGE DR	STUDBURY HALL CT	COACH LANTERN AVE	30	508.00	0.10	1,693.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
LORING LAKE DR	FAIRLAKE DR	CDS	31	295.00	0.06	1,044.00	Full width	No Milling, Overlay with 1.5"	1.5 inch	no	no	no
MARSHALL FARM ST	CHALK RD	OLD COLLEGE CIR	32	2,791.00	0.53	9,748.00	Full width	Mill 2.0" and replace with 2.5"	2.5 inch	yes	no	no
MONDAVI WOODS CT	TILLAMOOK DR	CDS	33	266.00	0.05	1,039.00	Edge Mill	0.75" taper mill 4’ to 5' from gutter, 1.5" overlay	1.5 inch	no	no	no
N FRANKLIN ST	ROYAL MILL AVE	E PERRY AVE	34	1,772.00	0.34	4,954.00	Full width	Mill 1.25" and replace with 1.5"	1.5 inch	yes	no	no
NORTH AVE	E NORTH AVE	FRONT ST	35	179.00	0.03	616.00	Full width	Mill 1.0" and replace with 2.0"	2.0 inch	yes	no	no
REINDEER MOOS DR	COACH LANTERN AVE	CDS	36	256.00	0.05	1,015.00	Full width	Mill 1.25" and replace with 2.0"	2.0 inch	yes	no	no
SIENA DR	W HOLDING AVE	TRYST LN	37	1,806.00	0.34	6,864.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	yes	no	no

SOLUNAR CT	SPRING PARK RD	CDS	38	275.00	0.05	1,017.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	no	no	no
SPRING PARK RD	US-1	CDS	39	1,329.00	0.25	3,434.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	yes	yes
ST CATHERINES DR	US-1	CDS	40	3,559.00	0.67	10,856.00	Edge Mill	1.5" taper mill 4' to 5' from gutter and overlay with 2.0"	2.0 inch	yes	no	no
STIRRUP CT	WHITE CARRIAGE DR	CDS	41	593.00	0.11	1,838.00	Full width	Mill 1.5" and replace with 1.5"	1.5 inch	no	no	no
STROUD CIR	TRENTINI AVE	TRENTINI AVE	42	1,518.00	0.29	3,462.00	Full width	Mill 1.5" and replace with 1.5"	1.5 inch	yes	no	no
STUDBURY HALL CT	KEMBLE RIDGE DR	CDS	43	667.00	0.13	1,827.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	yes	no	no
TILLAMOOK DR	CIMARRON PKWY	CIMARRON PKWY	44	2,555.00	0.48	6,868.00	Full width	Mill 1.25" and replace with 2.0"	2.0 inch	yes	no	no
TRENTINI AVE	HERIATGE LAKE RD	1068 TRENTINI AVE	45	2,064.00	0.39	7,058.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	yes	no	no
VAIL SPRINGS CT	CIMARRON PKWY	CDS	46	293.00	0.06	1,089.00	Full width	Mill 1.0" and replace with 1.5"	1.5 inch	no	no	no
W DUNPATRICK PL	ST CATHERINES DR	CDS	47	180.00	0.03	929.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	yes	no	no

WAHLBRINK DR	ST CATHERINES DR	610 WAHLBRINK DR	48	248.00	0.05	651.00	Full width	Mill 1.5" and replace with 2.0"	2.0 inch	yes	no	no
WENDLER CT	FAIRLAKE DR	CDS	49	289.00	0.05	1,031.00	Full width	No Milling, Overlay with 1.5"	1.5 inch	no	no	no
WHITE CARRIAGE DR	STEEPLE RUN DR	CDS	50	2,661.00	0.50	6,302.00	Full width	Mill 1.5" and replace with 1.5"	1.5 inch	yes	no	no

Notes:
1. For Edge Mill streets, depth indicated is final depth of milling and asphalt at edge of pavement.
2. For Full Mill streets, depth indicates specific depth below curb at edge of pavement. For example, if an existing full mill street has existing asphalt 1.5" above the curb & gutter or paved into the gutter, existing asphalt shall be "full milled" a total depth of 1.5" plus depth indicated for the street to achieve the desired final pavement elevation.
3. For mill & fill streets, the pavement shall be milled and paved back in continuous shift work at the depth specified.
4. All AC Adjustments shall be based upon NCDOT FOB Base Price Index of $618.13 effective August 2023.
5. Taper paving to be flush with the gutter.
6. Field adjustments to the milling treatment and overlay may be required, depending on the performance of the existing pavement structure during construction.

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2023 Resurfacing Street Estimate Totals Sheet									
Line Item	Description	Unit	AMHERST CREEK DR	BACARDI CT	BARDEEN CT	BARLEY GREEN ST	BARNES HOUSE CT	BERMONDSEY MARKET WAY	BLUE RAVINE RD
1	Asphalt Concrete Surface Course, Type S9.5B	TN	605.2	84.2	75.1	249.6	51.1	142.1	122.1
2	Asphalt Concrete Surface Course, Type S9.5C	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Asphalt Binder for Plant Mix, Type PG64-22	TN	36.9	5.1	4.6	15.2	3.1	8.7	7.4
4	Manhole Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Water Valve Box Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Manhole Adjustment (Lower/Raise)	EA	8.0	1.0	1.0	2.0	2.0	2.0	3.0
7	Water Valve Box Adjustment (Lower/Raise)	EA	10.0	1.0	0.0	6.0	2.0	2.0	0.0
8	Milling/Chipping - Manhole/Valve Box	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Manhole Adjustment - Oversize - (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	Provide and Install Manhole Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	Provide and Install Water Valve Box Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Provide New 7.5" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Provide New 4.0" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Sidewalk Removal	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	6" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6" Concrete Driveway	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	Sawcut and Removal of Concrete Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	Sawcut and Removal of Granite Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	Curb & Gutter Removal and Replacement	LF	0.0	0.0	0.0	0.0	52.0	0.0	0.0
21	Concrete Sidewalk Access Ramp w/Warning Surface	EA	2.0	0.0	0.0	5.0	0.0	0.0	0.0
22	Concrete Monolithic Island	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	Milling Asphalt Pavement, Edge Milling (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	Milling Asphalt Pavement, Full Mill (0-2")	SY	5394.0	1000.0	893.0	2225.0	729.0	1689.0	1451.0
25	Milling Asphalt Pavement, Mill & Fill (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Incidental Milling	SY	300.0	0.0	0.0	150.0	0.0	0.0	0.0
27	Pavement Patching	TN	18	2	2	7	2	4	4
28	Thermoplastic Lines, 4" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	Thermoplastic Lines, 8" 90mils	LF	80.0	70.0	0.0	50.0	0.0	76.0	0.0
30	Thermoplastic Lines, 24" 90mils	LF	0.0	10.0	0.0	165.0	0.0	12.0	0.0
31	Thermoplastic Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	Thermoplastic Characters, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	Speed Hump Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	Bike Lane Arrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Bike Lane Symbol, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	Bike Sharrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	Green Thermoplastic, 24" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Shark Teeth Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	Temporary Paint, 4"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	Temporary Paint, 8"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	Temporary Paint, 24"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	Temporary Paint Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	Temporary Paint Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	Thermoplastic Eradication, Lines (4-24")	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	Thermoplastic Eradication, Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	Thermoplastic Eradication, Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	Flexible Delinators	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	Inductive Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	Bike Count Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	Detector Card (Type 2070)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	Junction Box, Std.	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	Remove Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	Install Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54	Temporary Traffic Control	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	Law Enforcement	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	Portable Lighting	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57	Shallow Undercut	CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	Fabric For Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	GeoGrid for Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	Class IV Stone for Soil Stabilization	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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2023 Resurfacing Street Estimate Totals Sheet									
Line Item	Description	Unit	BUGGY RUN CIR	BUGGY WHIP CT	CAPCOM AVE	CARRIAGE MEADOWS DR	CIMARRON PKWY	COACH LANTERN AVE	COLONIAL CLUB RD
1	Asphalt Concrete Surface Course, Type S9.5B	TN	149.8	124.5	772.0	170.6	1579.1	0.0	0.0
2	Asphalt Concrete Surface Course, Type S9.5C	TN	0.0	0.0	0.0	0.0	0.0	1202.9	949.4
3	Asphalt Binder for Plant Mix, Type PG64-22	TN	9.1	7.6	47.1	10.4	96.3	73.4	57.9
4	Manhole Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Water Valve Box Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Manhole Adjustment (Lower/Raise)	EA	2.0	2.0	7.0	5.0	4.0	18.0	19.0
7	Water Valve Box Adjustment (Lower/Raise)	EA	0.0	1.0	18.0	4.0	26.0	25.0	21.0
8	Milling/Chipping - Manhole/Valve Box	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Manhole Adjustment - Oversize - (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	Provide and Install Manhole Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	Provide and Install Water Valve Box Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Provide New 7.5" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Provide New 4.0" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Sidewalk Removal	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	6" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6" Concrete Driveway	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	Sawcut and Removal of Concrete Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	Sawcut and Removal of Granite Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	Curb & Gutter Removal and Replacement	LF	0.0	0.0	0.0	20.0	1404.0	300.0	521.0
21	Concrete Sidewalk Access Ramp w/Warning Surface	EA	0.0	0.0	26.0	0.0	11.0	18.0	17.0
22	Concrete Monolithic Island	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	Milling Asphalt Pavement, Edge Milling (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	Milling Asphalt Pavement, Full Mill (0-2")	SY	1780.0	1479.0	6881.0	2027.0	14074.0	14040.0	11081.0
25	Milling Asphalt Pavement, Mill & Fill (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Incidental Milling	SY	0.0	0.0	150.0	75.0	300.0	450.0	450.0
27	Pavement Patching	TN	4	4	23	5	46	35	27
28	Thermoplastic Lines, 4" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	Thermoplastic Lines, 8" 90mils	LF	0.0	0.0	616.0	68.0	278.0	0.0	180.0
30	Thermoplastic Lines, 24" 90mils	LF	0.0	0.0	794.0	12.0	150.0	394.0	40.0
31	Thermoplastic Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	Thermoplastic Characters, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	Speed Hump Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	Bike Lane Arrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Bike Lane Symbol, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	Bike Sharrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	Green Thermoplastic, 24" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Shark Teeth Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	Temporary Paint, 4"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	Temporary Paint, 8"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	Temporary Paint, 24"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	Temporary Paint Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	Temporary Paint Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	Thermoplastic Eradication, Lines (4-24")	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	Thermoplastic Eradication, Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	Thermoplastic Eradication, Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	Flexible Delinators	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	Inductive Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	Bike Count Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	Detector Card (Type 2070)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	Junction Box, Std.	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	Remove Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	Install Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54	Temporary Traffic Control	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	Law Enforcement	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	Portable Lighting	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57	Shallow Undercut	CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	Fabric For Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	GeoGrid for Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	Class IV Stone for Soil Stabilization	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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2023 Resurfacing Street Estimate Totals Sheet									
Line Item	Description	Unit	CREEK MOSS AVE	DARGAN HILLS DR	DAVIS HOUSE LN	DEER LAKE TRL	E DUNPATRICK PL	FAIRLAKE DR	FAITHFUL PL
1	Asphalt Concrete Surface Course, Type S9.5B	TN	616.0	466.7	70.1	62.6	115.7	1262.9	181.8
2	Asphalt Concrete Surface Course, Type S9.5C	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Asphalt Binder for Plant Mix, Type PG64-22	TN	37.6	28.5	4.3	3.8	7.1	78.4	11.1
4	Manhole Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Water Valve Box Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Manhole Adjustment (Lower/Raise)	EA	16.0	12.0	2.0	1.0	2.0	21.0	1.0
7	Water Valve Box Adjustment (Lower/Raise)	EA	18.0	13.0	1.0	2.0	2.0	13.0	1.0
8	Milling/Chipping - Manhole/Valve Box	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Manhole Adjustment - Oversize - (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	Provide and Install Manhole Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	Provide and Install Water Valve Box Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Provide New 7.5" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Provide New 4.0" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Sidewalk Removal	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	6" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6" Concrete Driveway	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	Sawcut and Removal of Concrete Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	Sawcut and Removal of Granite Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	Curb & Gutter Removal and Replacement	LF	42.0	75.0	10.0	0.0	0.0	60.0	0.0
21	Concrete Sidewalk Access Ramp w/Warning Surface	EA	15.0	7.0	0.0	0.0	104.0	0.0	2.0
22	Concrete Monolithic Island	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	Milling Asphalt Pavement, Edge Milling (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	Milling Asphalt Pavement, Full Mill (0-2")	SY	7320.0	5546.0	1000.0	744.0	1031.0	11256.0	2161.0
25	Milling Asphalt Pavement, Mill & Fill (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Incidental Milling	SY	375.0	225.0	0.0	75.0	0.0	300.0	75.0
27	Pavement Patching	TN	18	14	2	2	3	37	5
28	Thermoplastic Lines, 4" 90mils	LF	0.0	0.0	0.0	0.0	0.0	3700.0	0.0
29	Thermoplastic Lines, 8" 90mils	LF	0.0	72.0	0.0	0.0	20.0	0.0	0.0
30	Thermoplastic Lines, 24" 90mils	LF	116.0	68.0	0.0	12.0	0.0	32.0	12.0
31	Thermoplastic Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	Thermoplastic Characters, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	Speed Hump Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	Bike Lane Arrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Bike Lane Symbol, 90mils	EA	0.0	0.0	0.0	0.0	0.0	4.0	0.0
36	Bike Sharrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	Green Thermoplastic, 24" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Shark Teeth Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	Temporary Paint, 4"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	Temporary Paint, 8"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	Temporary Paint, 24"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	Temporary Paint Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	Temporary Paint Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	Thermoplastic Eradication, Lines (4-24")	LF	0.0	0.0	0.0	0.0	0.0	3700.0	0.0
45	Thermoplastic Eradication, Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	Thermoplastic Eradication, Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	Flexible Delinators	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	Inductive Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	Bike Count Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	Detector Card (Type 2070)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	Junction Box, Std.	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	Remove Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	Install Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54	Temporary Traffic Control	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	Law Enforcement	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	Portable Lighting	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57	Shallow Undercut	CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	Fabric For Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	GeoGrid for Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	Class IV Stone for Soil Stabilization	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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2023 Resurfacing Street Estimate Totals Sheet									
Line Item	Description	Unit	GREEN APPLE CT	GREEN EDGE TRL	GREEN MOUNTAIN DR	GROVETON TRL (N)	GUINNESS PL	HARTSFIELD FOREST DR	HERITAGE LINKS DR
1	Asphalt Concrete Surface Course, Type S9.5B	TN	69.3	269.50	368.75	273.0	156.4	250.6	0.0
2	Asphalt Concrete Surface Course, Type S9.5C	TN	0.0	0.0	0.0	0.0	0.0	0.0	1047.5
3	Asphalt Binder for Plant Mix, Type PG64-22	TN	4.2	16.44	22.49	16.7	9.5	15.3	63.9
4	Manhole Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Water Valve Box Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Manhole Adjustment (Lower/Raise)	EA	1.0	8.00	7.00	4.0	3.0	6.0	20.0
7	Water Valve Box Adjustment (Lower/Raise)	EA	1.0	2.00	6.00	6.0	3.0	7.0	24.0
8	Milling/Chipping - Manhole/Valve Box	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Manhole Adjustment - Oversize - (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	Provide and Install Manhole Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	Provide and Install Water Valve Box Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Provide New 7.5" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Provide New 4.0" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Sidewalk Removal	SY	0.0	0.00	0.00	0.0	0.0	0.0	0.0
15	4" Sidewalk	SY	0.0	0.00	0.00	0.0	0.0	0.0	0.0
16	6" Sidewalk	SY	0.0	0.00	0.00	0.0	0.0	0.0	0.0
17	6" Concrete Driveway	SY	0.0	0.00	0.00	0.0	0.0	0.0	0.0
18	Sawcut and Removal of Concrete Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	Sawcut and Removal of Granite Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	Curb & Gutter Removal and Replacement	LF	12.0	0.00	0.0	0.0	75.0	111.0	0.0
21	Concrete Sidewalk Access Ramp w/Warning Surface	EA	0.0	2.00	0.0	3.0	0.0	4.0	29.0
22	Concrete Monolithic Island	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	Milling Asphalt Pavement, Edge Milling (0-2")	SY	0.0	0.0	0.0	0.0	871.0	0.0	0.0
24	Milling Asphalt Pavement, Full Mill (0-2")	SY	988.0	2402.00	4382.00	2433.0	0.0	2978.0	12226.0
25	Milling Asphalt Pavement, Mill & Fill (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Incidental Milling	SY	0.0	150.00	150.00	75.0	0.0	75.0	525.0
27	Pavement Patching	TN	2	8	11	8	5	7	30
28	Thermoplastic Lines, 4" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	Thermoplastic Lines, 8" 90mils	LF	64.0	0.00	240.00	90.0	0.0	120.0	344.0
30	Thermoplastic Lines, 24" 90mils	LF	16.0	28.00	132.00	112.0	0.0	24.0	479.0
31	Thermoplastic Symbols, 90mils	EA	0.0	0.0	1.00	0.0	0.0	0.0	0.0
32	Thermoplastic Characters, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	Speed Hump Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	Bike Lane Arrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Bike Lane Symbol, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	Bike Sharrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	Green Thermoplastic, 24" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Shark Teeth Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	Temporary Paint, 4"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	Temporary Paint, 8"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	Temporary Paint, 24"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	Temporary Paint Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	Temporary Paint Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	Thermoplastic Eradication, Lines (4-24")	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	Thermoplastic Eradication, Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	Thermoplastic Eradication, Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	Flexible Delinators	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	Inductive Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	Bike Count Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	Detector Card (Type 2070)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	Junction Box, Std.	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	Remove Speed Hump	EA	0.0	0.0	2.00	0.0	0.0	0.0	0.0
53	Install Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54	Temporary Traffic Control	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	Law Enforcement	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	Portable Lighting	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57	Shallow Undercut	CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	Fabric For Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	GeoGrid for Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	Class IV Stone for Soil Stabilization	TN	0.0	0.00	0.00	0.0	0.0	0.0	0.0

BID # 0002-2023

2023 Resurfacing Street Estimate Totals Sheet									
Line Item	Description	Unit	JAFFILEY CT	KEMBLE RIDGE DR	LORING LAKE DR	MARSHALL FARM ST	MONDAVI WOODS CT	N FRANKLIN ST	NORTH AVE
1	Asphalt Concrete Surface Course, Type S9.5B	TN	104.2	142.5	87.9	0.0	87.4	416.9	69.1
2	Asphalt Concrete Surface Course, Type S9.5C	TN	0.0	0.0	0.0	1392.0	0.0	0.0	0.0
3	Asphalt Binder for Plant Mix, Type PG64-22	TN	6.4	8.7	5.4	84.9	5.3	25.4	4.2
4	Manhole Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Water Valve Box Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Manhole Adjustment (Lower/Raise)	EA	3.0	2.0	0.0	15.0	2.0	4.0	0.0
7	Water Valve Box Adjustment (Lower/Raise)	EA	1.0	3.0	4.0	24.0	1.0	14.0	0.0
8	Milling/Chipping - Manhole/Valve Box	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Manhole Adjustment - Oversize - (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	Provide and Install Manhole Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	Provide and Install Water Valve Box Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Provide New 7.5" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Provide New 4.0" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Sidewalk Removal	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	6" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6" Concrete Driveway	SY	0.0	0.0	0.0	0.0	0.0	180.0	0.0
18	Sawcut and Removal of Concrete Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	Sawcut and Removal of Granite Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	Curb & Gutter Removal and Replacement	LF	0.0	0.0	0.0	340.0	0.0	135.0	0.0
21	Concrete Sidewalk Access Ramp w/Warning Surface	EA	0.0	3.0	0.0	28.0	0.0	11.0	0.0
22	Concrete Monolithic Island	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	Milling Asphalt Pavement, Edge Milling (0-2")	SY	706.0	0.0	0.0	0.0	473.0	0.0	0.0
24	Milling Asphalt Pavement, Full Mill (0-2")	SY	0.0	1693.0	0.0	9748.0	0.0	4954.0	616.0
25	Milling Asphalt Pavement, Mill & Fill (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Incidental Milling	SY	0.0	225.0	0.0	375.0	0.0	350.0	0.0
27	Pavement Patching	TN	3	4	1047	40	3	0	2
28	Thermoplastic Lines, 4" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	Thermoplastic Lines, 8" 90mils	LF	0.0	128.0	0.0	80.0	0.0	389.0	94.0
30	Thermoplastic Lines, 24" 90mils	LF	0.0	22.0	0.0	447.0	0.0	84.0	0.0
31	Thermoplastic Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	Thermoplastic Characters, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	Speed Hump Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	Bike Lane Arrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Bike Lane Symbol, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	Bike Sharrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	Green Thermoplastic, 24" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Shark Teeth Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	Temporary Paint, 4"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	Temporary Paint, 8"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	Temporary Paint, 24"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	Temporary Paint Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	Temporary Paint Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	Thermoplastic Eradication, Lines (4-24")	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	Thermoplastic Eradication, Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	Thermoplastic Eradication, Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	Flexible Delinators	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	Inductive Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	Bike Count Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	Detector Card (Type 2070)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	Junction Box, Std.	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	Remove Speed Hump	EA	0.0	0.0	0.0	4.0	0.0	0.0	0.0
53	Install Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54	Temporary Traffic Control	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	Law Enforcement	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	Portable Lighting	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57	Shallow Undercut	CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	Fabric For Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	GeoGrid for Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	Class IV Stone for Soil Stabilization	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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2023 Resurfacing Street Estimate Totals Sheet									
Line Item	Description	Unit	REINDEER MOOS DR	SIENA DR	SOLUNAR CT	SPRING PARK RD	ST CATHERINES DR	STIRRUP CT	STROUD CIR
1	Asphalt Concrete Surface Course, Type S9.5B	TN	113.9	770.1	85.6	289.0	1227.8	154.7	291.3
2	Asphalt Concrete Surface Course, Type S9.5C	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Asphalt Binder for Plant Mix, Type PG64-22	TN	6.9	47.0	5.2	17.6	74.9	9.4	17.8
4	Manhole Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Water Valve Box Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Manhole Adjustment (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	7.0
7	Water Valve Box Adjustment (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	5.0
8	Milling/Chipping - Manhole/Valve Box	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Manhole Adjustment - Oversize - (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	Provide and Install Manhole Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	Provide and Install Water Valve Box Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Provide New 7.5" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Provide New 4.0" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Sidewalk Removal	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	6" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6" Concrete Driveway	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	Sawcut and Removal of Concrete Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	Sawcut and Removal of Granite Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	Curb & Gutter Removal and Replacement	LF	0.0	500.0	0.0	0.0	1275.0	20.0	34.0
21	Concrete Sidewalk Access Ramp w/Warning Surface	EA	2.0	18.0	0.0	0.0	10.0	0.0	1.0
22	Concrete Monolithic Island	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	Milling Asphalt Pavement, Edge Milling (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	Milling Asphalt Pavement, Full Mill (0-2")	SY	1015.0	6864.0	1017.0	3434.0	10856.0	1838.0	3462.0
25	Milling Asphalt Pavement, Mill & Fill (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Incidental Milling	SY	0.0	600.0	0.0	75.0	225.0	0.0	0.0
27	Pavement Patching	TN	3	23	3	8	36	5	9
28	Thermoplastic Lines, 4" 90mils	LF	0.0	0.0	0.0	56.0	0.0	0.0	0.0
29	Thermoplastic Lines, 8" 90mils	LF	52.0	398.0	0.0	0.0	64.0	0.0	0.0
30	Thermoplastic Lines, 24" 90mils	LF	12.0	98.0	0.0	18.0	123.0	0.0	92.0
31	Thermoplastic Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	Thermoplastic Characters, 90mils	EA	0.0	4.0	0.0	0.0	0.0	0.0	0.0
33	Speed Hump Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	Bike Lane Arrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Bike Lane Symbol, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	Bike Sharrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	Green Thermoplastic, 24" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Shark Teeth Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	Temporary Paint, 4"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	Temporary Paint, 8"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	Temporary Paint, 24"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	Temporary Paint Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	Temporary Paint Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	Thermoplastic Eradication, Lines (4-24")	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	Thermoplastic Eradication, Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	Thermoplastic Eradication, Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	Flexible Delinators	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	Inductive Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	Bike Count Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	Detector Card (Type 2070)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	Junction Box, Std.	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	Remove Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	Install Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54	Temporary Traffic Control	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	Law Enforcement	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	Portable Lighting	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57	Shallow Undercut	CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	Fabric For Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	GeoGrid for Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	Class IV Stone for Soil Stabilization	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0

BID # 0002-2023

2023 Resurfacing Street Estimate Totals Sheet										
Line Item	Description	Unit	STUDBURY HALL CT	TILLAMOOK DR	TRENTINI AVE	VAIL SPRINGS CT	W DUNPATRICK PL	WAHLBRINK DR	WENDLER CT	WHITE CARRIAGE DR
1	Asphalt Concrete Surface Course, Type S9.5B	TN	153.7	770.6	791.9	91.6	104.2	73.0	86.8	530.3
2	Asphalt Concrete Surface Course, Type S9.5C	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Asphalt Binder for Plant Mix, Type PG64-22	TN	9.4	47.0	48.3	5.6	6.4	4.5	5.29	32.3
4	Manhole Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Water Valve Box Adjustment (Raise Only)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Manhole Adjustment (Lower/Raise)	EA	6.0	19.0	7.0	1.0	1.0	2.0	0.00	9.0
7	Water Valve Box Adjustment (Lower/Raise)	EA	7.0	22.0	12.0	0.0	2.0	2.0	1.0	12.0
8	Milling/Chipping - Manhole/Valve Box	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	Manhole Adjustment - Oversize - (Lower/Raise)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	Provide and Install Manhole Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	Provide and Install Water Valve Box Riser	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Provide New 7.5" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	Provide New 4.0" Manhole Frame and Cover	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	Sidewalk Removal	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	6" Sidewalk	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6" Concrete Driveway	SY	0.0	1.5	0.0	0.0	0.0	0.0	1.7	0.0
18	Sawcut and Removal of Concrete Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	Sawcut and Removal of Granite Curb	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	Curb & Gutter Removal and Replacement	LF	0.0	496.0	148.0	150.0	14.0	35.0	0.0	75.0
21	Concrete Sidewalk Access Ramp w/Warning Surface	EA	0.0	12.0	7.0	0.0	0.0	0.0	0.0	9.0
22	Concrete Monolithic Island	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	Milling Asphalt Pavement, Edge Milling (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	Milling Asphalt Pavement, Full Mill (0-2")	SY	1827.0	6868.0	7058.0	1089.0	929.0	651.0	0.0	6302.0
25	Milling Asphalt Pavement, Mill & Fill (0-2")	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Incidental Milling	SY	75.0	300.0	225.0	0.0	0.0	75.0	0.0	75.0
27	Pavement Patching	TN	5	23	23	3	3	2	3	16
28	Thermoplastic Lines, 4" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	Thermoplastic Lines, 8" 90mils	LF	0.0	396.0	128.0	0.0	68.0	0.0	0.0	78.0
30	Thermoplastic Lines, 24" 90mils	LF	50.0	122.0	95.0	0.0	14.0	12.0	0.0	14.0
31	Thermoplastic Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	Thermoplastic Characters, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	Speed Hump Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	Bike Lane Arrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	Bike Lane Symbol, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	Bike Sharrow, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	Green Thermoplastic, 24" 90mils	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	Shark Teeth Symbols, 90mils	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	Temporary Paint, 4"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	Temporary Paint, 8"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	Temporary Paint, 24"	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	Temporary Paint Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	Temporary Paint Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	Thermoplastic Eradication, Lines (4-24")	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	Thermoplastic Eradication, Symbols	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	Thermoplastic Eradication, Characters	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	Flexible Delinators	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	Inductive Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	Bike Count Loop Sawcut	LF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	Detector Card (Type 2070)	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	Junction Box, Std.	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52	Remove Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53	Install Speed Hump	EA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54	Temporary Traffic Control	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	Law Enforcement	HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	Portable Lighting	LS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57	Shallow Undercut	CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
58	Fabric For Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
59	GeoGrid for Soil Stabilization	SY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	Class IV Stone for Soil Stabilization	TN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

GENERAL CONDITIONS

1. Definitions:

a) The Contract documents shall consist of the Contract, the accepted Proposal, the General Conditions of the Contract, and the Drawings and Specifications, including all modifications thereof incorporated in the documents before their execution.

b) Whenever the term "Contractor" is used, it shall be understood as referring to the General Contractor, subcontractor, and all other contractors or their duly authorized agent to whom the work here described is awarded by Contract.

c) Whenever the term “Resurface” or "Resurfacing” is used, it shall be understood to mean all work associated with the Contract, including but not limited to utility adjustments, milling, patching, and asphalt overlay.

d) Whenever the term "Director of Engineering" is mentioned, it is understood to mean the Director of Engineering, Town of Wake Forest, North Carolina, his assistant or duly authorized agent. The Director of Engineering or his authorized agent shall make all necessary explanations as to the meaning and intent of the Specifications, Plans, Special Provisions, or Contract and may correct any errors or omissions in same which is necessary for the proper fulfillment of its intentions. The term “Director of Engineering” or his authorized agent shall be synonymous or equivalent with the term “Engineer” and shall have full authority over the work as specified in Section 105-1 of the “North Carolina Department of Transportation Standard Specifications for Roads and Structures” latest edition.

e) Whenever the term "Town" is used, it is to mean the Town of Wake Forest, North Carolina.

f) The term "Work" of the Contractor or subcontractor includes labor or materials, or both, equipment, transportation, or other facilities necessary to complete the Contract.

g) The "North Carolina Department of Transportation Standard Specifications for Roads and Structures”, latest edition shall be considered a part of these specifications in to.

h) The "North Carolina Department of Transportation Policies Procedures”, for 2002 accommodating utilities on highway right of way shall be considered a part of these specifications in instances to which they are referred.

i) The terms “Supplemental Agreement” and “Town Change Order” shall be understood to be synonymous.

2. Intent of Documents:

The intention of the documents is to include all labor and materials, equipment, and transportation necessary for the proper execution of the work. It is not intended, however, that materials or work not covered by or properly inferable from any heading, branch, class, or trade of the Specifications shall be supplied unless distinctly so noted on the drawings. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

3. Detail Drawings and Instructions:

The Director of Engineering shall furnish with reasonable promptness, additional instructions, by means of drawings or otherwise, necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the Contract documents, true developments thereof, and reasonably inferable therefrom.

4. Progress Schedule:

The Contractor shall prepare and submit for review and approval a schedule of proposed working progress. This schedule shall be submitted on forms supplied by the Engineer or in a format that is approved by the Engineer. A detailed Critical Path Method (CPM) schedule shall not be submitted to replace the progress schedule details required below.

The proposed progress schedule shall be submitted no later than 7 calendar days before the date of the project preconstruction conference and shall be approved before any payments will be processed for the project.

When the Engineer has extended the completion date or if the project overrun is anticipated to exceed 5%, the Contractor may submit a revised progress schedule to the Engineer for review and approval. If plan revisions are anticipated to change the sequence of operations in such a manner as will affect the progress but not the completion date, then the Contractor may submit a revised progress schedule for review and approval, but the completion date shall remain unchanged.

The proposed progress schedule shall contain the following items:

1. A time scale diagram with major work activities and milestones clearly labeled.

a. For purposes of composing the progress schedule, major work activities are defined as components comprising more than 5% of the total project cost or occupying more than 10% of total contract time and shall include, if applicable, the following

i. Asphalt Patching

ii. Utility Adjustments

iii. Other Incidental Concrete

iv. Milling Asphalt Pavement

v. Asphalt Resurfacing

vi. Pavement Markings

b. For purposes of composing the progress schedule, major milestones are derived from the project construction phasing and shall include, if applicable, the following:

i. Start of Work (May change based on NTP)

ii. Project ICTs

iii. Map Completion Dates

iv. Project Completion Date

2. A cash curve corresponding to the milestones of work and activities established in Part 1 above.

A written narrative that explains the sequence of work, the controlling operations, ICT completion dates, milestones, project phasing, anticipated work schedule and estimated resources. In addition, explain how any permit requirements, submittal tracking, and coordination with subcontractors, utility companies and other entities will be performed.

Failure to Maintain Satisfactory Progress

The Director of Engineer will check the Contractor's progress at the time each partial pay estimate is prepared.

The Town shall follow guidelines set forth in the NCDOT Standard Specifications, Latest Edition using the Article(s) referenced below.

The Contractor's progress may be considered as unsatisfactory as follows:

(A) The Contractor's progress is found to be less than that described in either count below:

(1) The dollar value of the work completed, excluding material payments allowed by Article 109-5, is less than the dollar value of the work that should have been completed, on the basis of the Contractor's approved progress schedule, by more than 10% of the current contract amount. The dollar value of the work completed will be the total estimate to date shown in the latest partial pay estimate, excluding material payments allowed by Article 109-5. The current contract amount will be the total amount bid plus accumulated overruns less accumulated underruns shown in the latest partial pay estimate.

(2) The percentage of the work completed is less than the percentage of contract time elapsed on the work by more than 10%. The percentage of work completed will be the dollar value of the work completed as defined above, divided by the current contract amount as defined above. The percentage of contract time elapsed will be the number of calendar days elapsed as shown in the latest partial pay estimate divided by the total contract time in calendar days.

(B) The Contractor fails to begin and pursue the work in accordance with Article 108-1 before the expiration of 5% of the original contract time after the date work was scheduled to begin based upon the approved progress schedule.

(C) The Director of Engineer anticipates the Contractor will not complete the work described in the contract by the intermediate contract time or the contract completion date. When the Contractor's progress is found to be unsatisfactory as described in Sub-articles 108-8(A), 108-8(B) and 108-8(C) above, the Director of Engineer may make written demand of the Contractor to state in writing the reason for the unsatisfactory progress and produce such supporting data as the Town may require or the Contractor may desire to submit. The Director of Engineer will consider the justifications submitted by the Contractor and extensions of the completion date have or may be allowed in accordance with Subarticle 108-10(B).

6. Contractor's Understanding:

It is understood and agreed that the Contractor has, by careful examination satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality, and quantity of materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this Contract. No verbal agreement or

conversation with any officer, agent, or employee of the Town, either before or after the execution of the Contract shall affect or modify any terms or obligations herein contained.

7. Superintendence by Contractor:

Except where the Contractor is an individual and gives his personal superintendence to the work, the Contractor shall provide a competent superintendent, satisfactory to the Town of Wake Forest on the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and prosecution of the work.

8. Materials, Appliances, Employees:

Unless otherwise specified, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary for the execution and completion of the work.

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him.

9. Technical Specifications and Drawings:

Anything mentioned in the Technical Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Technical Specifications shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the Town of Wake Forest without whose decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

10. Royalties and Patents:

The Contractor shall pay all royalties and patent fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Town harmless from loss on account thereof, except that the town shall be responsible for such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has information that the process or article specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Director of Engineering.

11. Permits:

Permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor unless otherwise stipulated.

Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Town unless otherwise stipulated.

12. Protection of Work and Property:

The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect the Town's and private property from injury or loss arising in connection with this Contract. He shall make good any such damages, injury, or loss, except such as may directly be due to errors in the Contract documents or caused by agents or employees of the Town.

13. Cooperation with Utility Owners:

Prior to the beginning of construction, the Town will notify all utility owners known to have facilities affected by the construction of the project. The Contractor shall coordinate the schedule with the utility owners for the necessary adjustments of all affected public or private utility facilities. The utility adjustments may be made either before or after the beginning of construction of the project. The adjustments will be made by the utility owner or his representative or by the Contractor when such adjustments are part of the work covered by his Contract.

The Contractor shall use special care in working around and near all existing utilities that are encountered during construction, protecting them where necessary so that they will give uninterrupted service. The Contractor shall call the agency concerned for location of all utilities and shall be responsible for any damage to existing utilities and structures resulting from his work around these utilities or structures.

The Contractor shall cooperate with the utility owner, and/or the owner's representative in the adjustment or placement of utility facilities when such adjustment or placement is made necessary by the construction of the project or has been authorized by the Town.

In the event that utility services are interrupted by the Contractor, the Contractor shall promptly notify the owners and shall cooperate with the owners and/or the owner's representative in the restoration of service in the shortest time possible.

Existing fire hydrants shall be kept accessible to fire department personnel at all times.

Prior to submitting his bid, the Contractor shall make his own determination as to the nature and extent of the utility facilities, including proposed adjustments, new facilities, or temporary work to be performed by the utility owner or his representative; and as to whether or not any utility work is planned by the owner in conjunction with the project construction. The Contractor shall consider in his bid all of the permanent and temporary utility facilities in their present or relocated positions, whether or not specifically shown on the plans or covered in the project special provisions. It will be the Contractor's responsibility to anticipate any additional costs to him resulting from such utility work and to reflect these costs in his bid for the various items in the Contract.

Where changes to utility facilities are to be made solely for the convenience of the Contractor, it shall be the Contractor's responsibility to arrange for such changes and the Contractor shall bear all costs of such changes.

14. Inspection of Work:

The Director of Engineering and his representatives shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide facilities for such access and for inspection.

If the specifications, the Director of Engineering's instructions, laws, or ordinances or any public authority require any work to be specially tested or approved, the Contractor shall give the Director of Engineering timely notice of its readiness for inspection. Inspections by the Director of

Engineering shall be promptly made, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Director of Engineering, it must, if required by the Director of Engineering, be uncovered for examination at the Contractor's expense.

The presence of the Engineer, Director of Engineering or Inspector at the work site shall in no way lessen the Contractor's responsibility for conformity with the contract. Should the Engineer, Director of Engineering, or Inspector, at any time before final acceptance or during the contractual warranty period, fail to point out or reject materials or work that does not conform to the contract, whether from lack of discovery or for any other reason, it shall in no way prevent later rejection or corrections to the unsatisfactory materials or work when discovered. The contractor shall have no claim for losses suffered due to any necessary removals or repairs resulting from the unsatisfactory work.

15. Changes in Work:

The Town of Wake Forest, the Engineering Department, without invalidating the Contract, may direct additional work, extra work or make changes by altering, adding or deducting from the work, the Contract sum being adjusted accordingly. In case the method of construction or character of any part of the work is not covered by the plans, specifications, or contract documents, these provisions shall apply. The Town reserves the right to add or delete resurfacing maps to or from the contract.

The Contractor shall perform all work in accordance with the plans, specifications, standard drawings, and contract documents or that may be modified by written orders and shall do such additional, extra, and incidental work as may be considered necessary to complete the work to the full intent of the plans, specifications and contract provisions. Unless otherwise provided in the contract, the Contractor shall furnish all implements, machinery, tools, materials, supplies, transportation and labor necessary for the prosecution and completion of the work.

When it is necessary to make amendments to the contract to satisfactorily complete the proposed construction or to provide authorized time extensions, the Director of Engineering or his agent shall have the authority to enter into a Town Change Order (TCO) covering such amendments.

Town Change Orders (TCO's) shall become a part of the contract when executed by the Director of Engineering or his agent and an authorized representative of the Contractor.

Additional Work

Additional Work or alterations of the plans or details of construction shall be governed by NCDOT Specifications for Roads and Structures (Latest Edition) – Section 104-3

Overruns and Underruns in Contract Quantities

Overruns and Underruns in contract quantities shall be governed by NCDOT Specifications for Roads and Structures (Latest Edition) – Section 104-5

Eliminated Contract Items

Eliminated Contract Items shall be governed by NCDOT Specifications for Roads and Structures (Latest Edition)– Section 104-6

Extra Work

Extra Work Items shall be governed by NCDOT Specifications for Roads and Structures (Latest Edition) – Section 104-7

Compensation and Record Keeping

Compensation and Record Keeping for items of work in this section shall be governed by the NCDOT Specifications for Roads and Structures (Latest Edition) – Section 104-8.

The following items shall be governed by section 104-8:

1. Compensation for Additional Work or Extra work.

2. Claims for additional compensation.

3. Claims for additional compensation for suspension of work or alleged suspension of work.

Final Determination will be made by the Director of Engineering on all claims for additional compensation before payment of the final project invoice.

Claims for Time Extension

All claims for time extension shall be governed by the NCDOT Specifications for Roads and Structures (Latest Edition) – 108-10

16. <u>Conformity with Plans and Specifications:</u>

All work performed, and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the plans, or indicated in the specifications.

In the event the Director of Engineering finds the materials or the finished product in which the materials are used not within reasonably close conformity with the plans and specifications, but that reasonably acceptable work has been produced, he will then make a determination if the work is to be accepted and remain in place. If the Director of Engineering agrees that the work is to be accepted, he will have the authority to make such adjustment in Contract price as he deems warranted based upon sound engineering judgment and the final estimate will be paid accordingly.

In the event the Director of Engineering finds the materials or the finished product in which the materials are used, or the work performed are not in reasonably close conformity with the plans and specifications and have resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by the Contractor at no cost to the Town.

17. <u>Liquidated Damages and Delays:</u>

a) Liquidated Damages. If the work cannot be completed within the time stipulated in the Contract, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Town of Wake Forest, a fixed and agreed amount, as liquidated damages for each calendar day of delay, until the work is completed, the amount as set forth in the Contract and the Contractor and his sureties shall be liable to the Town of Wake Forest for the amount thereof. Liquidated Damages will not be waived during completion of the final project punchlist, unless the contract time has been extended as allowed by the contract provisions.

b) Excusable Delays. The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due to:

i. Any act or omission of the Town outside the scope of the Contract, including extra work; acts of God; unusually severe and abnormal weather conditions; acts of any other contractor in the performance of work for the Town; or other conditions, events, or circumstances beyond the control and without the fault or negligence of the Contractor, which the Contractor could not have reasonably anticipated; or

ii. Any delay of any Subcontractor occasioned by any of the causes specified in subparagraph (1) above. Provided, however, the Contractor shall provide written notice to the Director of Engineering within ten (10) days from the occurrence, condition, event, or other cause which is claimed to have delayed the completion of the work. Such notice shall state what effect, if any, such occurrence, condition, event, or other cause is claimed to have upon the time for completing the Contract work, and shall state in what respects, if any, the Contract completion deadline should be revised, and the reasons, therefore. No claim by the Contractor for an extension of time for completion shall be considered unless notice of such delay claim is given the Town in accordance with the provisions of this subparagraph.

c) No Damages for Delays. The Town shall not be obligated or liable to the Contractor for, and the Contractor hereby expressly waives any claims against the Town for, any damages, costs, or expenses of any nature occasioned by delays, work disruptions or interference, changes in work sequence, work suspension or rescheduling arising from any act or omission of the Town outside the scope of the Contract, acts of God, unusually severe and abnormal weather conditions, or other causes beyond the Contractor's control, it being understood and agreed that the Contractor's sole and exclusive remedy in the event of his inability to achieve completion by the Contract deadline due to claimed delays shall be an extension of the Contract schedule, but only if a claim for such extension is properly made in accordance with the provisions of subparagraph (b) above.

18. <u>Opening Sections of Project to Traffic</u>:

The Town of Wake Forest, at its election, may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected, and can be accepted as complying with the technical specifications; and if, in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodations for which it was intended. On such sections which are open, the Contractor shall conduct the remainder of his operations to cause the least obstruction to traffic. The Contractor shall not be relieved of his liability or responsibility, shall not receive any additional compensation due to the added cost of the work, nor shall he receive any extension of the completion date, by reason of such openings.

The Contractor shall not be responsible for any maintenance cost due directly to the use of such sections. The period of guarantee stipulated in Section 51 – Guarantee of Work, shall not begin to run until the date "of release of final inspection punch list items" for all work which the Contractor is required to construct under this Contract.

19. <u>Town's Right to Do Work:</u>

If the Contractor should neglect to prosecute the work promptly or fail to perform any provisions of the Contract, the Town, after 24 hours written notice to the Contractor, may without prejudice to any other remedy he may have, make good such deficiencies, and may deduct the cost thereof from the payment then or thereafter due the Contractor.

20. Correction of Work Before Final Payment:

Before issuing final payment, the Contractor shall promptly remove from the premises all materials condemned by the Director of Engineering as failing to conform with the Contract, whether incorporated in the work or not, and the Contractor shall promptly replace and re execute his own work in accordance with the Contract and without expense to the Town and shall bear the expense of making good all work of other Contractors destroyed or damaged by such removal or replacement.

21. Final Inspection, Clean Up and Project Final Acceptance:

a) Final Inspection

i. When the improvements contained in this Contract are fully completed, the Contractor shall notify the Director of Engineering in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice shall be given at least ten (10) days prior to the date stated for final inspection and bear the signed concurrence of the representative of the Director of Engineering having charge of the inspection. If the Director of Engineering determines that the status of the improvements is accurately represented, the Director of Engineering will make the arrangements necessary to have the final inspection on the date stated in the notice, or soon thereafter as is practicable. The Final Inspection Team will include the Director of Engineering's representatives and the Contractor. The Final Inspection Team may also include representatives of each department of the Town of Wake Forest as well as a representative of the North Carolina Department of Transportation.

ii. The Final Inspection Team, on the date agreed upon in 21.01(a), shall make a thorough visual inspection to ensure that the project is fully completed according to the plans and specifications of the Contract and that all clean-up work is complete.

iii. The Final Inspection Team, following the final inspection, shall prepare a written list of the deficient items and clean-up work that needs to be corrected before the issuance of the Final Acceptance Document.

b) Clean Up Work

Clean up work shall include removal of resurfacing materials and debris, and trash in the medians, rights of way, and driveways of the project and intersecting streets.

c) Project Final Acceptance

The Contractor, after finishing all clean-up work and correction of all deficient items, shall notify the appropriate party on the Inspection Team to make a final inspection of the project. If the Final Inspection Team, during its inspection finds that the deficient items and clean-up work have been fully completed according to the terms of this Article and the contract specifications, then the Final

Inspection Team recommends to the Director of Engineering's Representative to issue the Final Acceptance Document.

22. <u>Payments to Contractor and Retainage:</u>

a) Partial Payments

i. Partial payment will be based upon progress estimates prepared by the Director of Engineering once each month on the date established by the Director of Engineering.

ii. Monthly or partial payments made by the Town of Wake Forest to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Town of Wake Forest. Such payments shall not constitute a waiver of the right of the Town of Wake Forest to require the fulfillment of all terms of the contract and the delivery of all improvements embraced in this contract complete and satisfactory to the Town of Wake Forest in all details.

b) Retainage

Retainage will be deducted in accordance with Section 30 of the Contract documents.

c) Final Payment

i. After final inspection and acceptance by the Town of Wake Forest and Director of Engineering all work under the contract, the Contractor shall prepare his requisition for final payment which shall be the sum of the Bid Unit Prices multiplied by the quantities actually issued or this sum adjusted by approved change orders less prior payments. Final payment request must be accompanied by the Final Payment Affidavit.

ii. The Town of Wake Forest before paying the final estimate may require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment, and services to the Contractor, if the Town of Wake Forest deems the same necessary in order to protect its interest. The Town of Wake Forest, however, may, if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments so made shall in no way impair the obligations of any surety or sureties furnished under the contract.

iii. Withholding of any amount due the Town of Wake Forest as "Liquidated Damages", shall be deducted from payments due to the Contractor. The Town may withhold on account of subsequently discovered evidence, nullify whole or part of any certificate to such extent as may be necessary to project itself from loss on account of:

- Defective work not remedied.
- Claims filed or reasonable evidence indicating probable filing of claims.

- Failure of the Contractor to make payments properly to Subcontractor or for materials or labor.
- A reasonable doubt that the Contract can be completed for the balance unpaid.
- Damage to another Contractor.

When the above items have been cleared to the satisfaction of the Director of Engineering, payment shall be made for amounts withheld because of them.

23. Town's Right to Terminate Contract:

If the Contractor should be adjudged as bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to Subcontractors or for material or labor, or persistently discharged laws, ordinances or the instructions of the Director of Engineering, or otherwise be guilty of a substantial violation of any provision of the contract, then the Town, upon the certificate of the Director of Engineering that sufficient cause exists to justify such action, may without prejudice to any other right or remedy and after giving the Contractor seven days written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools, appliances, there and finish the work by whatever method it may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expense of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed the unpaid balance, the Contractor shall pay the difference to the Town. The expense incurred by the owner as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Director of Engineering.

24. Contractor's Right to Stop Work or Terminate Contract:

If the work should be stopped under an order of any Court, or other public authority, for a period of three months, through no act or fault of the Contractor or of anyone employed by him, then the Contractor may, upon seven days written notice to the Director of Engineering, stop work or terminate this contract and recover from the Town payment for all work executed and loss sustained upon any plant or materials and reasonable profit and damages.

25. Liability Insurance:

The Contractor shall maintain such insurance as will protect him from claims under workman's compensation acts and such other insurance as will protect him and the Town from any other claims for damages for property damage and personal injury, including death, which may arise from operations under this contract whether such operations be by himself, or by any subcontractor or anyone directly or indirectly employed by either of them. Certificates of insurance shall be filed with the Director of Engineering, if he so requires, and shall be subject to his approval for adequacy of protection. Policies of insurance coverage for personal liability and property damage shall be submitted.

26. Care of Work:

a) The Contractor shall be responsible for all damages to person or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Town of Wake Forest.

b) In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization is authorized to act at his discretion to prevent such threatened loss or injury and he shall so act. He shall likewise act if instructed to do so by the Town of Wake Forest. Any compensation claimed by the Contractor on account of such emergency work will be determined by the Town of Wake Forest as provided in Section 15 "CHANGES IN WORK" under GENERAL CONDITIONS.

c) The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.

d) The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements embraced in this contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Town of Wake Forest from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Town of Wake Forest may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises. Any claim for damage arising under this contract shall be made in writing to the party liable within reasonable time of the first observance of such damage.

27. <u>Safety and Accident Prevention:</u>

a) General

The Contractor shall exercise proper precautions at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work. The Contractor shall abide by all applicable safety standards and regulations contained in the Occupational Safety and Health Act, for the construction industry and any other applicable Laws.

i. All excavation and trenching work shall conform to OSHA requirements under 29 CFR Part 1926 Subpart P and any other applicable requirements.

ii. The Contractor shall have an employee who is a designated competent person as described under OSHA regulations, 29 CFR Part 1926 Subpart P. The person shall be capable of identifying existing or predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

iii. The Contractor shall provide and maintain safety equipment as outlined under OSHA 29 CFR Part 1926 Subpart P and other applicable safety provisions, which include trench

boxes, ladders, shoring, barricades, warning vests, gas monitors, meter for hazardous atmospheres and other necessary safety equipment to protect the employees and the job site.

b) Records

The Contractor shall maintain an accurate record of all cases of death, occupational diseases, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the contract. The Contractor shall promptly furnish the Town of Wake Forest with reports concerning these matters.

c) Indemnity

The Contractor shall indemnify and save harmless the Town of Wake Forest from any claims for damages resulting from personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.

29. <u>Sanitary Facilities:</u>

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workers. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Town of Wake Forest. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

30. <u>Use of Premises:</u>

a) The Contractor shall confine his equipment, storage of materials, and construction operations to the contract limits as shown on the Drawings or if no contract limits are shown, to the right of way shown and as prescribed by ordinances or permits or as may be directed by the Town of Wake Forest and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

b) The Contractor shall comply with all reasonable instructions of the Town of Wake Forest and the ordinances and codes of the Town of Wake Forest, regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

31. <u>Liens:</u>

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, shall deliver to the Town a complete release of all liens arising out of the contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all labor and materials for which a lien could be filed but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Director of Engineering, to indemnify the Town against any lien. If any lien remains unsatisfied after all payments are made, the Contractor, shall refund to the Town all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

A copy of the Affidavit is included with the Payment Bond Contract and shall be submitted with the Contractor's request for final payment.

32. Working Time Restrictions:

Intermediate Contract Time No. 1

No work on or street obstruction shall occur during the peak traffic hours of 6:30 a.m.-8:30 a.m. or 5:00 p.m.- 7:00 p.m., Monday through Friday, on the following streets.

a) Any street within the Town having a marked centerline or having marked lanes.

b) All streets with five (5) or more traffic lanes at the point of work, all streets with two (2) traffic lanes in each direction divided by a median, and all streets within the business area and district.

Work adjacent to traffic lanes may occur during these hours if proper signage and safety precautions are in effect as described in latest edition of the Manual on Uniform Traffic Control Devices.

The Contractor shall have monies withheld due to public inconvenience, obstruction and delay to traffic, safety, and other considerations, for any work performed on time restricted streets during 7:00 a.m. to 9:00 a.m. or 4:00 p.m. to 6:00 p.m., Monday-Friday at the rate of $500.00 for every 15 minutes of violation or fraction thereof.

All town noise ordinances shall be observed, and Contractors are required to satisfy Town's ordinances Article III, Section 14-70.

No traffic lane closure (through or turn lane) shall occur on Red Alert Days. Red Alert Days are determined by North Carolina Ozone Forecast Center, Division of Air Quality.

The Contractor shall notify the Director of Engineering 72 hours in advance of any work scheduled on weekends.

No work on or street obstruction shall occur near heavy traffic generating venues during events such as, but not limited to amphitheaters, churches (Sunday), stadiums, etc. as directed by the Town. Such events shall include, but are not limited to, concerts, road races, parades, festivals, etc.

Intermediate Contract Time No.2

Night work shall be performed between the hours of 7:00 p.m. to 6:00 a.m. unless otherwise specified. Night shift work pay quantities shall be recorded on the day the shift begins. Patching, milling, and resurfacing operations shall be performed at night on the following streets:----------.

At the Town's election, concrete work, and utility adjustments may be allowed during daytime operations on the above maps. At no time will final milling and paving be allowed during daytime hours.

Message Boards will be required three (3) days in advance of work beginning for traffic notification.

The Contractor shall have monies withheld due to public inconvenience, obstruction and delay to traffic, safety, and other considerations, for any work performed on night work restricted streets during 6:00 a.m. until 7:00p.m. Monday-Friday at the rate of $500.00 for every 15 minutes of violation or fraction thereof.

Intermediate Contract Time No. 3

Streets within school zones shall be resurfaced when schools are not in session. All other work may be performed during hours which do not impact school vehicular and pedestrian traffic.

The last day of school on the traditional calendar is June 12, 2024 and the first day is August 28, 2024.

The Contractor shall have monies withheld due to public inconvenience, obstruction and delay to traffic, safety, and other considerations, for any work performed on these streets during times that impact school traffic at a rate of $500.00 for every 15 minutes of violation or fraction thereof.

34. Holiday Time Restrictions

The Contractor shall not narrow or close a lane of traffic on any road, detain and /or alter the traffic flow, and/or perform any work on or during holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules without first obtaining approval from the Town of Wake Forest project representative:

a) For unexpected occurrence that creates unusually high traffic volumes, as directed by the Engineer.

b) For New Year's Day, between the hours of 6:00 P.M. December 31st and 7:00 A.M. January 2nd. If New Year's Day is on a Friday, Saturday, Sunday, or Monday, then until 7:00 A.M. the following Tuesday.

c) For Easter, between the hours of 6:00 P.M. Thursday and 7:00 A.M. Monday.

d) For Memorial Day, between the hours of 6:00 P.M. Friday and 7:00 A.M. Tuesday.

e) For Independence Day, between the hours of 6:00 P.M. the day before Independence Day and 7:00 A.M. the day after Independence Day. If Independence Day is on a Friday, Saturday, Sunday, or Monday, then between the hours of 6:00 P.M. the Thursday before Independence Day and 7:00 A.M. the Tuesday after Independence Day.

f) For Labor Day, between the hours of 6:00 P.M. Friday and 7:00 A.M. Tuesday.

g) For Veteran’s Day, between the hours of 6:00 PM November 10th and 7:00 AM November 12th.

h) For Thanksgiving Day, between the hours of 6:00 P.M. Tuesday and 7:00 A.M. Monday.

i) For Christmas, between the hours of 6:00 P.M. the Friday before the week of Christmas Day and 7:00 A.M. the following Tuesday after the week of Christmas Day.

Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures are not required during these periods, unless otherwise directed by the Engineer.

The time of availability for this intermediate contract work shall be the time the Contractor begins to install all traffic control devices for lane closures according to the time restrictions listed herein.

The completion time for this intermediate contract work shall be the time the Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated herein and place traffic in the existing traffic pattern.

The Contractor shall have monies withheld due to public inconvenience, obstruction and delay to traffic, safety, and other considerations, for any work performed during Holiday Time Restrictions at the rate of $500.00 for every 15 minutes of violation or fraction thereof.

35. Assignment:

Neither party to the contract shall assign the contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any monies due or to become due to him hereunder, without previous written consent of the Board of Commissioners of the Town of Wake Forest.

36. Citizen Notification:

The contractor shall be responsible for notifying, in writing, all property owners/residents directly affected by this project just prior to beginning construction. A copy of this notification shall be submitted and approved by the Director of Engineering or his duly appointed representative prior to its issuance to the residents. This also includes all businesses whether owned, leased or rented by the property owner of record.

Notices are to be mailed and delivered. Hand delivered notices shall be door-hanger type printed on card stock.

The contractor shall distribute Notice of Schedule to resurface Notice of Work a minimum of 1-MONTH in advance of when resurfacing is planned. Notice of Schedule sent to residents should consist of no more streets than the streets proposed for resurfacing for a 1-week period.

The contractor shall distribute Notice of Work and signs to be performed a minimum of 72-HOURS but no more than 2-WEEKS prior to performing such work. In the event resurfacing is scheduled for a weekend or holiday, the Notice of Work and signs shall be distributed a minimum of 72-HOURS but no more than 120-HOURS prior to the resurfacing.

The contractor shall post "Temporary No Parking" signs at least 3 feet above ground in conspicuous places facing traffic a minimum of 72-HOURS prior to actual resurfacing with a maximum spacing of 100 ft. required. A closer spacing may be required as directed by the Town of Wake Forest. Parking shall not be restricted for more than 7 days unless approved by the Town. The expected date and duration of resurfacing shall be posted on the "Temporary No Parking" sign. The duration for temporarily prohibiting parking shall not exceed 7 days. It shall be the contractor's responsibility to update the "Temporary No Parking" signs and work dates with any changes to the project schedule. Updates to the signs must be documented. Pictures with time stamps are the preferred documentation. Other forms of documentation need approval from the Town's engineer. It is the contractor's responsibility to keep this record and provide it if requested. The cost of towing and vehicle storage will be the responsibility of the contractor if proof of posted signs and notices cannot be provided.

The time of day that "Temporary No Parking" signs and Notices of Work are posted should be recorded along with the license numbers of cars parked on the street at that time and a copy made

available for the Director of Engineering and the POLICE DEPARTMENT if towing is necessary. The document is to be electronic and searchable.

If towing is necessary, the Town Manager or his designee will make the final decision if the vehicles are to be towed. The time and location in which the "Temporary No Parking" signs were posted, and the Notices of Work were distributed will be a considering factor for the towing of vehicles.

On the day of actual work, any towing necessary shall be the responsibility of the Contractor, in accordance with Town of Wake Forest Codes, Section 30-3 and Section 30-53, and Section 30-164. Police contact number is 919-554-6150.

Special permission may be required by agencies performing work within the street right-of-way under the following conditions. This permit may be required when:

(a) When the traveled portion of the roadway is obstructed between the hours of 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. if the street involved is marked with either painted center lines or lane lines.

(b) Any street which is totally closed to through traffic.

(c) Any streets within the business area.

contractor shall notify the Town during distribution of citizen notifications if the street meets the above criteria. Any needed permits shall be coordinated through the Engineering Department in advance. The Director of Engineering has the authority to approve or deny issuance of any permit.

37. <u>Separate Contracts:</u>

The Town reserves the right to let other contracts in connection with this work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his work with others.

38. <u>Subcontracted Work and Subcontractors:</u>

a) The Contractor shall, as soon as practicable after the signing of the contract, notify the Director of Engineering in writing of the names of subcontractors proposed for the work and shall not employ any subcontractors that the Director of Engineering may within a reasonable time object to as incompetent or unfit. The Contractor agrees that he is as fully responsible to the Town for the acts and omissions of his subcontractor and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relation between any subcontractor and the Town.

b) The Contractor shall obtain approval of subcontractors as well as any change in subcontractors during the work on the contract from the Director of Engineering. A period of seven (7) days minimum is required for the approval of a subcontractor.

39. <u>Points and Instructions:</u>

The Contractor shall provide reasonable and necessary opportunities and facilities for setting points and making measurements. He shall not proceed until he has made timely demand upon the Director of Engineering for, and has received from him, such points and instructions as may be

necessary as the work progresses. The work shall be done in strict conformity with such points and instructions.

The Contractor shall carefully preserve benchmarks, reference points and stakes, and in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

40. Status of Director of Engineering:

The Director of Engineering shall have general supervision and direction of the work. He has authority to stop the work wherever such stoppage may be necessary to insure proper execution of the contract. He shall also have authority to reject all work and materials which do not conform to the contract, to direct the application of force to any portion of the work, as in his judgment is required, and to order the force increased or diminished, and to decide questions which arise in the execution of the work.

41. Director of Engineering's Decision:

The Director of Engineering shall, within a reasonable time after their presentation to him, make decisions in writing on all claims of the Town or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents. All such decisions of the Director of Engineering shall be final.

42. Lands for Work:

The Town shall provide the lands upon which the work under this contract is to be done, except that the Contractor shall provide land required for the erection of temporary construction facilities and storage of his materials, together with right of access to same.

43. Cleaning Up:

The Contractor shall, as directed by the Director of Engineering, remove from the Town's property and from all other public and private property, at his own expense, all temporary structures, rubbish, and waste materials resulting from his own operations.

44. Access to Property:

The Contractor shall, where necessary, provide and maintain access to and from all properties along the line of his work.

45. Safeguards:

The Contractor shall provide, erect, and maintain adequate barricades, warning signs, and lights at all excavations, closures, detours, and points of danger.

46. Survey Construction Stakes:

a) The Town shall furnish all surveys unless otherwise specified.

b) The Director of Engineering will set sufficient points to establish alignment and grade. The Contractor shall be responsible for preserving all stakes and marks.

47. Materials Sampling and Testing:

All tests of material shall be made by a recognized and approved testing laboratory designated by the Director of Engineering. The expense of such tests shall be borne by the Town unless otherwise specified.

The Engineer shall have the option to reject request for testing due to the Contractor's inadequate preparation of material or other reasonable causes determined by the Engineer as necessary for the delay of testing. The Contractor shall notify the Director of Engineering 48 hours ahead of time for the needed test.

48. Tools, Plant and Equipment:

If at any time before the commencement or during the work, tools, plant, or equipment appear to the Director of Engineering to be insufficient, inefficient, or inappropriate to secure the quality of the work required or the proper rate of progress, the Director of Engineering may order the Contractor to increase their efficiency, to improve their character, to augment their number, or to substitute new tools, plant or equipment as the case may be, and the Contractor must conform to such order; but the failure of the Director of Engineering to give such an order shall not relieve the Contractor to secure the quality of work and the rate of progress necessary to complete the work within the time required.

49. Measurement of Quantities:

The quantities of work performed will be computed by the Director of Engineering on the basis of measurements taken by him or his assistants, and these measurements shall be final and binding. The specifications shall designate the manner in which the measurements of the various types of work shall be measured.

50. Working Day Defined:

A day shall be counted as a working day in the opinion of the Director of Engineering, whether conditions would permit the Contractor to do six (6) hours of work within daylight hours. Days of delay due to acts of GOD, strikes, court orders, and things of like nature causing delay of the work shall not be counted a working day. The Director of Engineering shall keep a daily record of working conditions and when requested to do so, he/she shall furnish the Contractor within a reasonable time the number of working days that have elapsed.

Unless crews are on site prior to 1:00 p.m. of any workday, the Director of Engineering has the right to refuse any work that the Contractor may do. To start work after 1:00 p.m. on a workday, the Contractor must have prior permission from the Director of Engineering. Should this occur, it will be counted as a working day that the Contractor should have worked. It will not be counted as a day of delay. When work is to resume, one (1) day prior notice must be given to the Director of Engineering. That work will begin the next There are specific streets that need to be paved on weekends (Saturday and Sunday). Where possible, streets that can be identified, will be marked, streets not marked on Contract, as weekend work, may be added by the Transportation Director. Advance notice must be given to Contractor, and a date mutually set to pave on that weekend.

51. Project Time Defined:

Project time shall consist of all calendar days, including weekends and holidays, from the contract notice to proceed date through the specified number of days allowed for the completion of the project in the contract document. The Contractor has been given a project time inclusive of an

anticipated amount of bad weather, be it due to the winter months or abnormal rainfall during the remainder of the calendar year.

52. Guarantee of Work:

The Contractor shall guarantee his work performed under his contract against failures or trouble due to faulty workmanship or materials for a period of twelve (12) months from the date of acceptance of the work.

53. Force Account Work:

Force account work shall be performed when pricing associated with changes in work in Item 15 cannot be agreed upon by the Town and Contractor.

No work shall begin without the express approval of the Director of Engineering or his authorized agent.

All information shall be submitted and approved along with recordkeeping performed in accordance with the North Carolina Department of Transportation Standard Specifications Article 109-3.

54. Disposal of Waste Materials from Street and any Other Types of Construction:

Disposal of all waste material from construction sites shall be made in strict accordance with all Town ordinances pertaining to disposal of construction waste. It shall be the responsibility of the Contractor to secure the necessary permits and provide all information required to secure said permits. The Contractor shall designate the disposal site prior to beginning construction and in the event waste material is to be disposed of on private property a letter from the property owner shall be furnished the Director of Engineering granting the Contractor or his agent such permission and listing the requirements made by the property owner or the Contractor, if any.

55. Contractor License:

All invited bidders and contractors shall be advised that those who submit formal bids on this project must be licensed in the State of North Carolina whether he (they) is/are a resident or nonresident of this State, in accordance with GS 87 10 and shall be advised that they must show evidence of a license issued by the North Carolina Licensing Board for General Contractors before the bid is considered. The bidders are advised that Article 37 Subcontractors, of the General Conditions shall be strictly adhered to during the term of this contract.

56. Emergency Work Crew:

The Contractor and/or the Contractor's subcontractors shall provide an emergency repair crew with adequate trucks and other equipment available when needed to make repairs, clean up, signing and other work required in connection with this contract. This repair crew shall be on call during non-working hours and during weekends and holidays. The name, address, and phone number of at least two responsible members of this crew shall be provided the Director of Engineering or his representatives prior to beginning any work. The members of this crew shall be based, reside, live, or stay in Wake County during the periods that they are on call. Should this "emergency" crew be unavailable for any reason when needed, the Town shall have the right have the required work performed by the quickest means available and the Contractor shall be back charged at a rate of two (2) times the total cost to the Town.

57. Construction Water:

a) Contractors are responsible for securing adequate construction water for their job sites.

b) All construction water usage must be metered and will be billed to the Contractor. The Contractor must contact the Public Utilities Department, Meter Services Division (919-250-2737) to make the applicable arrangements for billing the water usage. The Contractor may provide his own meter or if available upon advance notice to the Public Utilities Department, a number changed to meter will be provided. If the Contractor provides his own meter it must meet City of Raleigh standards for the meter and include a backflow device.

c) Construction water for all Town contract projects shall be billed by the City of Raleigh, Public Utilities Department.

d) Contractors must furnish the following information for water usage.

   i. Meter location and project name.

   ii. Address where applicable and responsible party name.

   iii. Duration of use and frequency of meter reading.

e) Contractors observed using unmetered water will be fined by the City of Raleigh, Public Utilities Department in accordance with City of Raleigh Code provisions.

f) Contractors are to reference the Public Utilities Handbook, Part 10, entitled Construction Specifications for Water and Sewer Mains, for additional regulations applicable to construction water usage.

58. Dust Control:

The Contractor shall, as directed by the Director of Engineering provide adequate equipment and use other available means to control the dust during the term of this contract. Failure on the part of the Contractor to correct dust control problems as directed will result in the Director of Engineering notifying the Contractor to comply with the contract provisions. In the event that the Contractor fails to begin such remedial action within 24 hours after receipt of such notice, the Director of Engineering may proceed to have the work performed with other forces. The actual cost of the work so performed along with a 20% administrative fee will be deducted from monies due to the Contractor on his contract. Under adverse conditions, the Director of Engineering may choose to suspend the Contractor's operations on the project until all dust control problems have been completed to his satisfaction. Such suspension will not justify an extension of contract time.

59. Traffic Control:

All traffic control shall be performed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) and NCDOT Standard Drawings.

The contractor shall provide all traffic control devices and signs including Portable Changeable Message Signs (PCMS) in accordance with MUTCD to warn the traveling public. PCMS are required on all streets with four (4) or more marked lanes. PCMS shall be installed at least three (3) days in advance of work and maintained throughout the duration of the work.

Two-way traffic shall be maintained at all times unless otherwise approved by the traffic control plan. Total road closures shall not be allowed.

Any work performed without traffic control per MUTCD, will not be paid for by the Owner.

60. <u>Clearing Tree Limbs and Vegetation:</u>

It shall be the responsibility of the Contractor to remove vegetation and tree limbs less than 6" diameter from the street right-of-way that present an obstruction to performing street maintenance on the streets listed in the Contract. No separate payment will be made for clearing tree limbs and vegetation as such work will be incidental to resurfacing.

The Contractor shall notify the Town at least 30 days in advance of the scheduled work of any tree limbs 6" diameter or greater for the Town to have removed.

The Contractor shall notify the Town at least 30 days in advance of the scheduled work of any shrubs or ornamental trees on private property that overhang into the right-of-way and present an obstruction. The Town will arrange for the obstruction to be removed.

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STANDARD GENERAL PROVISIONS

All construction shall conform to pertinent OSHA requirements, City of Raleigh Standards and Specifications, Town of Wake Forest Standards and Specifications, and NCDOT Standard Specifications for Roads and Structures. Editions in effect at the time of the bid date shall govern.

1. Construction Progress Schedule and Bi-Weekly Meetings

The Contractor shall provide, at the pre-construction conference, a completed Town of Wake Forest progress schedule. The schedule shall be kept up to date and presented with each month's billing information and shall be made available at the bi-weekly progress meetings and at other times as may be deemed necessary by the Director of Engineering or his representative. The Contractor will be represented at bi-weekly progress meetings during the construction of this project. The meetings will be held at the project site or in the Town offices as determined by the Town.

2. Contract Completion and Progress Schedule Liquidated Damages

1) If this Contract is awarded, the bidder must, upon completion of this Contract, or at any other time requested, furnish to the Town of Wake Forest an accurate itemized statement of North Carolina Sales Tax paid on materials, supplies, equipment, and any other items charged to this Contract, and otherwise fully comply with the "Procedure for Reporting North Carolina Sales Tax Expenditures", attached.

2) The bidder further agrees to begin work within 10 calendar days from date of Contract Notice to Proceed.

3) The bidder represents and agrees to complete resurfacing work by September 30, 2024, and all other work by October 15, 2024.

Failure to complete the work within the contract time will result in damages due to public inconvenience, obstruction and delay to traffic, safety, and other considerations. For each consecutive calendar day in excess of the contract time specified, the Contractor shall pay, or have withheld monies due, a sum of ONE THOUSAND DOLLARS ($1,000.00) per day.

3. Unit Bid Price

The unit bid price on the items in this contract shall include all materials, labor, equipment, and incidentals necessary to satisfactorily install said items completely in place and accepted unless otherwise mentioned in this contract document.

4. Point of Contact

The Contractor upon start of construction shall provide the Engineer with names, addresses, and telephone numbers of two people to be contacted after office hours in case of emergency.

5. Material Tickets

The Contractor shall turn in all material tickets for the purpose of payment to the Project Inspector on a daily basis.

6. Trenches

All trenches shall be backfilled and made safe at the end of each workday. Payment for installation of utility and drainage lines that requires open cut to existing pavement shall include the cost of pavement for repairs (including pavement saw cut and removal) as incidental to the installation of the utility. No separate payment will be made for this work unless otherwise specifically mentioned in this contract.

7. Subsurface Investigation

The Contractor shall make his/her own subsurface investigations. Any information obtained by the Town as a result of its own subsurface investigations will be made available upon request. This information is provided for informational purposes only and shall not relieve the Contractor of responsibility for making his own investigations.

8. Grading, Shoulders and Slopes

Shoulders and slopes shall be free of all stone and clods that exceed one inch in diameter. Fine grading (raking) shall take place just before seeding and mulching. No separate payment will be made for shoulder construction or material for shoulder construction as all work necessary to complete the work will be considered incidental to other items in the contract unless otherwise provided in the contract.

9. Traffic Control

The Contractor shall provide all traffic control devices and signs to warn the traveling public in accordance with the latest Manual on Uniform Traffic Control Devices (MUTCD) and NCDOT Standard Drawings. Two-way traffic shall be maintained at all times, unless otherwise required by the traffic control plan.

10. Materials and Equipment Storage and Parking

When vehicles, equipment, and materials are not being actively used they shall be moved at least 30 feet away from the edge of any travel way open to traffic (or as directed by the Engineer). All debris shall be immediately moved to a location at least 30 feet from the edge of any travel way open to traffic. If vehicles, equipment, materials, and debris are protected by guardrail or barrier, a 5-foot minimum offset from the rail shall be used.

11. Personnel Parking

All personnel involved with construction operations shall not park their personal vehicles within the right of way of the project limits for the duration of the construction project. The Contractor shall furnish a parking area that is located off the project limits. The Contractor shall be responsible for daily transportation of all employees to and from the provided parking area and the project site.

There will be no direct payment for the work cover by this provision. Payment at the contract unit prices for the various items in the contract will be full compensation for all work covered by this provision.

12. Sidewalk, Driveway, Curb & Gutter Removal and Replacement

Care should be taken during construction to avoid damaging the existing sidewalk, curb & gutter, and pavement outside the immediate construction area. If damaged, it shall be replaced in accordance with the NCDOT Standard Specifications for Roads and Structures, Town of Wake Forest Standards, as determined by the Engineer, without extra cost to the Town. Prior to construction, the Contractor shall inspect the site and report to the Engineer any damages existing before construction.

The Contractor shall be advised that when a portion of any area of concrete driveways, curb and gutter and pavement must be removed, all areas to be removed shall be defined by a machine-sawed joint, prior to

removal. Saw cut of concrete driveway, curb & gutter and pavement are considered incidental to removal unless otherwise provided in the contract.

13. Maintenance of Mailboxes, Signs, Miscellaneous Appurtenances

The Contractor shall be required to maintain mailboxes, signs and all miscellaneous appurtenances impacted by construction activities in working order for the duration of construction as directed by the Engineer. Work on the same items shall be done in a timely manner. No separate payment for work on these items will be made as the work will be considered incidental to other items in the contract unless otherwise mentioned in the contract document.

14. Project Completion

When the project is nearing completion, the Town will obtain comments from the impacted property owners concerning items that are outstanding, yet to be completed. The Engineer will determine which items have sufficient justification to be included in the final punch-list, and the Contractor will be required to complete these items with no additional payment and in a timely fashion.

15. Videotape of Project Site

The Contractor will videotape the project site in its entirety before construction begins, with emphasis on properties adjoining the project, drives, trees, appurtenances, and other distinguishing features. Appropriate narration will include location and description of property and physical features. The Contractor will provide two copies of the project tape in USB or Electronic format to the Town. No separate payment will be made for this work, and all associated costs will be considered incidental to other items in the contract.

16. Coordination with Utility Companies

(See Article 13 of General Conditions)

Utilities as shown on the plans are intended to represent general locations only. It shall be the responsibility of the Contractor, prior to construction, to contact appropriate utility owners and precisely locate utilities that could be affected by the proposed construction. If the utility belongs to the Town of Wake Forest or the City of Raleigh, the Contractor shall dig sample holes to uncover the utility. The digging of sample holes shall be coordinated with the Engineer who will determine the number of such holes and will schedule the Town of Wake Forest or the City of Raleigh to locate utility vertical and horizontal locations. There is no line item to pay for digging work. Work is considered incidental to other pay items.

The Contractor shall be responsible for repair of any damage to the utility as well as any other damage may be caused due to the disturbance of the utility. The Contractor will not be permitted to submit any claims for delays caused by utility relocation and proposed utility construction.

The Town has coordinated designs of utility relocation with private utility owner representatives. Existing utility, design and conflict resolution plans are included as a part of the contract.

The Contractor shall be responsible for coordinating concurrent construction directly with utility owner representatives. Coordination efforts and concurrent construction conflicts will be addressed and discussed during the pre-construction meeting. The Town, at the time of pre-construction conference, will provide names, addresses and telephone numbers of private utility owner representatives.

All underground utilities may not have been identified. The Contractor shall call North Carolina One Call to identify underground utilities before starting any digging and/or excavation operation.

The Contractor shall be responsible for field verifying heights and locations of power lines and will be required to maintain the distance from the power lines in accordance with local, State and Federal Safety regulations.

17. <u>Protection of Existing Plants</u>

The work under this item shall consist of the protection of selected trees, shrubs, or other woody plants.

The plants protective fencing shall meet the requirements of Town of Wake Forest. Fencing shall encompass the plants to the dripline. Deviations from this must be approved by the Engineer.

Plant protective fencing shall be installed prior to beginning any construction on this project. Plant protective fencing shall be constructed at the locations as directed by the Engineer and in accordance with Town specification. The fencing shall be maintained in place until all construction operations in that particular area are complete. At completion, only light grading equipment such as small agricultural tractors shall be allowed on the plants' roots. Fill dirt no deeper than two inches shall be allowed under the limb spread of any plant.

No building materials, dirt, or equipment shall be stored inside the protective fencing. Plants that die as a result of the Contractor's negligence shall be removed and replaced as directed by the Engineer at the Contractor's expenses. The new plant shall be guaranteed for a year, planted in the proper season, and planted with approved arboricultural specifications.

The Contractor will be required to cooperate with other contractors, utility companies and others needing access to the project site as (approved by the engineer) to complete the work.

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PROJECT SPECIAL PROVISIONS

SECTION 1: MOBILIZATION

Description

This work consists of preparatory work and operations to mobilize personnel, materials, and equipment to the project site.

Measurement and Payment

Mobilization will be paid as the contract lump sum price when the Contractor initially mobilizes. Contractor may elect to either draw fractions of the lump sum throughout project or the whole lump sum once.

SECTION 2: RESURFACING

Trackless Tack

Description

Trackless tack shall be used as the tack coat material. In the event that trackless tack is unavailable, standard tack coat material that meets NCDOT Standard Specifications shall be used. Standard tack material shall be incidental to the asphalt surface course. Asphalt tack coat shall be in accordance with the latest version of NCDOT Standard Specifications for Roads and Structures section 605. There will be no direct payment for work covered by this section. Payment at the contract unit prices for the various mix items covered by section 610, 650 and 654 will be full compensation for all work covered by this section.

Weather Limitations

Apply tack coat material to existing asphalt or concrete surfaces in accordance with NCDOT Specifications. Apply tack coat only when the surface to be treated is sufficiently dry and when the atmospheric temperature in the shade away from artificial heat is 35 degrees F or above. Do not apply tack coat when the weather is foggy or rainy.

Surface Preparation

Ensure that the existing asphalt or concrete surface is free of all dust and foreign material before applying the tack coat. Remove grass, dirt, and other materials from the edge of the existing pavement before the placement of tack coat.

Application Rates and Temperatures

Apply tack coat uniformly across existing surface at target application rates shown in Table 605-1.

TABLE 605-1 APPLICATION RATES FOR TACK COAT	
Existing Surface	**Target Rate (gal/sy)** **Emulsified Asphalt**
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport, or at application.

TABLE 605-2 APPLICATION TEMPERATURE FOR TACK COAT	
Asphalt Material	**Temperature Range**
Asphalt Binder, Grade PG 58-28 or PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Application of Tack Coat

If public traffic is being maintained, cover the tack coat in the same day's operation. Provide safe traffic conditions. If needed, apply suitable granular material so it bonds to the tack coat. In addition, the Engineer may limit the application of tack coat in advance of the paving operation depending on traffic conditions, project location, proximity to business or residential areas or other reasons.

Take necessary precautions to limit the tracking or accumulation of tack coat on either existing or newly constructed pavements. Excessive accumulation of tack coat requires corrective measures.

Apply tack coat with a distributor spray bar that can be adjusted to uniformly coat the entire surface at the directed rate. Use a hand hose attachment only on irregular areas and areas inaccessible to the spray bar. Cover these areas uniformly and completely.

Apply tack coat as directed by and in the presence of the Engineer. Do not place any asphalt mixture until the tack coat has sufficiently cured.

Apply tack coat to all exposed transverse and longitudinal edges of each course before mixture is placed adjacent to such surfaces. Apply tack coat to contact surfaces of headers, curbs, gutters, manholes and vertical faces of old pavements.

Sand, screenings, or other environmentally safe products may be required to prevent tracking the tack coat onto adjacent streets, when directed by the Director of Engineering. The sand screenings shall be minimum

length in order for a haul truck tire to make one full rotation and remain in contact with the screenings. The width shall be the same as the existing roadway. The Contractor shall remove screening materials placed to eliminate tracking upon completion of paving operations each day.

Tack coat material will not be tolerated on the exposed face of curb and gutters. If this occurs, the tack shall be removed as soon as practicable. Special attention shall be utilized while paving in areas with existing granite curb and gutter.

Asphalt Concrete Plant Mix Pavements

Description

Perform the work covered by this section including, but not limited to, the construction of one or more courses of asphalt mixture placed on a prepared surface in accordance with these Specifications and in reasonably close conformity with the lines, grades, thickness and typical sections shown on the plans. This work includes producing, weighing, transporting, placing and compacting the plant mix; furnishing aggregate, asphalt binder, anti-strip additive and all other materials for the plant mix; furnishing scales; maintaining the course until final acceptance of the project; making any repairs or corrections to the course that may become necessary; providing and conducting QC as specified in Section 609 of the NCDOT; and surface testing of the completed pavement.

Perform all activities in accordance with the NCDOT Asphalt Quality Management System (QMS) Manual in effect on the date of contract advertisement.

Asphalt Concrete Surface Course Type S9.5B or S9.5C, as directed by the Engineer, shall be used. It shall be in accordance with Section 610 of the NCDOT Standard Specifications for Roads and Structures.

Asphalt Leveling Course

Asphalt paving consisting of a leveling course may be required on specific streets. This shall be performed as determined by the Director of Engineering and at the same unit price as noted in the Contract. In the event a leveling course is required, this shall be performed prior to the installation of any surface treatment applications if applicable.

Mill & Fill Operations

Streets designated as Mill & Fill shall have their lanes milled, cleaned, and paved. Utility adjustments and patching, as necessary, shall be performed prior to the Mill & Fill process. Mill & Fill operations shall be performed within 1 week after patching on such streets is completed.

Cleaning Streets

It shall be the responsibility of the Contractor to thoroughly clean the street before resurfacing. Any leaves, vegetative material, and debris shall be removed from the Public Right of Way. Depositing any debris or other material behind the curb will not be permitted. If large piles of leaves of other debris exist that in the opinion of the Director of Engineering are in excess of that which is required for the Contractor to remove, they shall be removed by the Director of Engineering provided adequate notice is given for this purpose.

The Contractor shall clean each street of waste materials resulting from his own operations no more than 2 days after the final overlay is complete. Should this period of time be exceeded, all resurfacing operations shall be suspended until streets are clean.

Infrastructure Damage

The Contractor shall be responsible for repairing any damage to the Town of Wake Forest's infrastructure. This includes damage to curb & gutter and pavement. Tack will not be tolerated on the exposed face of curbs and/or gutters. If this occurs, the tack shall be removed immediately. Special attention shall be utilized while paving in areas with existing granite curbs and gutter.

Resident Notification

The Contractor's attention is directed to Article 45, SAFEGUARDS of the General Conditions. In addition to the above, it shall be the responsibility of the Contractor for notification of residents before commencement of work in accordance with the Town Code. A copy of the notification will be provided to the Contractor by the Director of Engineering.

Paving Lift Requirements and Time Limitations

For milling and paving lifts of 2.0 inches or less, bring all newly resurfaced lanes to the same station and elevation within 72 hours. If not brought up to the same station and elevation within 72 hours, the Contractor shall place portable "Uneven Pavement" signs in advance of the uneven pavement and spaced every ½ mile along the section of uneven pavement. Once mitigated, all portable "Uneven Pavement" signs shall be removed. No additional compensation will be made for these signs or any other type of portable warning signs as these are included in the Temporary Traffic Control pay item.

For milling and paving lifts greater than 2 inches, bring all newly resurfaced lanes to the same station and elevation by the end of each workday unless the Contractor utilizes the notched wedge paving methods. Longitudinal joints 2" or greater in difference of elevation shall not be permitted within a travel lane.

AC Adjustment

When it is determined that the monthly selling price of asphalt binder on the first business day of the calendar month during which the last day of the partial payment period occurs varies either upward or downward from the base price index, the contract unit price for asphalt binder for plant mix will be adjusted. The adjusted contract unit price will be determined by adding the difference between the selling price and the base price index to the contract unit bid price for asphalt binder.

The adjusted contract unit price will then be applied to the theoretical quantity of asphalt binder authorized for use in the plant mix placed during the partial payment period involved, except that where recycled plant mix is used, the adjusted unit price will be applied only to the theoretical number of tons of additional asphalt binder materials required by the Job Mixed Formula (JMF).

Adjusted contract unit prices for all grades of asphalt binder, including additional asphalt binder materials in recycled mixtures, will be based on the average selling price and base price index for asphalt binder, grade PG 64- 22, regardless of the actual grade required by the JMF.

In determining the adjusted contract unit price for any material specified in this section the following formula will be used:

$$A = B + (D - C)$$

Where:

A = Adjusted Contract Unit Price
B = Contract Unit Price
C = Base Price Index
D = Monthly Average Terminal F.O.B. Selling Price

In the event the Department is unable to secure and F.O.B. selling price from at least 4 terminals in a given month, payment will be at the contract unit price for each ton of asphalt binder used in the work during that month.

Measurement and Payment

Asphalt Concrete Surface Course, Type 9.5B and Asphalt Concrete Surface Course, Type 9.5C will be measured and paid as the actual number of tons of each type of hot mix asphalt pavement incorporated into the completed and accepted work in accordance with NCDOT Standard Specifications for Roads and Structures, Article 106-7.

Trackless Tack to be paid by the ton of Asphalt Concrete Surface Course, Type S9.5B & S9.5C placed. If standard tack is used, it shall be incidental to the placement of Asphalt Concrete Surface Course, Type S9.5B & S9.5C.

Asphalt Binder, Type PG 64-22 will be measured and paid as the theoretical number of tons required by the applicable JMF based on the actual number of tons of plant mix completed and accepted on the job.

There will be no direct payment for anti-strip additive. Payment at the contract unit prices for the various asphalt plant mix items will be full compensation for the work.

SECTION 3: UTILITY ADJUSTMENTS

Description

The work covered in this section consists of the adjustment of manholes, water valve boxes, and other utilities in the roadway. The Contractor shall complete the work in strict accordance with Town of Wake Forest Standards and Specifications, City of Raleigh Standards and Specifications, NCDOT Standard Specifications for Roads and Structures, and ACI Specifications.

Standards for Manhole and Valve Box Adjustments

Manholes in Streets

All manhole covers installed within streets, parking lots, and other paved areas shall have only one (1) one-inch hole, which shall be off center, unless seal-down manholes are required. All covers must be domestically cast and so indicated by manufacturer name and “USA” in castings. Covers shall have

"DANGER PERMIT REQUIRED – CONFINED SPACE DO NOT ENTER" cast onto the face as shown in Details W-20 and S-29.

Manhole rings and covers shall be manufactured to the dimensions shown on City of Raleigh Details S-25, W-20 and shall be made from Class 30 gray iron, meeting the requirements of ASTM A48-94ae1. Covers shall have the appropriate facility name cast onto the face as shown in Details S-25, W-20, WATER and Town of Wake Forest Stormwater Manhole Standard Details 2.60 and 2.61

All existing manholes on full-mill streets shall be removed and replaced with new manhole rings and covers. Existing manholes on all other streets that have been determined by the Director of Engineering to be damaged shall be replaced by the Contractor.

Water Valve Boxes

Adjustable water valve boxes shall be Class 35 gray cast iron and manufactured in accordance with ASTM A48 and be of the dimensions specified in Detail W-17 of these specifications. Lids shall have the word "WATER" cast into the lid. See Detail W-18. All castings must be domestically cast and so indicated by the manufacturers name and "USA" cast into all sections of the valve box. All castings must meet or exceed AASHTO H-20 load rating.

The Contractor shall provide new valve boxes and lids that are approved by the City of Raleigh Public Utilities Department. The unit rate shall include the cost of purchase and installation.

Sewer Test Station Boxes

Adjustable water valve boxes shall be Class 35 gray cast iron and manufactured in accordance with ASTM A48 and be of the dimensions specified in Detail S-20A of these specifications. Lids shall have the word "TS" cast into the lid. All castings must be domestically cast and so indicated by the manufacturers name and "USA" cast into all sections of the valve box. All castings must meet or exceed AASHTO H-20 load rating.

Adjustment of Sewer Test Stations shall be compensated as a Water Valve Box Adjustment.

Construction Methods

Adjustments on all manhole and valve boxes will not exceed a tolerance of more than ¼ inch from finished grade as measured with an 8-foot straightedge.

Manholes and valve boxes will be centered and aligned for proper access to manhole or operating nut on valves. Necessary precautions will be taken to prevent debris from falling into these structures and interfering with proper operation of said utility.

For valve boxes make a circular cut 1' from the outside edge of the valve box. Top section of each valve box shall be completely removed to allow proper tamping of materials before final adjustment is made. All material around manholes and valve boxes shall be tamped to a minimum of 95 percent compaction before the applying tack coat and placing of minimum 4-inch of new asphalt surface course. The final compaction on asphalt shall be mechanical tamping. The asphalt shall be left low enough to accommodate the final resurfacing lift.

Floor the inside of the manhole with some material to catch any debris that may fall inside the manholes during construction.

For manholes, make a circular cut 2' from the outside edge of the manhole. With pick and shovel remove the broken debris down to a depth in accordance with City of Raleigh Standard Manhole Frame and Cover Detail Within Paved Surfaces.

Remove the ring and cover and set it off to one side. Do not try to raise or adjust the manhole with the ring in place.

Mix the mortar. Mortar shall be composed of one (1) part Portland Cement (and may contain no more than 10 percent lime, based on the volume of cement) and two (2) parts clean sand. Mortar will be mixed in a clean, tight mortar box or mechanical mixer and will be used within 45 minutes after mixing. It will be a fairly stiff mixture so it can be shaped.

Starting on a solid foundation, raise the top of the manhole with a level, solid layer of mortar or mortar and bricks. If bricks are used, they must be laid solid leaving no voids or empty spaces. The final product must be a smooth, level area so that the entire width of the flange on the bottom of the manhole ring will be sitting on a solid, uniform bearing surface.

After the manhole has been properly brought up to the desired level, set the ring back in place and fill the hole around the outside of the casting for a minimum depth of 8" with 3000 PSI ready-mix concrete having no more than a 4-inch slump.

Set the concrete before the applying the tack coat and placing a minimum 2-inch layer of new asphalt surface course. The final compaction on asphalt shall be mechanical tamping. Install a reflectorized barricade equipped with a functioning flashing warning light over the utility until such time required for the concrete and asphalt to set/harden to a point where traffic will not damage the utility.

Raised utility castings shall be painted with reflectorized fluorescent paint to warn the traveling public of this condition.

Any utility raised more than one (1) inch above the existing grade shall have asphalt or NCDOT approved manhole safety ramp placed as a wedge around such utility.

All utilities that are removed for milling shall have a steel plate of sufficient thickness to support vehicle traffic placed in the bottom of the excavation. The excavation shall be backfilled with compacted hot mix asphalt. Any debris that falls into the utility shall be removed immediately.

All utility work areas shall be maintained in satisfactory condition until the final pavement layer is placed. Final paving layer shall be placed at least 72 hours after the placement of concrete around utilities.

Utility Risers

If the decision is made by the Engineer to selectively utilize NCDOT approved risers, the Contractor shall provide and install manhole and water valve box risers immediately prior to resurfacing. No cast iron risers will be allowed for the adjustment of manholes.

Raised Utilities

No manholes or valve boxes shall be raised and left for a period of time greater than 14 days before the street is resurfaced. Should this period of time be exceeded, utility adjustments shall be suspended until the resurfacing of such streets has been completed.

Utility Adjustments for Milling

The Contractor shall be required to adjust the manhole and water valve boxes prior to milling in accordance with Construction Methods.

If the decision is made by the Engineer not to adjust (lower and raise) utilities on selected streets, asphalt shall be milled and/or chipped from around existing utilities to a depth equal to the new asphalt depth.

Chipping around utilities shall only be performed by hand operated pneumatic tools or by pick and shovel. At no time shall heavy or mini track/wheel equipment be used to chip around utilities. As an alternative, small milling heads on backhoes, track loaders, or mini excavators may be used to chip the bulk of the material, with final cleanup around the utility done by hand tools.

Utilities removed for milling shall not be removed for more than 14 days. Should this period of time be exceeded, utility adjustments and milling on all other streets shall be suspended until utilities are raised on such streets.

Manhole frames and lids removed for milling and designated for reuse shall be paired together. This may be done by labeling, numbering or other means that clearly identifies the frame and lid go together. Any manhole frames and lids returned for reuse that are not labeled will be replaced with new frames and lids at the Contractor's expense.

Measurement and Payment

Manhole Adjustment (Raise Only) shall be paid by the number of manholes raised by adjustment.

Water Valve Box Adjustment (Raise Only) shall be paid by the number of water valves or test stations raised by adjustment. Payment shall include new water valve boxes and lids.

Manhole Adjustment (Lower/Raise), Manhole Adjustment Oversize (Lower/Raise) shall be paid by the number of utilities when the final raise adjustment has been completed.

Water Valve Box Adjustment (Lower/Raise) shall be paid by the number of water valves and test stations when the final raise adjustment has been completed. Payment shall include new water valve boxes and lids.

Milling / Chipping Around Utility Not Adjusted shall be paid by the number of utilities that have been left in place and milled/chipped around. Utilities on mill and fill streets shall be considered under this pay item except in cases where the utility is adjusted prior to mill and fill operations.

Provide and Install Manhole Risers and Provide and Install Water Valve Risers shall be paid by the number of utilities that have been left at existing grade and the Engineer has approved the use of NCDOT approved risers.

Provide New Manhole Frame and Cover shall be paid by the number of new manhole frames and covers typically on full mill streets and as directed by the Engineer.

SECTION 4: SIDEWALK ACCESS RAMPS, CURB AND GUTTER, AND DRIVEWAY APRON CONSTRUCTION

Description

The Contractor shall complete the work in this section in strict accordance with Town of Wake Forest Standard Details Curb Ramps and ACI Specifications. The project consists of constructing or reconstructing identified intersections with sidewalk access ramps. The location of each facility may vary due to existing

catch basins, fire hydrants, poles, or other constraints. Prior to beginning any construction, each work site shall be examined by the Contractor and the Director of Engineering, at which time the Director of Engineering will give specific direction as to the concrete removal limits and location of the new facility.

Sidewalk Access Ramps Construction

North Carolina General Statute 136-44.14 requires that all street curbs being constructed or reconstructed for maintenance procedures, traffic operations, repairs, corrections of utilities, or altered for any reason after September 1, 1973 shall provide sidewalk access ramps for the physically handicapped at all intersections where both curb and gutter and sidewalks are provided and at the other points of pedestrian flow. In accordance with the MUTCD, an accessible detour shall be provided for pedestrian traffic during construction of sidewalk and/or sidewalk access ramps.

In addition, Section 228 of the 1973 Federal Aid Highway Safety Act requires provision of curb ramps on any curb construction after July 1, 1976, whether a sidewalk is proposed initially or is planned for a future date.

The Americans with Disabilities Act (ADA) of 1990 extends to individuals with disabilities comprehensive civil rights protections similar to those provided to persons on the basis of race, sex, national origin, and religion under the civil rights act of 1964. The adopted curb ramps have been designed to comply with Title III of the ADA that became effective on January 26, 1992.

Town of Wake Forest standard curb ramps shall comply with the Americans with Disabilities Act (ADA) and Public Right of Way Access Guidelines.

Sidewalk access ramps shall be provided at locations as shown on the plans or as directed by the Director of Engineering. Sidewalk access ramps shall be located as indicated in these details; however, the location may be adjusted as directed by the Director of Engineering where existing light poles, fire hydrants, drop inlets, or other constraints affect placement.

Sidewalk access ramps shall be constructed in accordance with Town of Wake Forest Standard Details which are incorporated into the contract documents. Sidewalk access ramps shall generally be Single Type N-1A or R-1 and Double Type N-2, N-3, N-3A, or R-3 at the majority of locations. Some locations may require a shared ramp as shown in Town of Wake Forest's Standard Detail 9.13. A shared ramp shall serve both street crossings. Pay limits are identified on the details the shaded curb and gutter shall be incidental to the ramp. The detectable warning surface width may vary and is included as part of ramp pay limits. The detectable warning surface shall be yellow in color, cast-in- place and approved by the North Carolina Department of Transportation. Sidewalk removal and replacement within the pay limits shall be included in the concrete sidewalk access ramp unit rate. Sidewalk removal and replacement outside the pay limits will be paid at the appropriate contract unit rate.

The Contractor shall at no time remove any street sign without prior approval from the Director of Engineering.

Subgrade Preparation: The subgrade for sidewalks and access ramps shall be formed by excavating to the required depth, shaped to the proper cross-section, and shall be thoroughly compacted by rolling or tamping before placing any concrete.

Forms: Forms used in constructing sidewalks shall be of wood or metal, of the full depth of the concrete, straight, free from warp, and of sufficient strength, and/or of a flexible material pre-approved before construction by the Director of Engineering as to allow for narrowing, mounding, and curving of walks.

They shall be staked securely enough to resist the pressure of the concrete without springing. If of wood, they shall be of two (2) inch surfaced plank. All forms shall be subject to the approval of the Director of Engineering. All wood forms shall be thoroughly wetted, and metal forms oiled before placing concrete. All forms shall be thoroughly cleaned before re-use.

Placing Concrete: Concrete shall be NCDOT approved Class "A" concrete. No concrete shall be placed until the forms and subgrades have been approved by the Director of Engineering. The subgrade shall be thoroughly wetted, and the concrete shall be placed thereon in one course to the required depth. The concrete shall be consolidated and struck off with a template to the required grade and cross section.

Joints: Contraction joints shall be provided uniformly to separate the slab and shall be cut in a straight line to a depth equal to at least one-third (1/3) of the total slab thickness. The joint shall be not less than one-eight (1/8) inch no more than one-fourth (1/4) inch in width. Joints shall be sealed in accordance with NCDOT specifications.

Finishing: After the freshly poured concrete has been brought to at the established grade, it shall be floated to produce a surface free from irregularities. The final surface shall be obtained by troweling with a steel trowel or hand float and brushing lightly with a lightweight brush in a transverse direction so as to produce a uniform gritty surface of the proper texture. All edges and joints shall be rounded to one-fourth (1/4) of an inch.

Cold Weather Pouring: Concreting operations shall not be undertaken or continued when the surrounding air temperature is below 40°F or the local weather reports indicate the possibility of temperatures of 32°F or lower within the ensuing 24 hours unless provisions are made to insulate or heat the concrete in a manner satisfactory to the Transportation Director. In any event, the Contractor shall plan and protect his/her work in a manner which will assure satisfactory results. Any concrete damaged by freezing shall be removed and replaced by the Contractor at his/her own expense.

Concrete, when deposited in the forms, shall have a temperature of not less than 50°F or more than 90°F. The concrete shall be maintained at a temperature of not less than 50°F for a period of at least 72 hours in the case of normal concrete or 24 hours when high early cement is used. Concrete shall not be deposited on a frozen subgrade. The North Carolina Department of Transportation Standard Specifications for Roads and Structures, Latest Edition Section 420-7 "Placing Concrete in Cold Weather" (A), (B), and (C) will be strictly adhered to for this alternate, unless directed by the Transportation Director.

Hot Weather Concreting: The maximum allowable concrete temperature shall be limited to 95°F. Deliver and discharge concrete within 1-1/2 hours or before the truck-mixer has revolved 300 revolutions, whichever comes first.

Removal of Forms and Backfilling: After the concrete has set sufficiently the forms shall be removed and the spaces on both sides shall be immediately backfilled with suitable earth uniformly spread and compacted. The areas between the curb and sidewalk and immediately back of the sidewalk shall be left in a smooth, neat, and workmanlike condition. When necessary the backfill material will be sloped further to account for change in slope or grade as directed by the Director of Engineering.

Special attention shall be given in the seeding and mulching in the established areas. Lawn quality care shall be taken, and appropriate seed used to match existing lawn types on a lot per lot basis. Seeding, mulching, and seedbed preparation shall be approved by the Director of Engineering prior to acceptance and payment. Backfilling, seeding, and mulching is considered incidental to the completion of the sidewalk access ramp and as such no separate pay item is included.

Sidewalk access ramps shall be backfilled, landscaped, and completed no more than 3 days after construction. Should this period of time be exceeded, all sidewalk ramp construction shall be suspended until such ramps are completed.

Removal of Defective/Damaged Work: The Director of Engineering shall have the authority to and shall require the removal of any sidewalk laid under these specifications which does not conform to the requirements as set forth herein or existing sidewalk damaged by the Contractor. Upon notification by the Director of Engineering, the Contractor shall take immediate action to correct the faulty work, or damaged work, at the Contractor's own expense.

Construction Water:

1) Contractors are responsible for securing adequate construction water for their job sites.

2) All construction water usage must be metered and will be billed to the Contractor. The Contractor must contact the Public Utilities Department of City of Raleigh, Meter Services Division (919-996-2742) to make the applicable arrangements for billing the water usage. The Contractor may not provide his/her own meter. Upon advance notice to the Public Utilities Department, a meter equipped with a backflow device can be rented at the expense of the Contractor.

3) Construction water for all Town contract projects shall be billed by the City of Raleigh, Public Utilities Department.

4) Contractors must furnish the following information for water usage.

i. Meter location and project name.

ii. Address where applicable and responsible party name.

iii. Duration of use and frequency of meter reading.

Sidewalk and Access Ramp Removal

The Contractor shall be advised that when a portion of any area of concrete sidewalk or access ramp must be removed, all areas to be removed shall be defined by a machine sawed joint before removal. Any sidewalk or access ramp that is removed and not replaced shall be backfilled using suitable material free of large lumps, wood, or other undesirable material. Brick pavers within existing sidewalk ramp locations being reconstructed shall be retained and neatly stacked for pickup by Town of Wake Forest staff.

Disposal of all waste material from construction sites shall be made in strict accordance with all Town ordinances pertaining to disposal of construction waste. It shall be the responsibility of the Contractor to secure the necessary permits and provide all information required to secure said permits. The Contractor shall designate the disposal site prior to beginning construction, and in the event waste material is to be disposed of on private property, a letter from the property owner shall be furnished to the Director of Engineering granting the Contractor or their agent such permission and listing the requirements made by the property owner or the Contractor, if any.

The Contractor shall not use the right-of-way for storage of equipment or materials, etc.

Curb and Gutter Construction

Curb and gutter shall be constructed in accordance with Town of Wake Forest Standard Details for Curb Ramps and Curb and Gutter Standard Detail 9.13. Curb and gutter removal and replacement in areas other than access ramps shall be of the same type as adjacent curb and gutter.

Payment for this item shall include removal, disposal and replacement of new curb and gutter in accordance with the specified slopes, dimensions, etc.

Curb depressions for sidewalk access ramps may be accomplished, when applicable, by the use of a machine sawed cut, utilizing equipment which has been specifically designed for this purpose and approved by the Director of Engineering. A smooth transition shall be provided between the gutter section and the curb section. All sharp edges, which were created by the cutting operations, shall be beveled. Grinding if required shall be utilized to accomplish these items. Concrete debris shall be immediately removed from the job site. If any asphalt patching is needed due to damage during construction, the Contractor shall be responsible for repair of these items using hot plant mixed asphalt. If pavement patching is necessary, it shall be incidental to the work and not a pay item.

Subcontractors

The Contractors (bidders) are advised that Subcontractors will be limited to a maximum of 50 percent (50%) of this contract. The successful bidder shall abide by the requirements set forth in Article 37 Subcontractors of the General Conditions.

Traffic Control

In addition to items set forth in the General Conditions, Articles 44 and 59, the Contractor shall provide adequate reflectorized barrels, barricades and traffic cones as directed by the Director of Engineering, to protect the traveling public as well as pedestrian traffic. In addition, the Contractor shall utilize Sidewalk Closed signs at every location in which the construction activity may interfere with pedestrian traffic. Sidewalk detour signs shall be placed at designated crosswalk locations.

Granite Curb

The Contractor shall reshape the granite curb, in place, to the grade required by the detail drawings. This work will involve sawing, and or grinding to achieve the desired grade and a texture consistent with the original granite curb.

Driveway Apron Construction

Driveway aprons shall be constructed in accordance with Town of Wake Forest Standard Details for Driveway and Sidewalk Standard Detail 9.08, 9.11, 9.12, and 9.13. Driveway aprons shall match existing widths, joints, and grades to provide for positive drainage towards stormwater drainage basins.

Measurement and Payment

Sidewalk Removal will be measured and paid in square yards, measured along the surface of the actual sidewalk removed. Such price includes, but is not limited to, sawing the existing sidewalk, excavating, removal, disposal, backfilling, seeding, and mulching.

4” Sidewalk Replacement will be measured and paid in square yards, measured along the surface of the completed and accepted work. Such price includes, but is not limited to, forming, furnishing, and placing concrete, finishing, constructing, and sealing joints, backfilling, seeding, and mulching.

6” Sidewalk Replacement will be measured and paid in square yards, measured along the surface of the completed and accepted work. Such price includes, but is not limited to, forming, furnishing, and placing concrete, finishing, constructing, and sealing joints, backfilling, seeding, and mulching.

Sawcut and Removal of Concrete Curb will be measured and paid in linear feet, measured along the surface of the top of the concrete curb. Such price includes sawing the existing curb, removal of debris, and beveling or grinding sharp edges.

Sawcut and Removal of Granite Curb will be measured and paid in linear feet, measured along the surface of the top of the granite curb. Such price includes sawing the existing curb, removal of debris, and beveling or grinding sharp edges.

Curb and Gutter Removal/Replacement will be measured and paid in linear feet, accepted in place. Measurement will be made along the surface of the top of the curb. Such price includes sawing the existing curb and gutter, removal of debris, forming, furnishing, and placing concrete, finishing, constructing, and sealing joints, backfilling, seeding, and mulching.

Concrete Sidewalk Access Ramps will be measured and paid in units of each. Ramps shall be constructed in accordance with the Standard Details. Pay limits are identified on the Standard Details and in Provision 2 of this Section. Curb and gutter removal/replacement within the ramp pay limits shall be incidental to the ramp construction. Single ramps shall be paid as 1-unit, double ramps as 2 units, and shared ramps as 2 units. Such price includes, but is not limited to, sawing the existing sidewalk or driveway, removal, and disposal of sidewalk, excavating, forming, furnishing, and placing concrete, constructing, and sealing joints, backfilling, seeding, and mulching. Furnishing and installing the detectable warning surface shall be included as part of the ramp.

6” Concrete Driveway (Remove and Replace) will be measured and paid as the actual number of each driveway apron removed and replaced. No additional payment will be made for curb and gutter removal and replacement within the apron radii.

SECTION 5: MILLING / PAVEMENT REHABILITATION

Description

Perform the work covered by this section including, but not limited to, milling and re-milling the pavement at locations, depths, widths and typical sections indicated in the contract; cleaning the milled surface; loading, hauling and stockpiling the milled material for use in recycled asphalt mixtures; and disposal of any excess milled material in areas provided by the Contractor in accordance with Town Ordinances pertaining to disposal of construction waste.

Construction Methods

Prior to construction, the Contractor shall carefully examine each signalized intersection for vehicle sensors. When encountered, the Contractor shall contact the Town of Wake Forest’s Director of Engineering, and NCDOT’s Transportation Operations Division, Traffic Signal Shop for coordination of construction and sensors relocation.

The Contractor shall work with the Town Inspections staff to identify drainage issues and assist in determining a course of action to resolve.

If milled areas are not paved back within 72 hours, the Contractor is to furnish and install portable signs to warn drivers of the conditions. These are to include, but not limited to "Rough Road" (W8-8), "Uneven Lanes" (W8-11) with Motorcycle Plaque mounted below. These are to be dual indicated on Multi-Lane Roadways with speed limits 45 mph and greater. These portable signs are incidental to the other items of work included in the temporary traffic control pay item.

The existing pavement shall be milled in a manner which will restore the pavement surface to a uniform longitudinal profile and cross section at the locations as indicated in the schedule of provisions or at locations as directed by the Engineer where indicated the asphalt removal shall be to a specified depth and shall produce a specific cross slope. The Contractor shall mill intersections and other irregular areas as indicated in the schedule of provisions or as directed by the Engineer. The milling shall extend from curb to curb, with excess asphalt material being removed to expose the existing face of curb and gutter.

The milling equipment shall be operated in such a manner as to prevent damages to the underlying pavement structure, utilities, drainage facilities, curb and gutter, paved surfaces outside the milled area, and any other appurtenances. Any damages to the above stated areas shall be replaced or repaired at no cost to the Town. The milled pavement surface shall be reasonably smooth and free of excessive scarification marks, gouges, ridges, continuous groves, or the damage as determined by the Director of Engineering. All butt joints shall be straight and true. Any leveling or patching required as a result of negligence by the Contractor shall be repaired with hot bituminous plant mix at no cost to the Town of Wake Forest and in a manner acceptable to the Engineer. The Contractor shall coordinate the adjustment of manholes, meter boxes, and valve boxes and resurfacing with the milling operation.

Catch basins and drop inlets shall be protected from milling debris by use of filter materials or other means that will prevent debris from entering the Town stormwater system. Any debris that enters catch basins and drop inlets shall be removed by the Contractor.

Wash water from milling machines shall be filtered by use of stormwater filter devices for catch basins and drop inlets. Stormwater filter devices shall be submitted for approval prior to work starting. Failure to use stormwater filter devices shall be considered an "illicit discharge" as defined in Code of Ordinances and State law references: G.S. Chapter 113A Article 4 (Pollution Control Act); G.S. Chapter 143 Article 21 (Water and Air Resources); Emission of pollutants and contaminants, G.S. 160A-185; Town of Wake Forest's Code of Ordinances, Article VI – ILLICIT STORMWATER DISCHARGE.

All milled pavement surfaces shall be thoroughly cleaned of all loose aggregate particles, dust, and other objectionable material within 24 hours, by the use of an approved street sweeper. Street sweepers to be utilized shall be of the Vacuum or Regenerative Air Sweeper type with a minimum six (6) cubic yard capacity. No mechanical sweepers will be allowed, except to assist the above noted approved sweeper types. The Contractor can also utilize additional equipment as necessary for this removal. This debris shall not be allowed to accumulate on the Right-of-Way, private property, sidewalks, or driveways. If this occurs, it shall be cleaned off immediately.

<u>Edge & Double Edge Milling</u>

Edge milling shall be at least 4' in width. Butt joints may be required at intersecting streets. Butt joints will be paid at the Edge Milling rate. Double edge mill shall overlap 1-2' but shall not exceed 7' in width. Resurfacing shall be performed within 7 days after patching is completed on such streets.

<u>Full Mill Operations</u>

Streets designated as Full Mill shall have lanes milled to a depth of 0" – 4" depending on existing road cross section milling recommendations. Utilities shall be lowered prior to milling operations and final adjustments performed after milling is complete. Milling and replacement shall be performed within 1 week after the patching is completed on such streets.

Mill & Fill Operations

Streets designated as Mill & Fill shall have lanes milled, cleaned, and paved back by the end of the work shift. Traffic is not allowed to ride on the milled surface. Utility adjustments and patching, as needed, shall be performed prior to the Mill & Fill operation. Mill & Fill operations shall be performed within 7 days after patching is completed on such streets. Any utilities damaged during milling shall be repaired or replaced as soon as possible at no cost to the Town. The Mill & Fill unit rate will be used for streets designated as such. This rate is not in addition to any other milling rate.

Temporary pavement markings shall be installed as directed in the Pavement Markings portion of this contract. The pavement markings shall be installed as soon as the milling operations will allow. The milled pavement surface shall be thoroughly cleaned of all loose aggregate particles, dust, and other objectionable material before temporary pavement markings are installed.

Equipment

Equipment shall include a self-propelled unit capable of removing the existing bituminous pavement to the depths, widths, and typical sections as indicated in the schedule or provisions or as directed by the Engineer. The equipment shall have been designed and built exclusively for pavement milling operations and shall have sufficient power, traction, and stability to accurately maintain depth of cut and slope. The milling machine shall be equipped with a grade control system, which will automatically control the longitudinal profile and cross slope of the pavement surface. The machine shall be capable of leaving a uniform surface suitable for handling traffic without excessive damage to the underlying pavement structure.

Additional equipment necessary to satisfactorily remove the pavement in the area of curb and gutter, and other obstructions shall be provided. The milling equipment shall be equipped with a means of effectively limiting the amount of dust escaping from the removal operations in accordance with local, state, and federal air pollution control laws and regulations.

Patching

The Contractor shall be responsible for pavement patching on all streets which have been milled. Milled pavement areas, in which exposed subgrade materials are present after the milling has been completed, shall be patched no later than the end of the workday.

Measurement and Payment

Milling (0-2") Edge, Milling (0-2") Double Edge, Milling (0-2") Full Width, and Milling (0-2") Mill and Fill to be paid for will be the actual number of square yards of pavement surface which has been milled in accordance with the requirements of this section. In measuring this quantity, the length will be the actual length milled, measured along the pavement surface. The width will be the actual width milled measured along the pavement surface, including any incidental areas which require removing, i.e., small areas adjacent to curb and gutter, etc.

Incidental milling to be paid will be the actual number of square yards of surface milled where the Contractors is required to mill butt joints, irregular areas and intersections milled as a separate operation from mainline milling and re-mill areas that are not due to the Contractor's negligence whose length is less

than 100 feet. In measuring this quantity, the length will be the actual length milled, measured along the pavement surface. The width will be the width required by the plans or directed, measured along the pavement surface. Areas to be paid under these items include radius areas, butt joints and irregular areas as desired to complete the work or correct a pavement running/cross slope issue. Where the Contractor elects to make multiple cuts to achieve the final depth, no additional measurement will be made. Compensation will be made at the contract unit price per square yard for Incidental Milling Pavement Patching will be paid as the actual number of tons of asphalt plant mix, complete in place, used to make completed and accepted repairs, including skim patching on exposed subgrade, except for those repairs made necessary by the Contractor's negligence. The asphalt plant mix material will be measured by weighed in trucks on platform scales or other certified weighing devices.

SECTION 6: SHALLOW UNDERCUT

The published volume entitled "North Carolina Department of Transportation, Standard Specifications for Roads and Structures", Latest Edition, with all amendments and supplements thereto, is by reference incorporated into and made part of this contract; that, except as herein modified, all the construction and work included in this contract is to be performed in accordance with the specifications contained in said volume, and amendments and supplements thereto, under the direction of the Director of Engineering.

Description

All work in this section shall consist of elements to complete shallow undercut on specified sections of Town streets which exhibit unsuitable soils.

Construction Methods

When shallow undercut is required to construct aggregate subgrades, undercut 12" to 24" as shown on the plans or as directed. Perform undercut excavation in accordance with Section 225. Install geotextile for soil stabilization in accordance with NCDOT Standard Specifications for Roads and Structures Article 270-3. Place Class IV subgrade stabilization (standard size no. ABC) by end dumping ABC on geotextiles. Do not operate heavy equipment on geotextiles until geotextiles are covered with Class IV subgrade stabilization. Compact ABC to 92% of AASHTO T 180 as modified by the Department or to the highest density that can be reasonably obtained. Maintain Class IV subgrade stabilization in an acceptable condition and minimize the use of heavy equipment on ABC in order to avoid damaging aggregate subgrades. Provide and maintain drainage ditches and drains as required to prevent entrapping water in aggregate subgrades.

Placement of Geotextile and Geogrid

Geotextile and Geogrid materials shall conform to Section 1056 of NCDOT Standard Specifications. Following the shallow undercut operation, geotextile material shall be placed in the work area covering the full width and length of the excavation. Geotextile shall be overlapped a minimum of 12 inches in cases where multiple pieces or rolls are used. Geotextile shall be pinned to the subgrade.

One layer of geogrid shall be placed on top of the geotextile material prior to back filling with Class IV stone. In cases where geogrid is overlapped, follow manufacturer's recommendations.

Backfill and compact the excavation with Class IV Stone for Stabilization to within 6" of the finish pavement elevation grade. Complete the patch using the prescribed pavement detail of I19.0C and S9.5C placed in 2 lifts.

Payment for Shallow Undercut, Geotextile / Geogrid and Class IV Stone shall be considered full payment for, but not limited to, all labor, materials, equipment, incidentals, overhead and profit associated with the work.

Measurement and Payment

Shallow Undercut will be measured and paid in cubic yards. The contract unit price for Shallow Undercut will be full compensation for excavating, hauling, and disposing of materials to construct aggregate subgrades.

Fabric for Soil Stabilization will be measured and paid in square yards. The contract unit price for Fabric for Soil Stabilization will be full compensation for providing and installing the fabric.

Geogrid for Soil Stabilization will be measured and paid in square yards. The contract unit price for Geogrid for Soil Stabilization will be full compensation for furnishing and installing the geogrid.

Class IV Stone for Soil Stabilization will be measured and paid in tons. Class IV soil stabilization will be measured by weighing material in trucks in accordance with NCDOT Standard Specifications for Roads and Structures article 106-7. The contract unit price for Class IV Stone for Soil Stabilization will be full compensation for furnishing, hauling, handling, placing, compacting, and maintaining ABC.

SECTION 7: PAVEMENT PATCHING

Description

Perform the work covered by this section including, but not limited to, repairing of existing pavement with asphalt plant mix in order to provide a safe, passable, and convenient condition for traffic.

Perform the work by cutting the existing pavement to a neat vertical joint and uniform line; removing and disposing of pavement, base, and subgrade material as approved or directed; coating the area to be repaired with a tack coat; furnishing, placing, and compacting asphalt plant mix; and replacing of the removed material with asphalt plant mix.

Materials

Where a pavement repair detail is not shown in the plans, use an Asphalt Concrete Intermediate Course, Type I19.0C. Where a pavement repair detail is shown in the plans, the type of plant mix shall be in accordance with the pavement repair detail except where the Specifications permit the substitution of another type of plant mix or where approved.

Patching on all streets shall generally consist of milling and placing 2.5” - 4” of Asphalt Concrete Intermediate Course, Type I19.0C. In some cases, the Town may elect to use B25.0C as directed. For permanent repairs associated with Raleigh Water pavement patching, Contractor may be required to pave full lane width and match existing depths and mix types to meet NCDOT requirements. Patching on Mill & Fill streets shall be paid at the patching unit rate.

The Contractor will be responsible for providing, installing, and maintaining all temporary traffic control during pavement patching operations.

Construction Methods

The Contractor shall excavate in areas as directed by the Engineer to the depth directed. Excavation shall be neatly squared with clean vertical sides. All loose material shall be removed from the excavated area. If the subgrade materials are disturbed, the Director of Engineering may require the subgrade materials to be recompacted utilizing compaction equipment suitable for this purpose. Existing pavement areas shall be tacked, and bituminous material shall be placed in even, uniform lifts. Bituminous material shall be compacted using steel wheeled mechanical compaction equipment, in accordance with current NCDOT standards.

The finished surface shall be smoothed and shaped to provide a final compacted surface grade consistent with the adjacent existing pavement grades. The final surface grade of the patch shall be within one-eighth inch (1/8" ±) of the adjacent existing pavement and grade. Any patch areas more than one-eighth inch (1/8" ±) above adjacent existing pavement shall be milled to proper grade at Contractor's expense.

All pavement patching areas shall be maintained in satisfactory condition until resurfacing occurs.

A minimum depth of 2 inches of patching material shall be utilized. Additional areas shall be patched as directed by the Engineer. All patching shall be performed as per the special provision section as outlined in the Pavement Patching portion of this Contract.

Measurement and Payment

Pavement Patching will be paid as the actual number of tons of asphalt plant mix, complete in place, used to make completed and accepted repairs, including skim patching on exposed subgrade, except for those repairs made necessary by the Contractor's negligence. The asphalt plant mix material will be measured by weighed in trucks on platform scales or other certified weighing devices.

Any requirement included in the contract that provide for adjustments in compensation for to variations in the price of asphalt cement will not be applicable to payment for the work covered by this section.

SECTION 8: THERMOPLASTIC PAVEMENT MARKINGS

The project will include the furnishing and placement of Thermoplastic Alkyd/Maleic Retroreflective Pavement Markings in the form of lines and symbols of the type specified herein. The work shall be performed in strict accordance with NCDOT Standard Specifications for Roads and Structures (Latest Edition) Section 1205.

Revise the 2018 Standard Specifications as follows: Page 12-6, Sub article 1205-4(A)(1) General, lines 5-8, delete the second sentence and replace with the following:

Use application equipment that provides multiple width settings ranging from 4 inches to 12 inches and multiple thickness settings to achieve a minimum pavement marking thickness of 0.090 inch above the surface of the pavement.

Page 12-7, Table 1205-3, THICKNESS REQUIREMENTS FOR THERMOPLASTIC, replace with the following:

Table 1205-3 Minimum Thickness Requirements for Thermoplastic	
Thickness	Location
240 mils	In-lane and shoulder-transverse pavement markings (rumble strips). May be placed in 2 passes
90 mils	Center lines, skip lines, transverse bands, mini-skip lines, characters, bike lane symbols, crosswalk lines, edge lines, gore lines, diagonals, and arrow symbols

Pavement markings shall be applied within **24 hours** of resurfacing. If pavement markings are not installed within the 24-hour period, additional resurfacing shall not be permitted.

Temporary pavement markings on milled surfaces shall be installed as soon as milling operations allow. The milled pavement surface shall be thoroughly cleaned of all loose aggregate particles, dust, and other objectionable material before temporary markings are installed.

Interim marking paint shall be covered with thermoplastic pavement marking within 30 calendar days of placement. Should this period of time be exceeded, all resurfacing operations shall be suspended until thermoplastic pavement marking material is applied and completed on such streets.

If the pavement marking plans and NCDOT standards conflict, the Transportation Director shall be notified prior to the installation of such work.

No payment will be made for final thermoplastic pavement markings until all markings have been completed on the entire street.

The Contractor shall submit Thermoplastic Pavement Marking quantities for verification in spreadsheet format identifying pavement markings on a street-by-street basis.

Removal of Pavement Markings

This work includes the removal of all types of pavement marking lines, symbols and characters including removal for long life marking preparation. This work does not include removal of removable tape pavement markings.

Remove pavement marking lines, characters and symbols by acceptable methods to the Engineer that will not materially or structurally damage the surface or the texture of the pavement. Leave the pavement surface in a condition that will not mislead or misdirect the motorist.

Where existing pavement markings are to be removed and replaced by other pavement markings, do not begin removal until adequate provisions have been made to complete the installation of the replacement markings. Remove pavement markings such that the surface is in proper condition for adequate bonding of the new markings. Promptly remove any material deposited on the pavement as a result of removing pavement markings as the work progresses by acceptable methods. Provide the equipment necessary to control dust and the accumulation of debris resulting from the removal process. The removal equipment shall provide dust control and the capture of the removed material shall be done using a separate vacuum equipped vehicle or other approved system. Perform the recovery process within the same operation as the removal. Do not let traffic use the lane where the removal is taking place until the recovery system is finished. Should the recovery system fail, cease removal operations until the recovery system is properly operating. The Contractor is responsible for all cleanup and proper disposal of all removed debris from the project site. When using a grinding method for pavement marking removal, the equipment shall have

multiple heads working in tandem or have a removal head with operator dialed controls to result in a planed surface and provide adequate preparation of the surface to accept the new marking material.

Application of polyurea over existing pavement marking materials will require at least 95% of the existing pavement marking material to be removed; however, if one 15 mil application of paint was placed on asphalt pavement less than 6 months old, do not remove the existing paint pavement markings.

Thermoplastic may be installed over existing thermoplastic on asphalt. Application over existing pavement marking materials other than thermoplastic will require the existing pavement marking material to be removed so that at least 85% of the existing pavement marking surface is removed. Before applying thermoplastic pavement markings over the existing thermoplastic pavement markings, remove at least 25% of the oxidized existing thermoplastic. On newly installed failed thermoplastic that is to be removed and replaced, remove a minimum of 85% of the existing thermoplastic. However, if one 15 mil application of paint was placed on asphalt pavement less than 6 months old, do not remove the existing paint pavement markings.

Use black color #37038 in paint or tape, as determined by Contractor, to cover any remaining conflicting pavement marking after removal from asphalt pavement surfaces. Do not use black paint or tape on concrete pavement surfaces. The black paint will not have a defined shape or edges with a width not exceeding double of the existing lines.

Measurement and Payment

Thermoplastic Pavement Markings 4", Thermoplastic Pavement Markings – 8", Thermoplastic Pavement Markings – 24", Green Thermoplastic, 24" will be measured and paid as the actual number of linear feet of placement marking lines satisfactorily placed and accepted by the Engineer. The quantity of solid lines will be the summation of the linear feet of solid line measured end-to-end of the line. The quantity of skip or broken lines will be the summation of the linear feet derived by multiplying the nominal length of a line by the number of marking lines satisfactorily placed.

Thermoplastic Symbol, Thermoplastic Character, Thermoplastic Roundabout Symbol, Speed Hump Symbol, Bike Lane Arrow, Bike Sharrow, Bike Lane Symbol, and Shark Teeth Symbol will be measured and paid as the actual number of pavement marking symbols and characters satisfactorily placed and accepted by the engineer. A character is considered to be one letter or one number of a word message.

Temporary Paint, 4", Temporary Paint, 8", and Temporary Paint, 24" will be measured and paid as the actual number of linear feet of placement marking lines satisfactorily placed and accepted by the Engineer.

Temporary Paint Symbols and Temporary Paint Characters will be measured and paid as the actual number of pavement marking symbols and characters satisfactorily placed and accepted by the engineer

Thermoplastic Eradication, Lines will be measured and paid as the actual number of linear feet of pavement markings satisfactorily removed and accepted by the Engineer. The quantity of solid lines will be the summation of the linear feet of solid line measured end-to-end of the line. The quantity of skip or broken lines will be the summation of the linear feet derived by multiplying the nominal length of a line by the number of marking lines satisfactorily removed. No payment will be made for the removal of removable pavement marking tape.

Thermoplastic Eradication, Symbol and Thermoplastic Eradication, Character will be measured and paid as the actual number of pavement markings symbols and characters satisfactorily removed and accepted by the Engineer.

Flexible Delineator will be measured and paid as the actual number of each delineator post installed.

SECTION 9: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

All work associated with signals and intelligent transportation systems shall be installed in strict accordance with NCDOT Standard Specifications for Roads and Structures (Latest Edition) Division 17.

Street locations for inductive detection loops and associated work are indicated on the Pavement Markings List.

The Contractor shall notify the Town of Wake Forest, Engineering Department at least 48 hours before milling an intersection with signal detection loops. After signal detection loops are installed, the Contractor shall notify the Engineering Department for inspection at least 48 hours before resurfacing occurs. Notify Engineer one week before installing inductive detection loops.

Coordinate saw-cutting and loop placement with pavement markings. For new construction or resurfacing, install inductive detection loops before placing final lay of surface course. On unmarked pavement, pre-mark locations of stop lines and lane lines before locating inductive detection loops.

Measurement and Payment

Inductive Loop Sawcut and Bike Count Loop Sawcut will be measured and paid as the actual linear feet of inductive loop sawcut installed and accepted.

Detector Cards and Junction Boxes will be measured and paid as the actual number of detector cards and junction boxes installed and accepted.

SECTION 10: SPEED HUMPS

Speed Hump Removal

Break up, remove, and satisfactorily dispose of asphalt components of an existing structure and repair pavement to match existing adjacent pavement surface.

Measurement and Payment

Speed Hump Removal will be measured and paid for per each speed hump removed. A speed hump will be counted as full width of road. No direct payment will be made for the following: milling, hot mix asphalt, asphalt binder, and pavement markings associated with speed hump removal.

SECTION 11: WORK ZONE TRAFFIC CONTROL

Description

Maintain traffic through work zones in accordance with these Specification, the MUTCD, NCDOT Roadway Standard Drawings, 23 CFR 630 Subparts J and K and any additional Transportation Management Plans.

Temporary Lane Closures

Operate all equipment and personnel within the designated work area during lane closures. Do not impede or stop traffic for the purpose of performing construction related work on the traffic side of the lane closure.

Install lane closures with traffic flow, beginning with devices on the upstream side of traffic. Remove lane closures against the traffic flow, beginning with devices on the downstream side of traffic.

When construction proceeds through an intersection, provide flaggers and all other necessary traffic control as required to direct the traffic through the intersection. When an intersection is signalized, place the signal in flash mode and provide law enforcement or other adequate traffic control measures to direct traffic through the intersection before beginning work in the intersection.

Traffic Control Supervision

Provide the service of at least one qualified work zone supervisor. The work zone supervisor shall have the overall responsibility for the proper implementation of the TMP and ensure all employees working inside the NCDOT right of way have received the proper training appropriate to the job decisions each individual is required to make.

The work zone supervisor is not required to be on site at all times but shall be available to address concerns of the Engineer. The name and contact information of the work zone supervisor shall be provided to the Engineer prior to or at the preconstruction conference.

Qualification of work zone supervisors shall be done by an NCDOT approved training agency or other approved training provider. For a complete listing of these, see the Work Zone Traffic Control's webpage. Coordinate with and cooperate with work zone supervisors of adjacent or overlapping construction projects to ensure safe and adequate traffic control is maintained throughout the projects at all times including periods of construction inactivity in accordance with Article 105-7.

Vehicular Access

Maintain Continuous and safe vehicular access, including but not limited to, all residences businesses, schools, police and fire stations, hydrants, other emergency services, hospitals and mailboxes. Conduction operations so as to limit the inconvenience to property owners.

Pedestrian Access

Maintain pedestrian access at all times. When existing pedestrian facilities are disrupted, closed or relocated, provide temporary facilities that are detectable and include accessibility features consistent with the features present in the existing pedestrian facility. The work zone supervisor is responsible for the implementation of all traffic control plans, and installation and maintenance of the pedestrian devices. The work zone shall be inspected weekly or as directed by the Engineer. When pedestrian movement through or around a work zone is necessary, provide a separate usable footpath. If the previous pedestrian facility was accessible to pedestrians with disabilities, provide a footpath during temporary traffic control that is comparable. Do not have any abrupt changes in grade or terrain that could cause a tripping hazard or could be a barrier to wheelchair use. Provide channelizing devices that are detectable to pedestrians who have visual disabilities. Provide temporary pedestrian facilities that are made of concrete, asphalt or other suitable material as approved by the Engineer, at all locations where the existing sidewalks have been removed for construction operations.

Do not sever or move pedestrian facilities for non-construction activities such as parking for vehicles and equipment. Separate pedestrian movements from both work zone activity and vehicular traffic.

Temporary Traffic Control Devices

Furnish, install, maintain, relocate, and remove temporary traffic control devices. All temporary traffic control devices furnished by the Contractor shall remain the property of the Contractor, unless otherwise specified in the contract.

Ensure all temporary traffic control devices are inspected and approved before using them on the project. Install temporary traffic control devices before construction operations begin and during the proper phase of construction. Maintain and relocate temporary traffic control devices during the time they are in use. Keep these devices in place as long as they are needed and immediately remove thereafter. When operations are performed in stages, install only those devices that apply to the present conditions.

Perform continuous maintenance and daily scheduled inspections of temporary traffic control devices. Review and maintain all traffic handling measures to ensure that adequate provisions are in place for public and workers' safety. Maintenance activities include cleaning, repair, or replacement, and prompt disposal of temporary traffic control devices that are damaged, torn, crushed, discolored, displaced or deteriorated beyond effectiveness. Replace work zone traffic control devices deemed unacceptable according to the guidelines set forth in the American Traffic Safety Service Association's (ATSSA) Quality Guidelines for Work Zone Traffic Control Devices.

Failure to maintain acceptable traffic control measures or temporary traffic control devices may result in formal notification of noncompliance. Implement remedial action immediately for imminent danger situations as directed by the Engineer. Implement remedial action within 48 hours after notification of a safety issue that is not an imminent danger.

Failure to comply may result in having the work performed with available forces and equipment. In cases of willful disregard for the safety of the public, the Engineer may proceed immediately to implement the measures necessary to provide the appropriate level of traffic control to ensure that the safety of all concerned parties is maintained.

Measurement and Payment

Temporary Traffic Control will be paid as a lump sum unit cost. The contract unit price for shallow undercut will be full compensation for all traffic control materials and labor required by these Specifications.

SECTION 12: TRAFFIC ISLANDS AND MEDIANS

Description

Construct traffic islands and medians of the type required by the plans. Perform the work in accordance with the contract.

Construction Methods

Construct curb and gutter in accordance with Section 4.

Uniformly grade and compact the earth or base course under any island or median to the same requirements as the surrounding material. Concrete islands shall be constructed after milling has occurred and before final resurfacing.

Construct concrete in accordance with Section 4 and give a sidewalk finish, except as otherwise provided herein. Broom concrete surfaces in medians transverse to the direction of traffic unless otherwise directed. Locate joints in island and median covers to line up with the joints in the curb and curb and gutter wherever possible. Locate joints in monolithic concrete islands and medians constructed adjacent to concrete pavement to line up with the joints in the concrete pavement wherever possible. Seal all joints. Form openings in the island or island cover to accommodate signposts.

Measurement and Payment

5" Monolithic Concrete Islands/Medians will be measured and paid in square yards of concrete island that has been placed and accepted. Measurement will be made parallel to the bottom surface of the island or median. This work includes, but is not limited to, excavation and backfilling, constructing base, furnishing and placing concrete, forming holes for signposts and constructing and sealing joints.

The remainder of this page is left blank intentionally.

GENERAL NOTES

1. ALL WORK TO BE DONE IN ACCORDANCE WITH NCDOT, CITY OF RALEIGH, AND TOWN OF WAKE FOREST STANDARD SPECIFICATIONS.

2. PROPERTY AND RIGHT-OF-WAY LINES FROM GIS INFORMATION ARE NOT ACTUAL SURVEY.

3. ALL TREATMENTS MAY REQUIRE ADVANCE STRIPING BASED ON ROADWAY GEOMETRY.

4. ALL WORK SHALL BE CONFINED WITHIN THE LIMIT OF TOWN OWNED PROPERTY, PUBLIC RIGHT-OF-WAY, AND EASEMENTS.

5. CONTRACTOR SHALL NOTIFY NC-811 TEN (10) WORKING DAYS BEFORE STARTING CONSTRUCTION AND COORDINATE WITH TOWN ENGINEER AND CITY OF RALEIGH.

6. THE CONTRACTOR IS RESPONSIBLE FOR THE CONTROL OF DUST AND DEBRIS ON ANY PUBLIC ROAD ACCESSED BY CONSTRUCTION ENTRANCES AS A RESULT OF CONSTRUCTION VEHICLES ENTERING AND LEAVING THE PROJECT SITE DURING CONSTRUCTION.

7. THE CONTRACTOR SHALL LIMIT THEIR WORK AREA TO AREAS DESIGNATED HEREIN AND APPROVED BY THE TOWN ENGINEER.ON-SITE STORAGE AND STAGING AREA SHALL BE DESIGNATED PRIOR TO CONSTRUCTION AND APPROVED BY THE TOWN ENGINEER. ADDITIONAL OFFSITE STORAGE AS REQUIRED WILL BE COORDINATED BY THE CONTRACTOR.

8. THE CONTRACTOR SHALL LIMIT THEIR WORKING HOURS AS DESIGNATED BY THE TOWN OF WAKE FOREST.

9. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS ON ALL LOCATIONS WHERE EXISTING UTILITIES ARE ON THE ROADS.

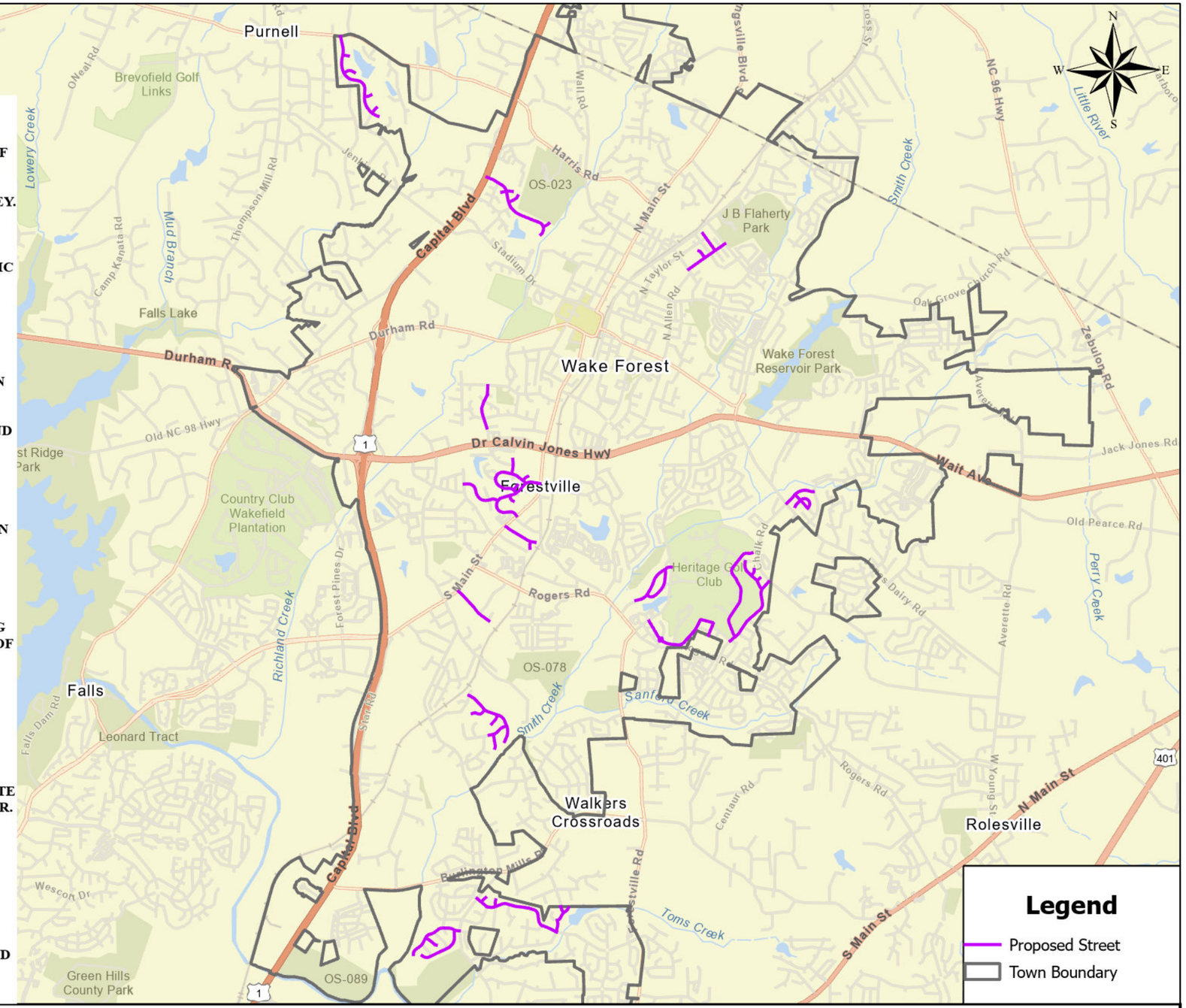
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING STRUCTURES, UTILITIES AND EQUIPMENT, AND TO MAINTAIN UNINTERRUPTED SERVICE OF THE EXISTING UTILITES.

11. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SUPPORTS, BRACES, SHEETING AND SHORING AS NECESSARY. ANY DAMAGES TO EXISTING STRUCTURES, UTILITIES, OR EQUIPMENT, EVEN THOSE NOT INDICATED ON THE CONTRACT DOCUMENTS AND DRAWINGS, RESULTING FROM THE ACTIONS OR LACK OF ACTIONS BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT HIS/HER EXPENSE.

12. NO GUARANTEE IS MADE THAT THE INFORMATION CONTAINED HEREIN IS AN ACCURATE REPRESENTATION OF THE FIELD CONDITIONS TO BE ENCOUNTERED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO FIELD CHECK AND MEASURE LOCATIONS, ELEVATIONS AND DIMENSIONS FOR COMPLETE THE PROJECT.

13. THE CONTRACTOR SHALL COMPLY WITH LEGAL HIGHWAY LOADINGS OF NORTH CAROLINA WHEN USING EXISTING ROADS WITHIN THE PROJECT SITE.

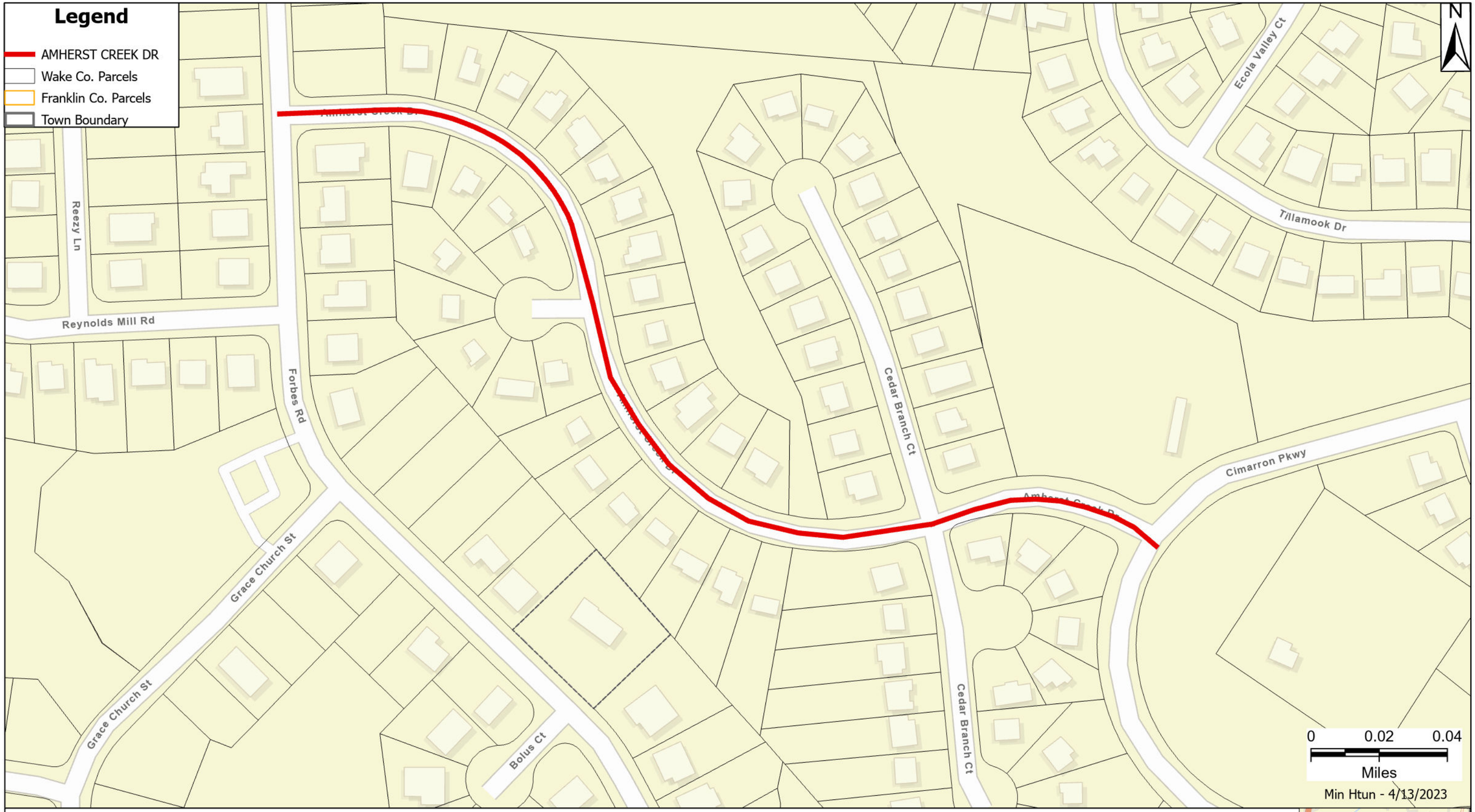
14. ALL COSTS ASSOCIATED WITH COMPLIANCE WITH THESE GENERAL NOTES AND CONTRACT DOCUMENT, OR ANY OTHER GENERAL NOTES INCLUDED ON OTHER DOCUEMNTS AND DRAWINGS, SHALL BE INCLUDED IN THE VARIOUS CONTRACT ITEMS AND NO SEPARATE PAYMENT WILL BE MADE THEREFORE.

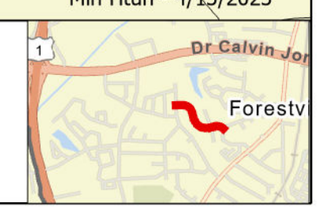


TOWN of WAKE FOREST

Street Resurfacing Project
BID # 0002-2023

Min Htun - 8/17/2023

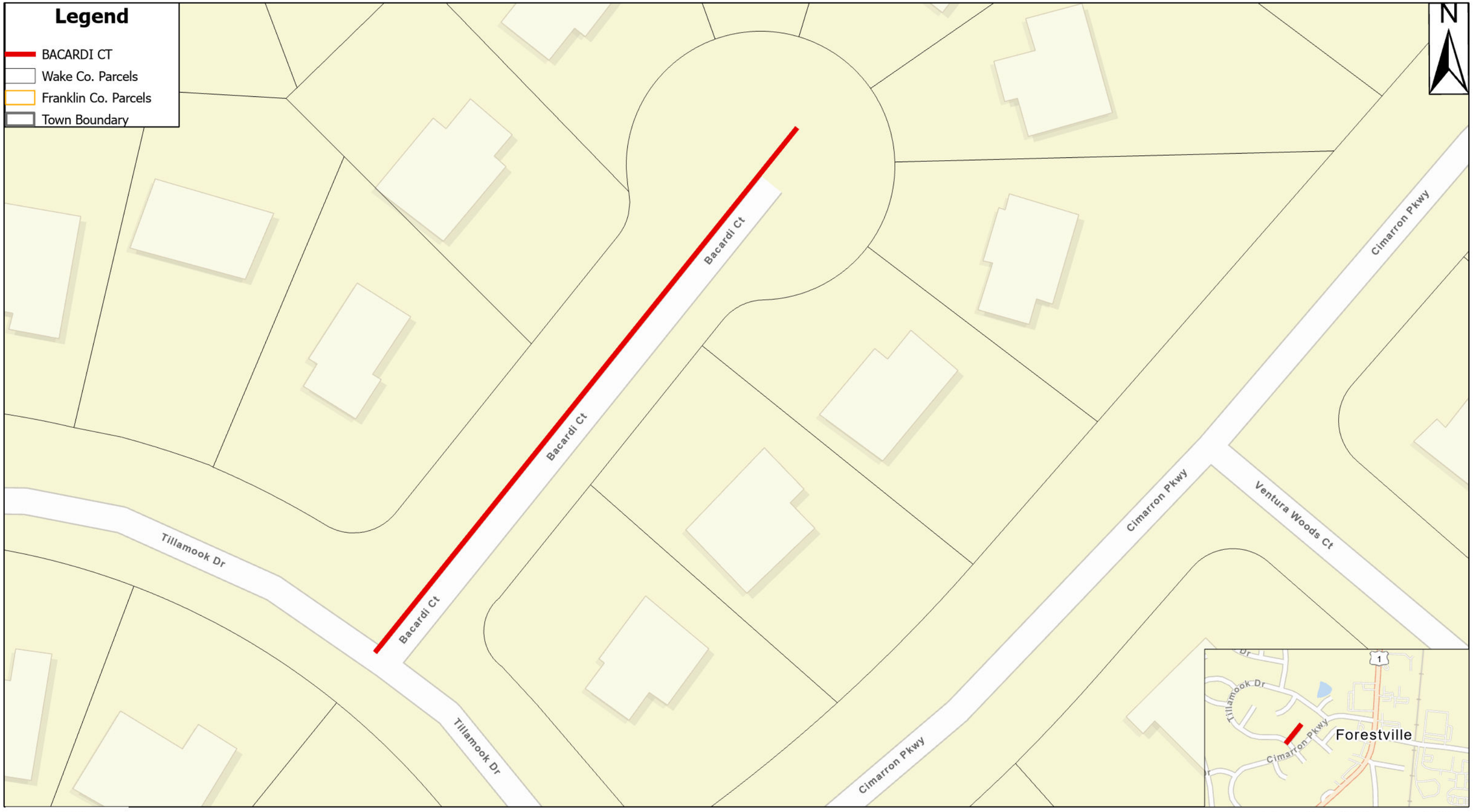




TOWN of WAKE FOREST

MAP No.1

AMHERST CREEK DR

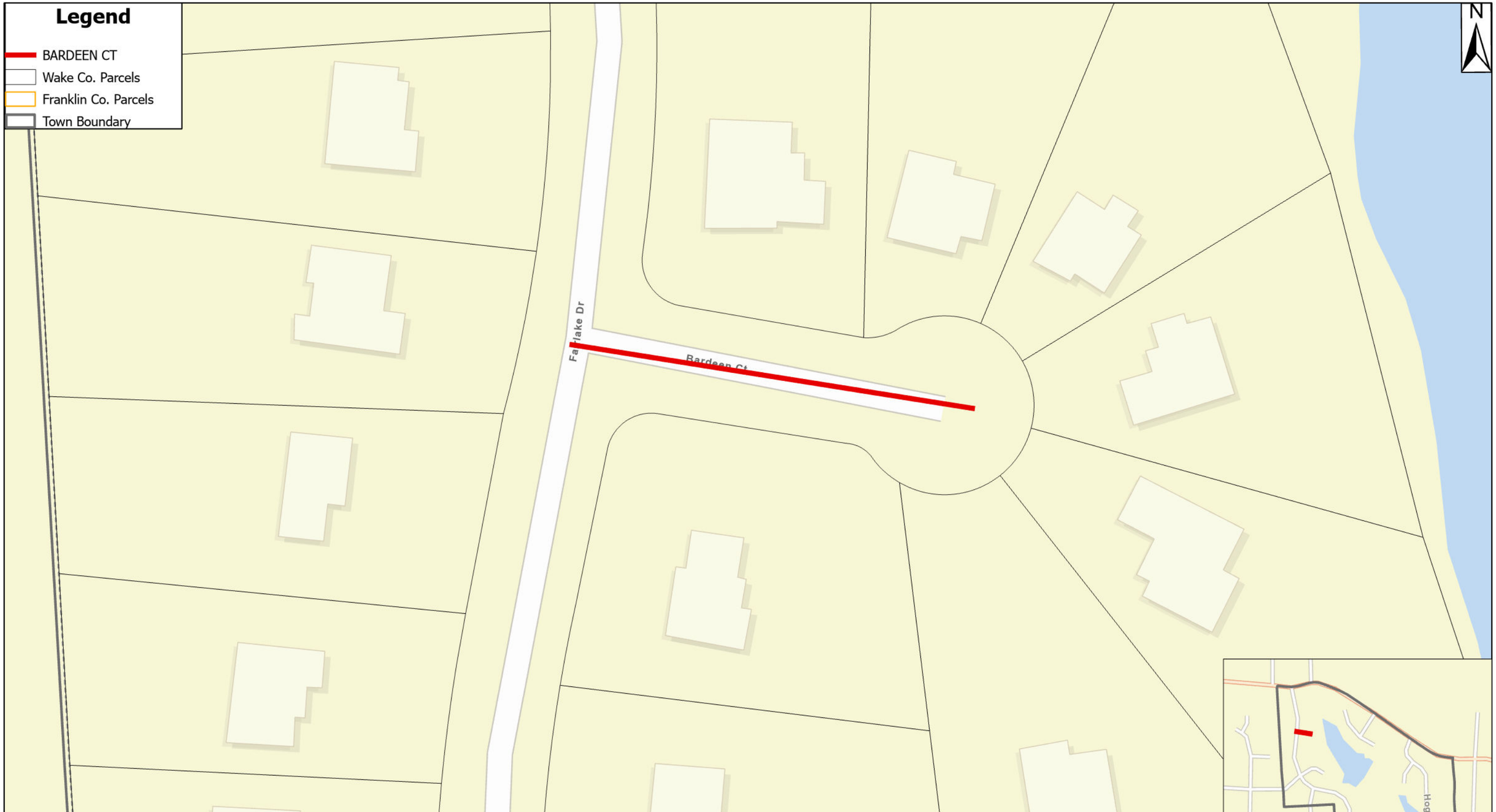


TOWN of WAKE FOREST

MAP No.2

BACARDI CT

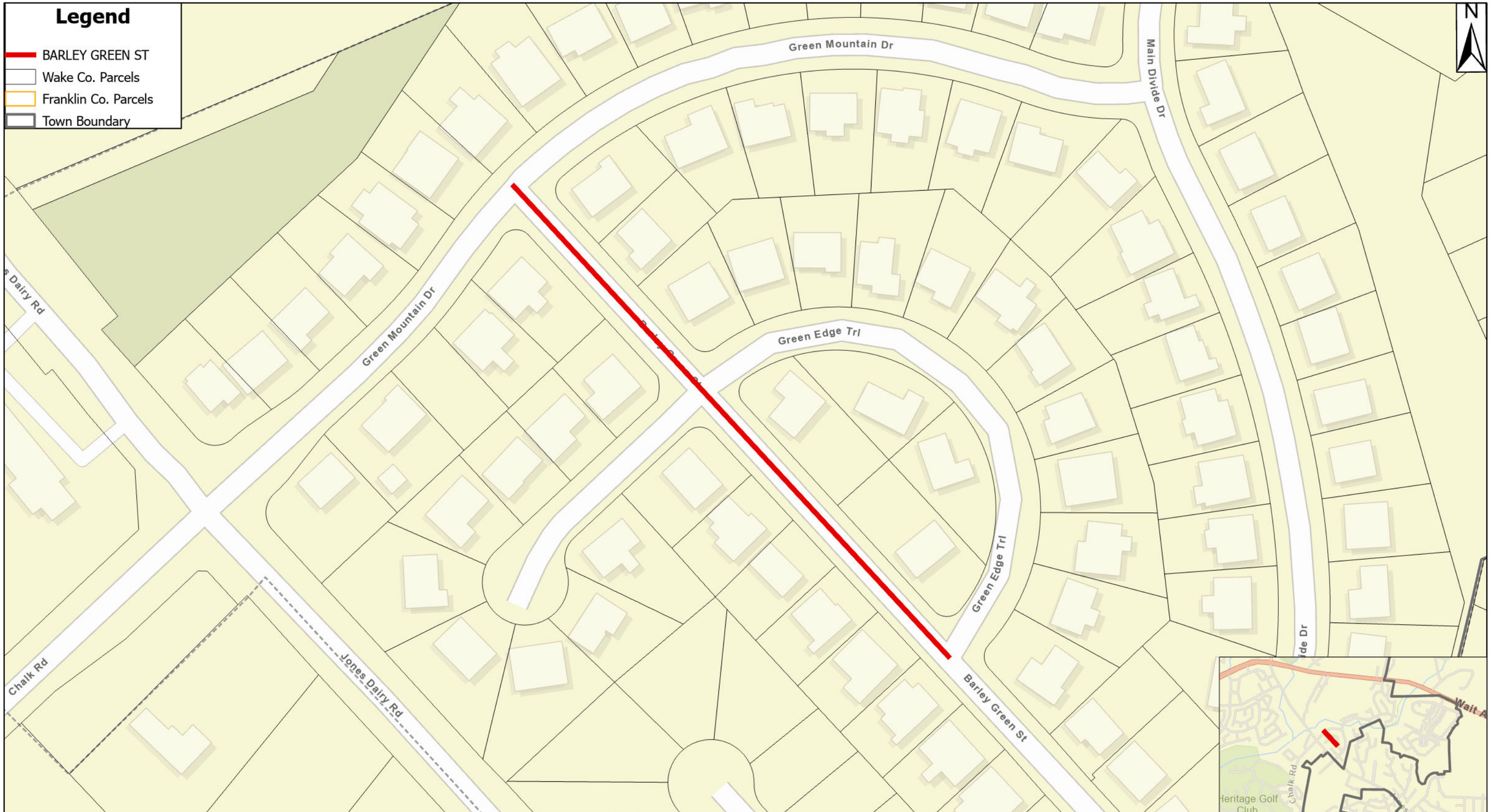
Min Htun - 3/23/2023



TOWN of WAKE FOREST

MAP No.3

BARDEEN CT



TOWN of WAKE FOREST

MAP No.4

BARLEY GREEN ST

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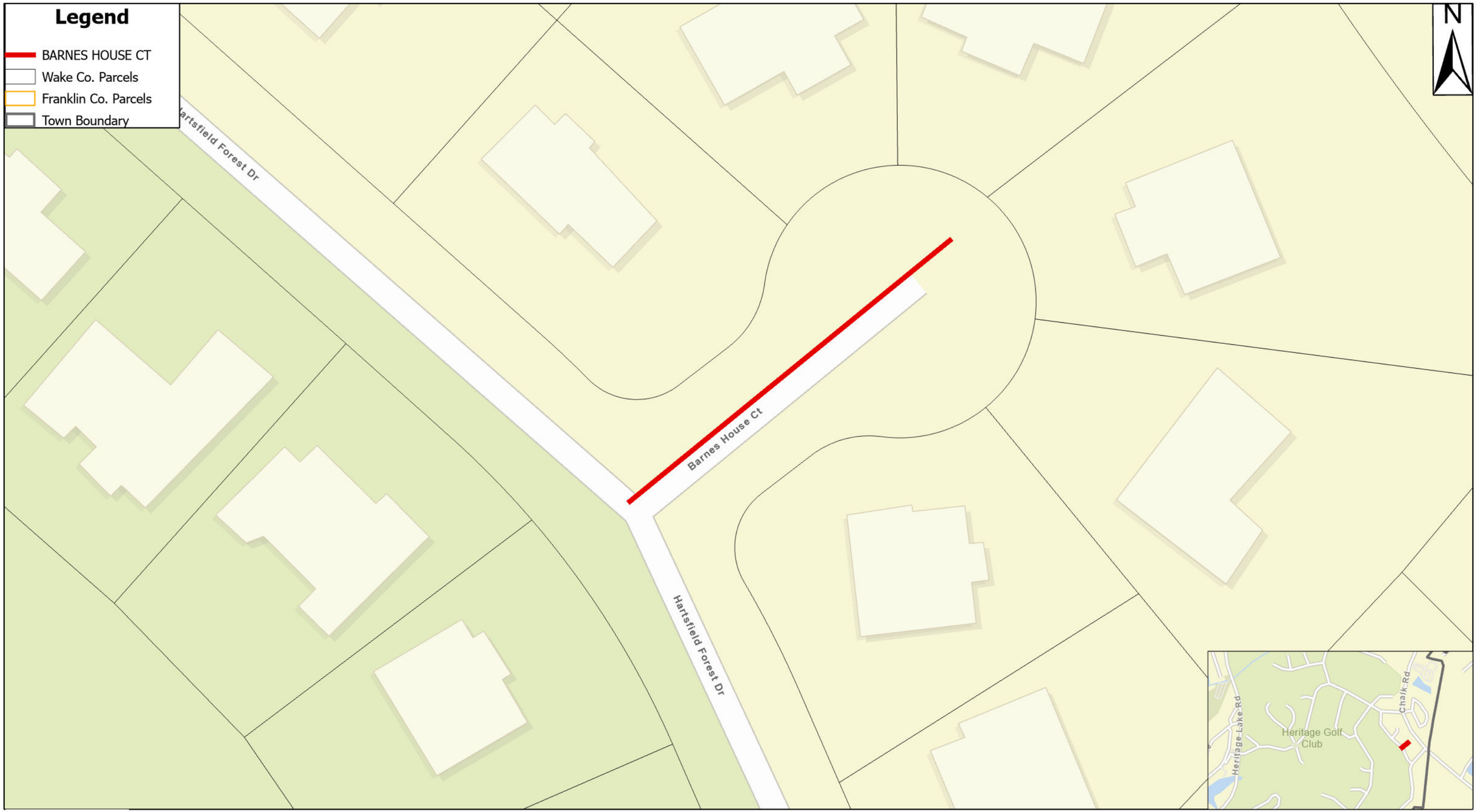
Miles

Min Htun - 6/6/2023



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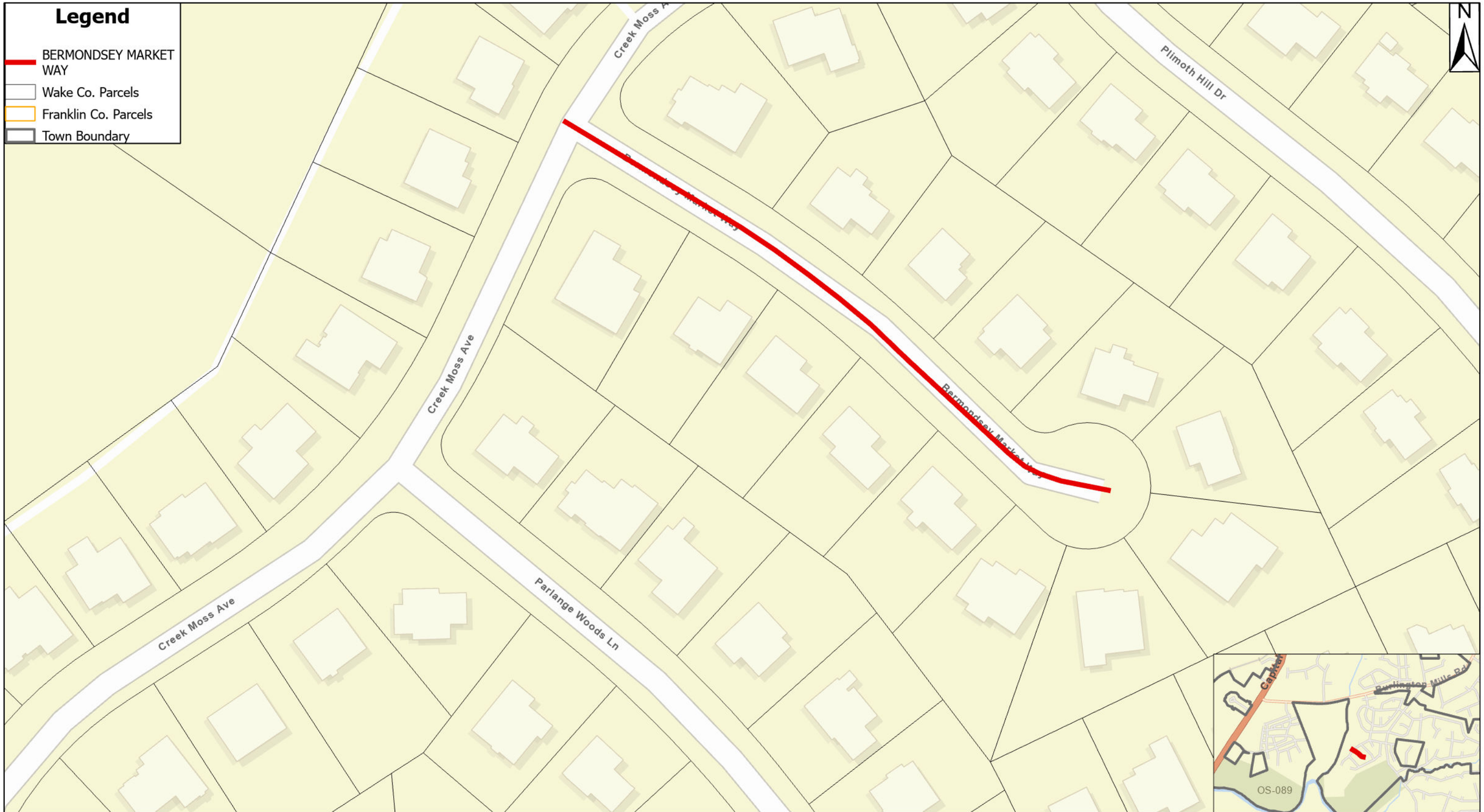
Min Htun - 3/31/2023

TOWN of WAKE FOREST

MAP No.5

BARNES HOUSE CT



TOWN of WAKE FOREST

MAP No.6

BERMONDSEY MARKET WAY

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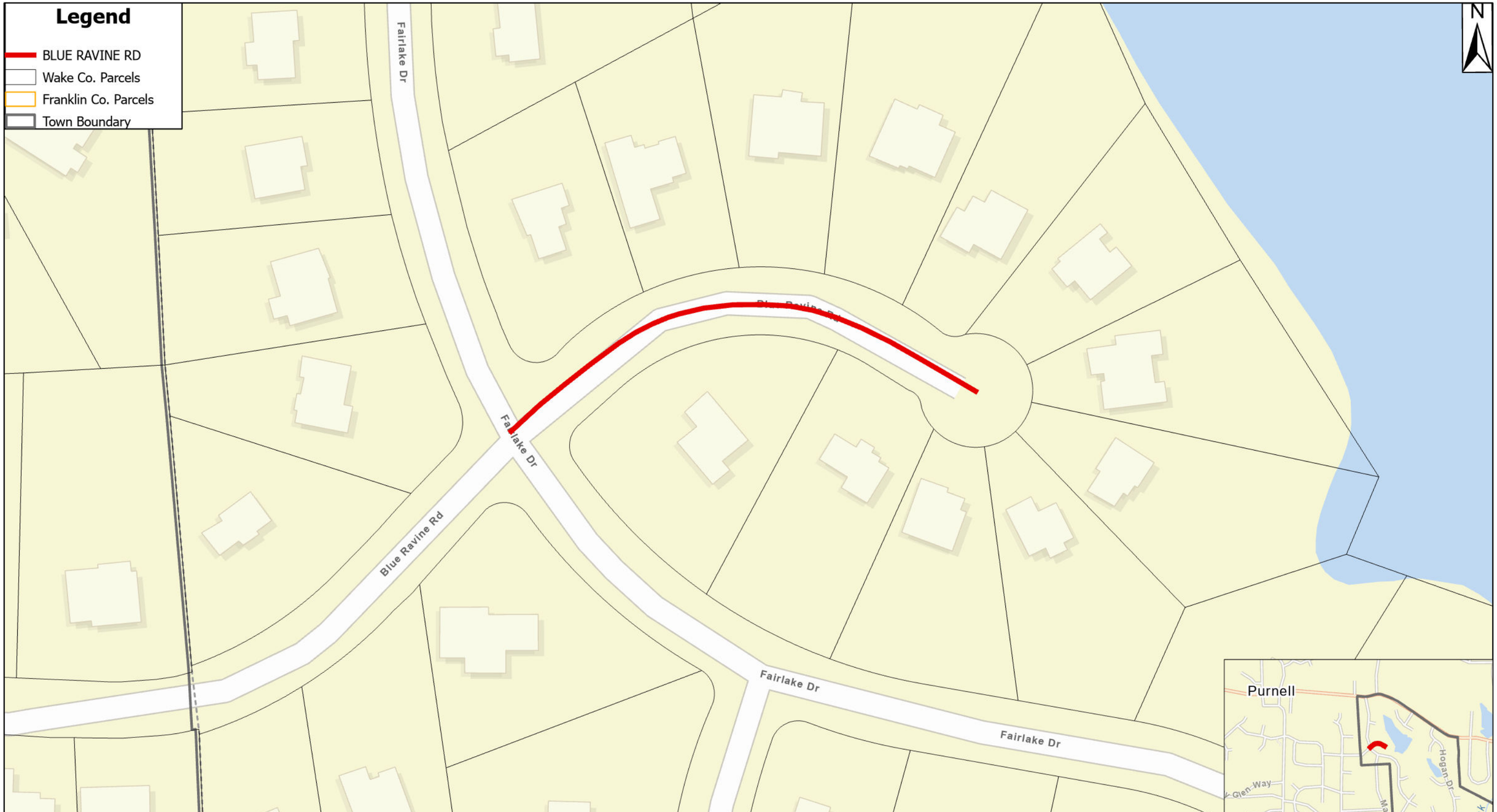
Miles

Min Htun - 3/23/2023



TOWN of WAKE FOREST

MAP No.7

BLUE RAVINE RD

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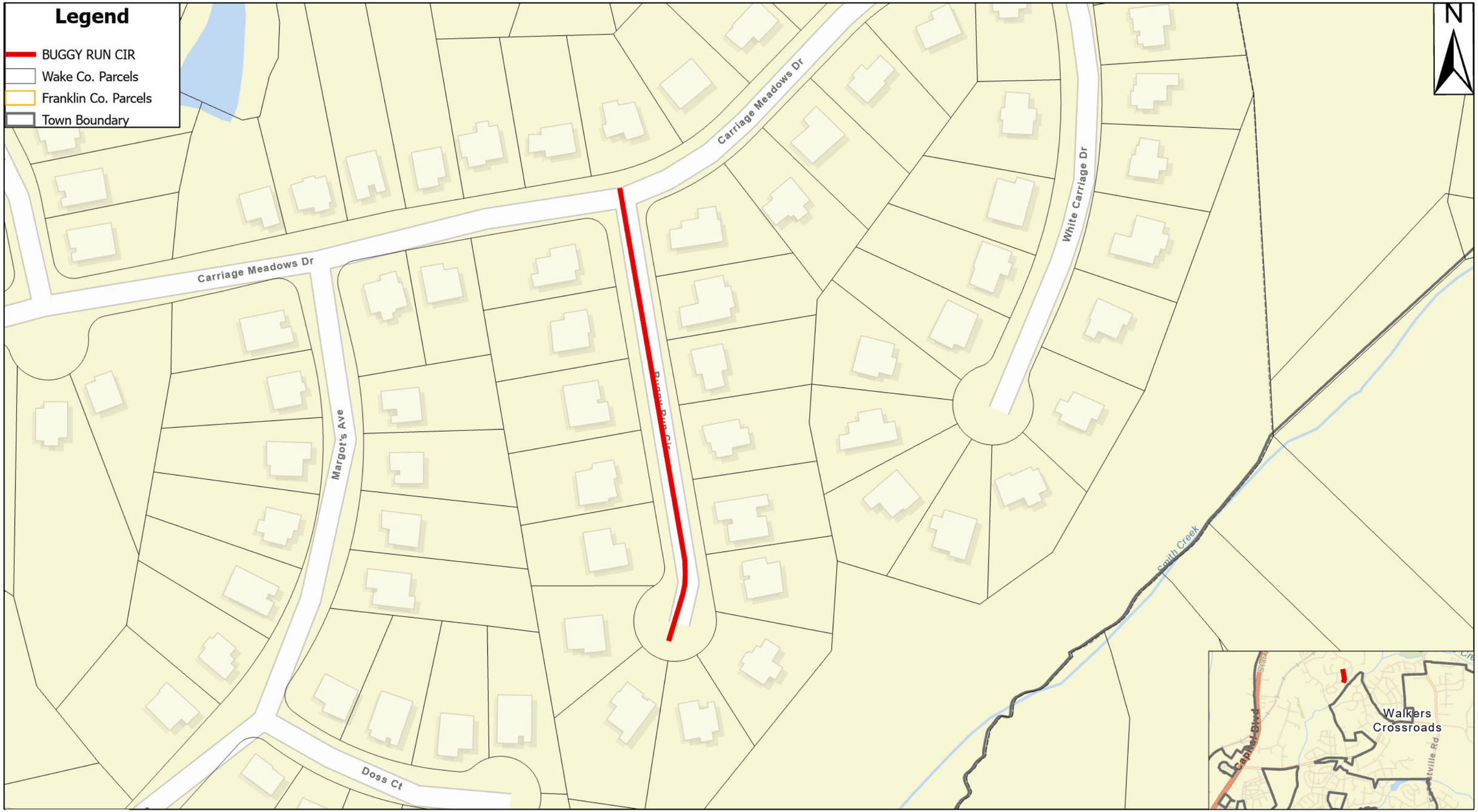
Miles

Min Htun - 3/23/2023

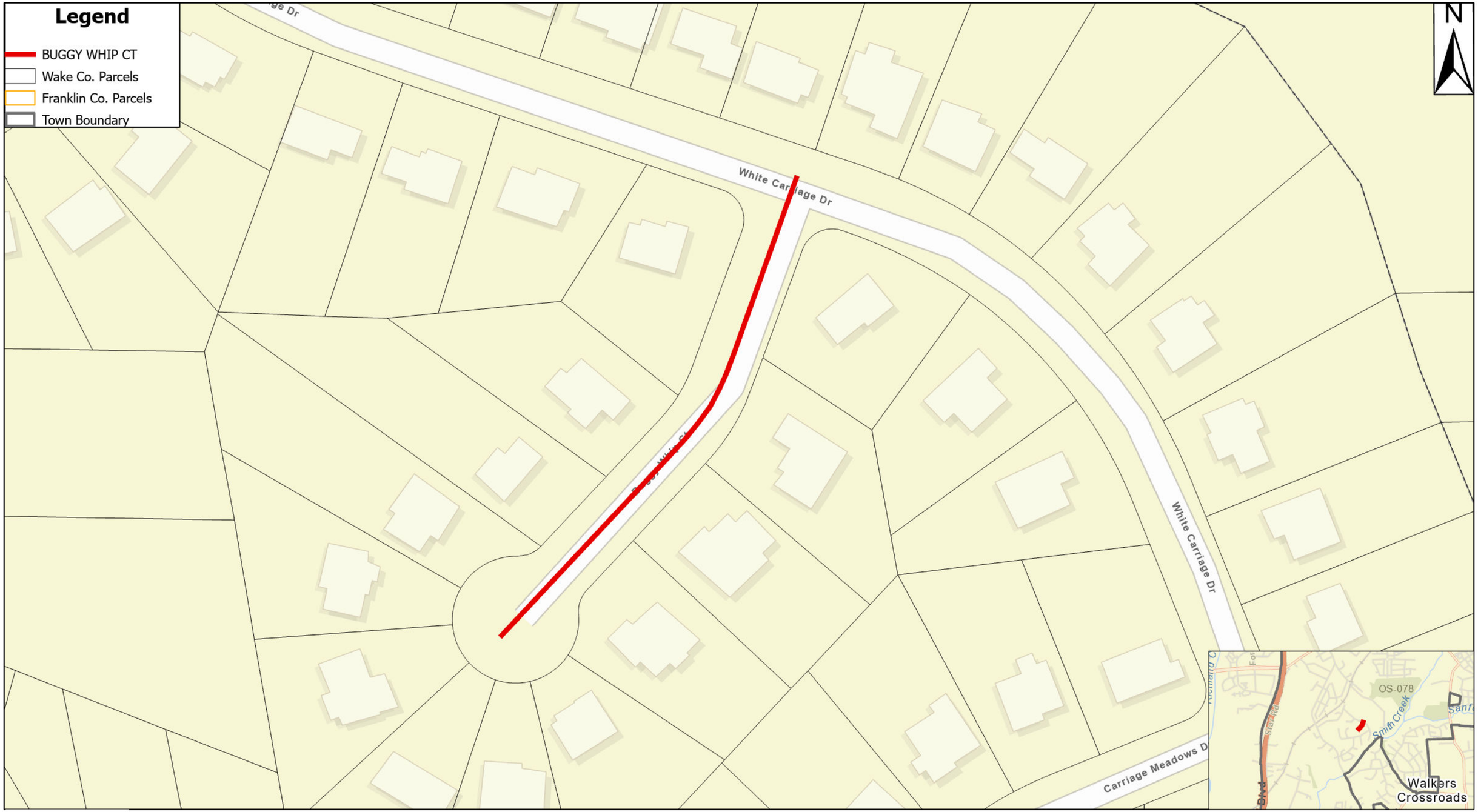


TOWN of WAKE FOREST

MAP No.8

BUGGY RUN CIR

Min Htun - 3/23/2023



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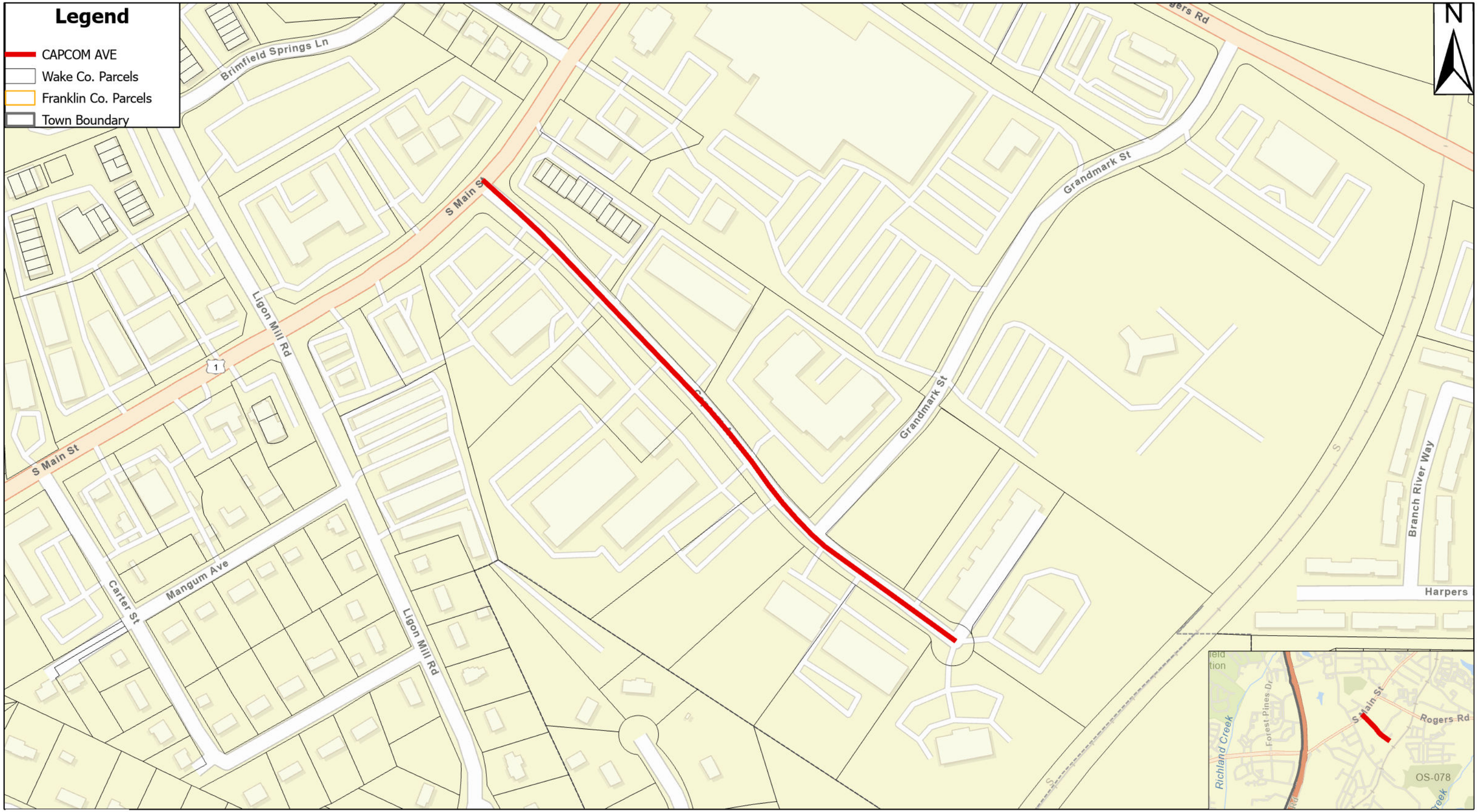
Min Htun - 3/23/2023

TOWN of WAKE FOREST

MAP No.9

BUGGY WHIP CIR



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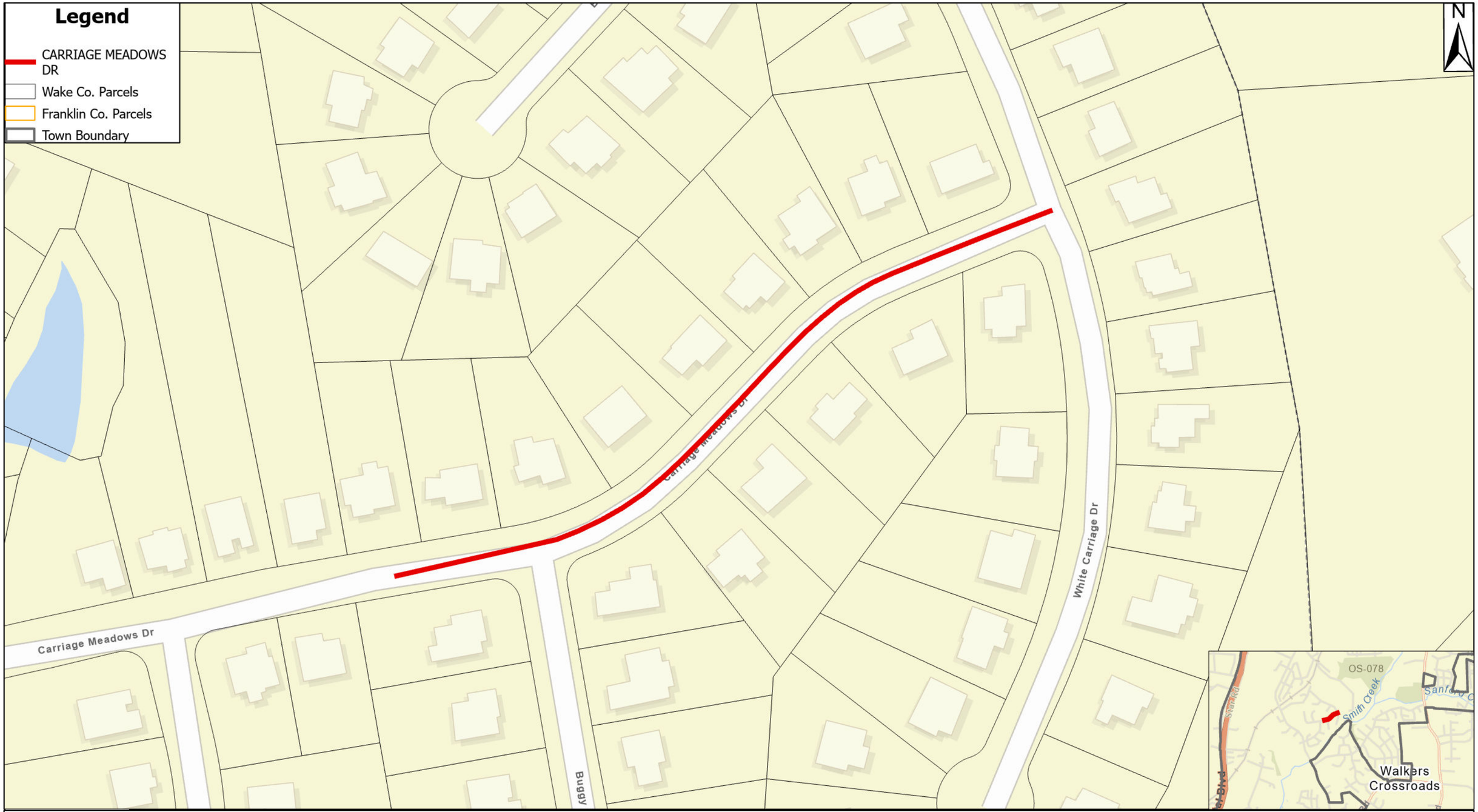
Min Htun - 3/30/2023

TOWN of WAKE FOREST

MAP No.10

CAPCOM AVE



TOWN of WAKE FOREST

MAP No.11

CARRIAGE MEADOWS DR

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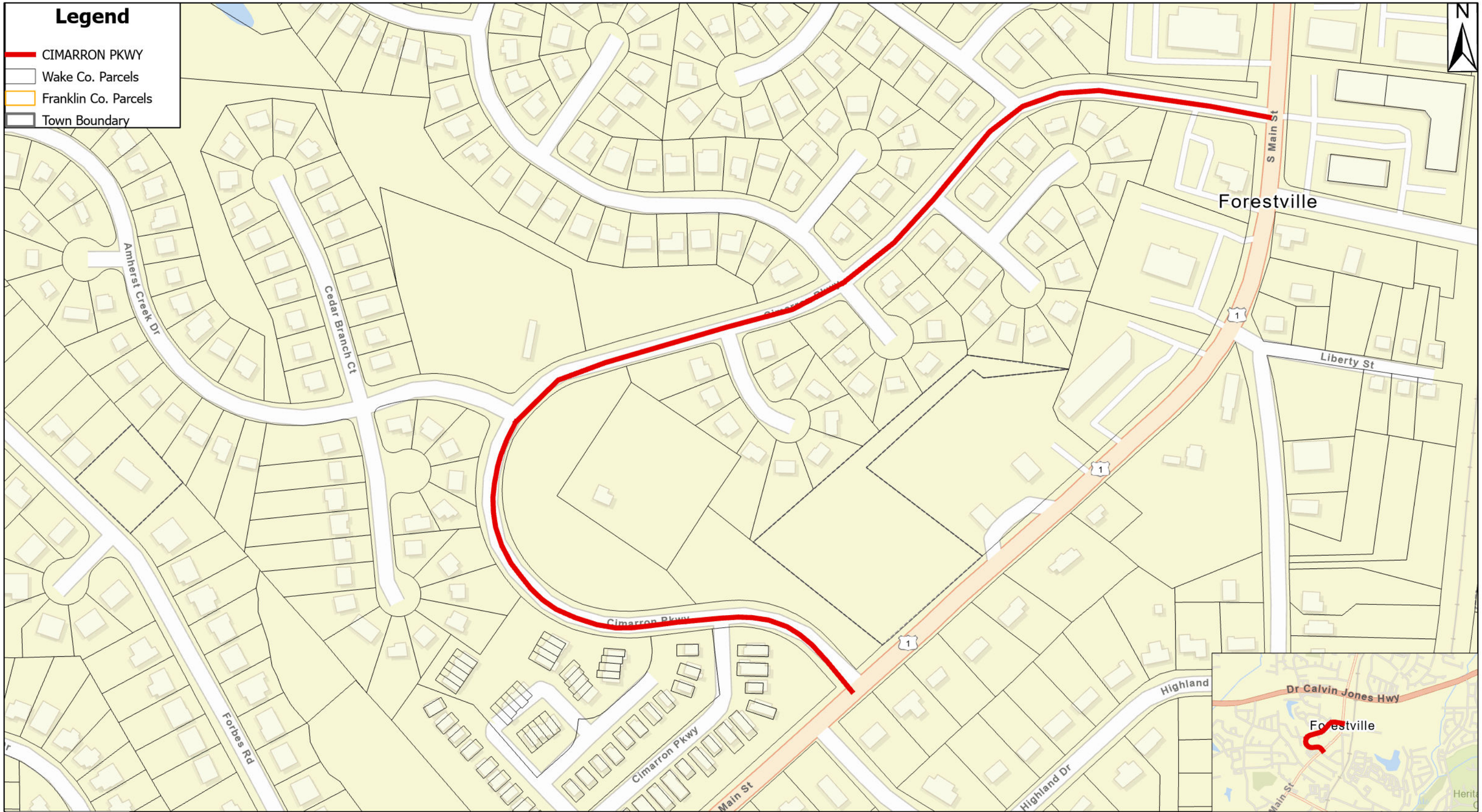
Min Htun - 3/31/2023



TOWN of WAKE FOREST

MAP No.12

CIMARRON PKWY

Min Htun - 3/23/2023

TOWN of WAKE FOREST

MAP No.13

COACH LANTERN AVE

Min Htun - 3/30/2023

TOWN of WAKE FOREST

MAP No.14

COLONIAL CLUB RD

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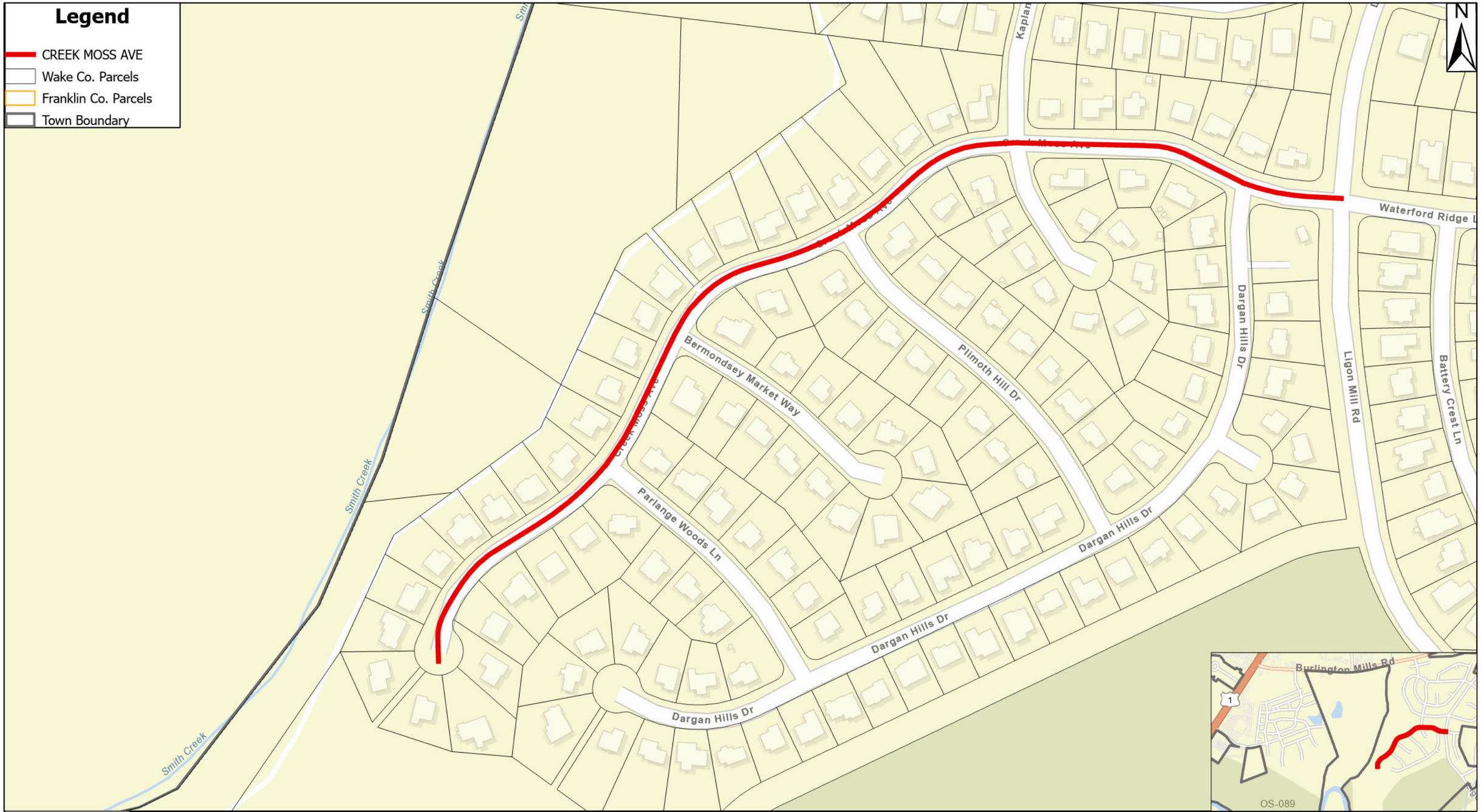
Miles

Min Htun - 3/30/2023



TOWN of WAKE FOREST

MAP No.15

CREEK MOSS AVE

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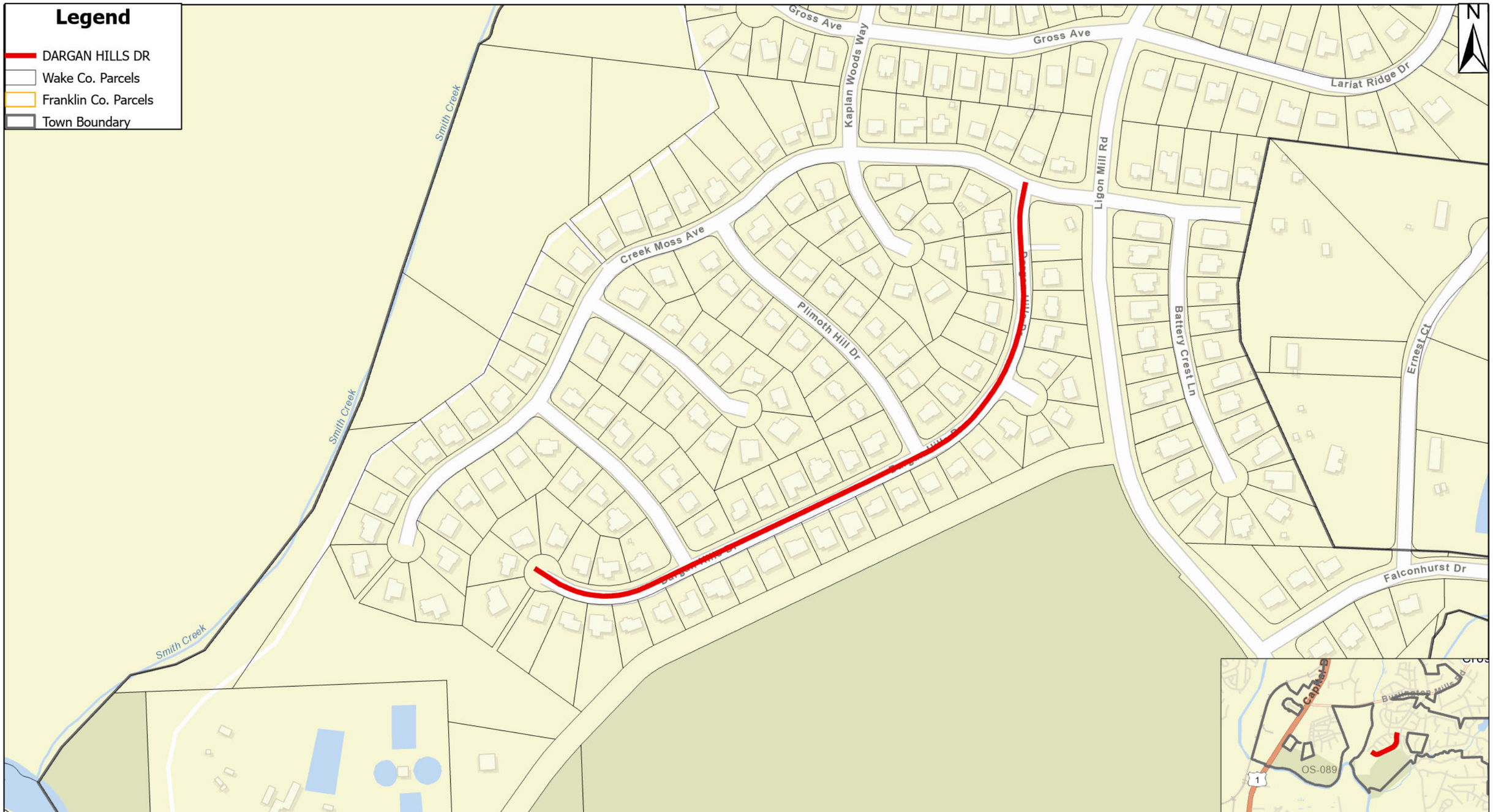
Miles

Min Htun - 3/23/2023



TOWN of WAKE FOREST

MAP No.16

DARGAN HILLS DR

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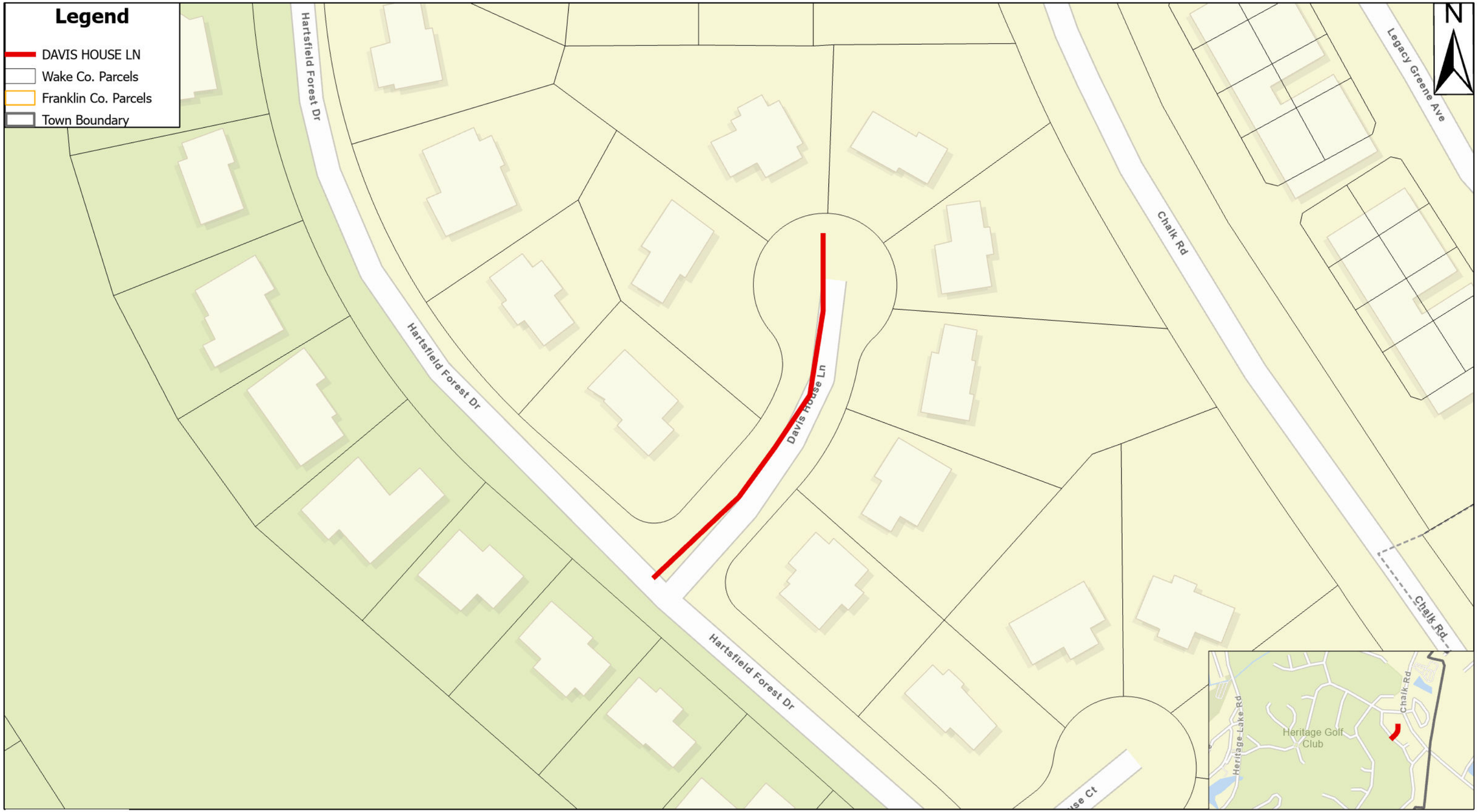
Miles

Min Htun - 3/23/2023



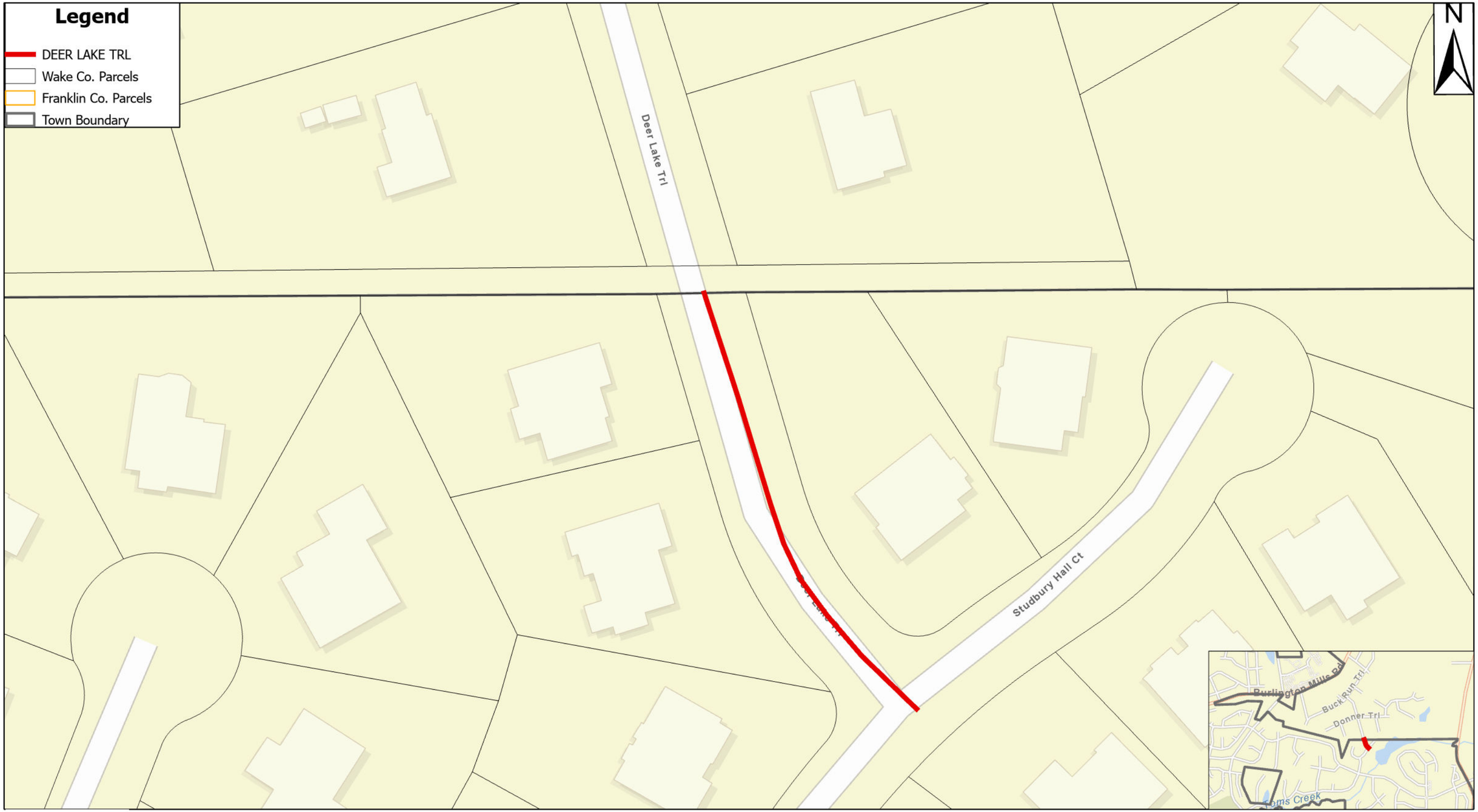
0 0.01 0.01 0.02
Miles

TOWN of WAKE FOREST

MAP No.17

DAVIS HOUSE LN

Min Htun - 3/31/2023



0 0.01 0.01 0.02

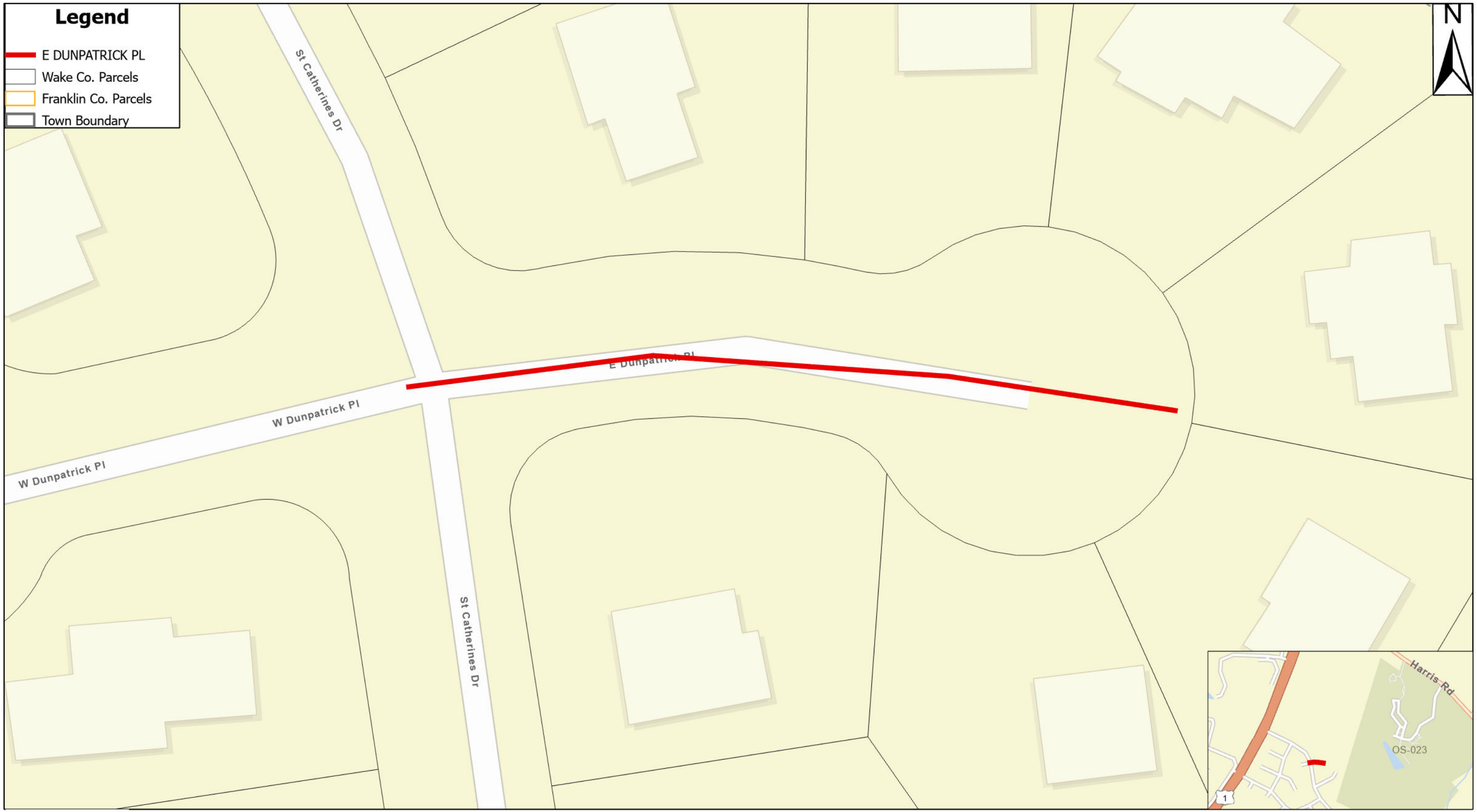
Miles

Min Htun - 3/23/2023

TOWN of WAKE FOREST

MAP No.18

DEER LAKE TRL



0 0 0.01 0.01
Miles

Min Htun - 3/31/2023

TOWN of WAKE FOREST

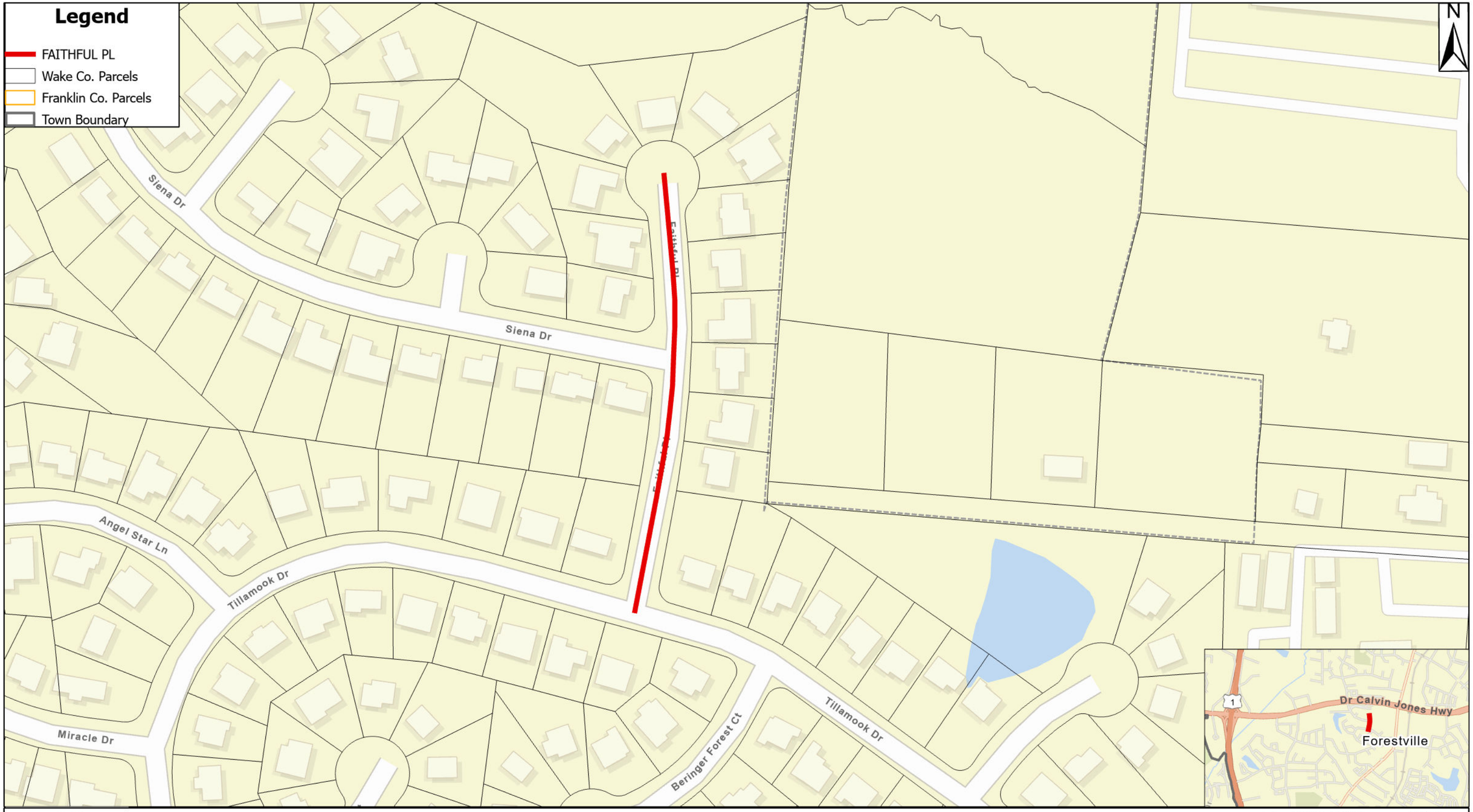
MAP No.19

E DUNPATRICK PL

TOWN of WAKE FOREST

MAP No.20

FAIRLAKE DR



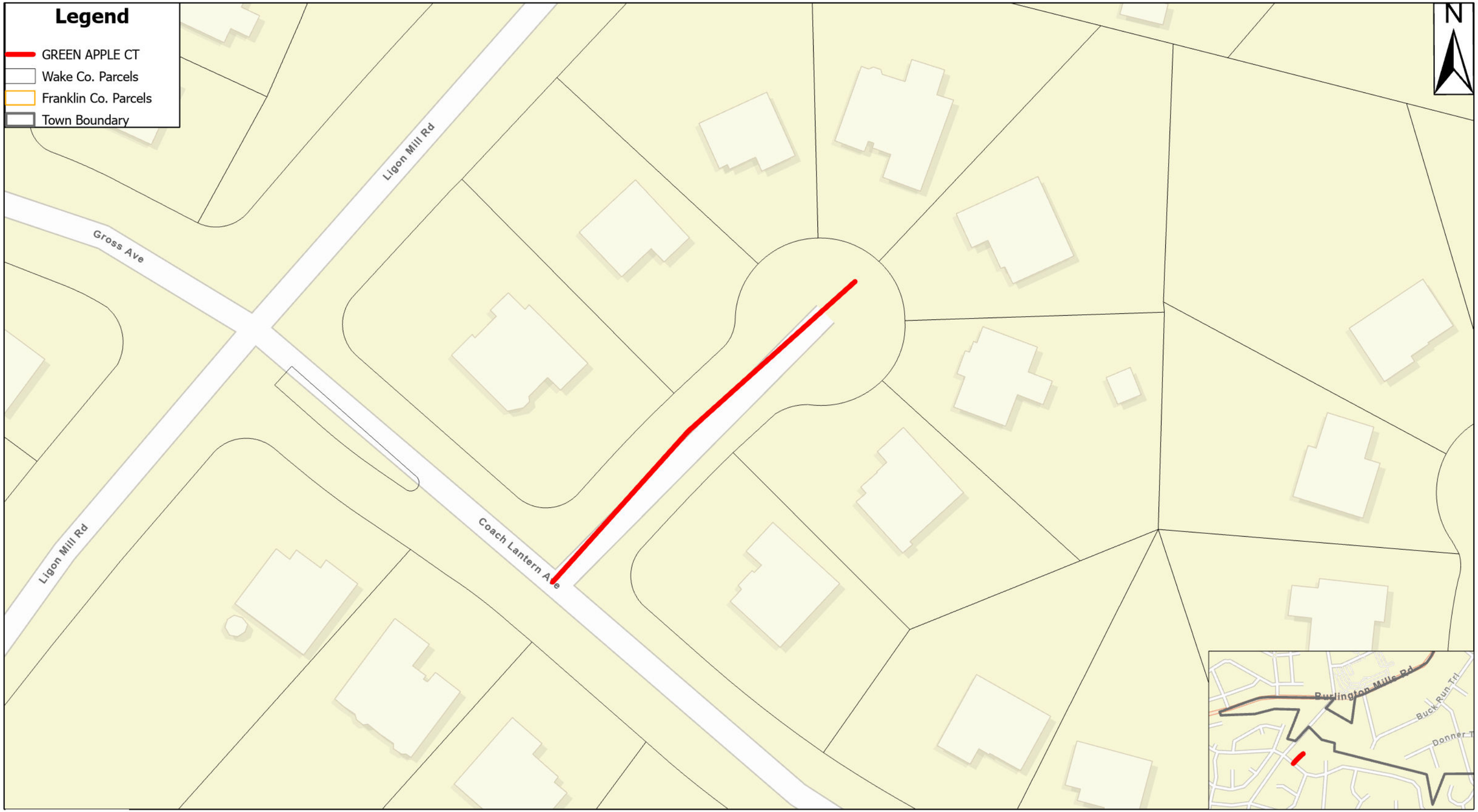
TOWN of WAKE FOREST

MAP No.21

FAITHFUL PL

0 0.01 0.02 0.04
Miles

Min Htun - 7/7/2023



0 0.01 0.01 0.02

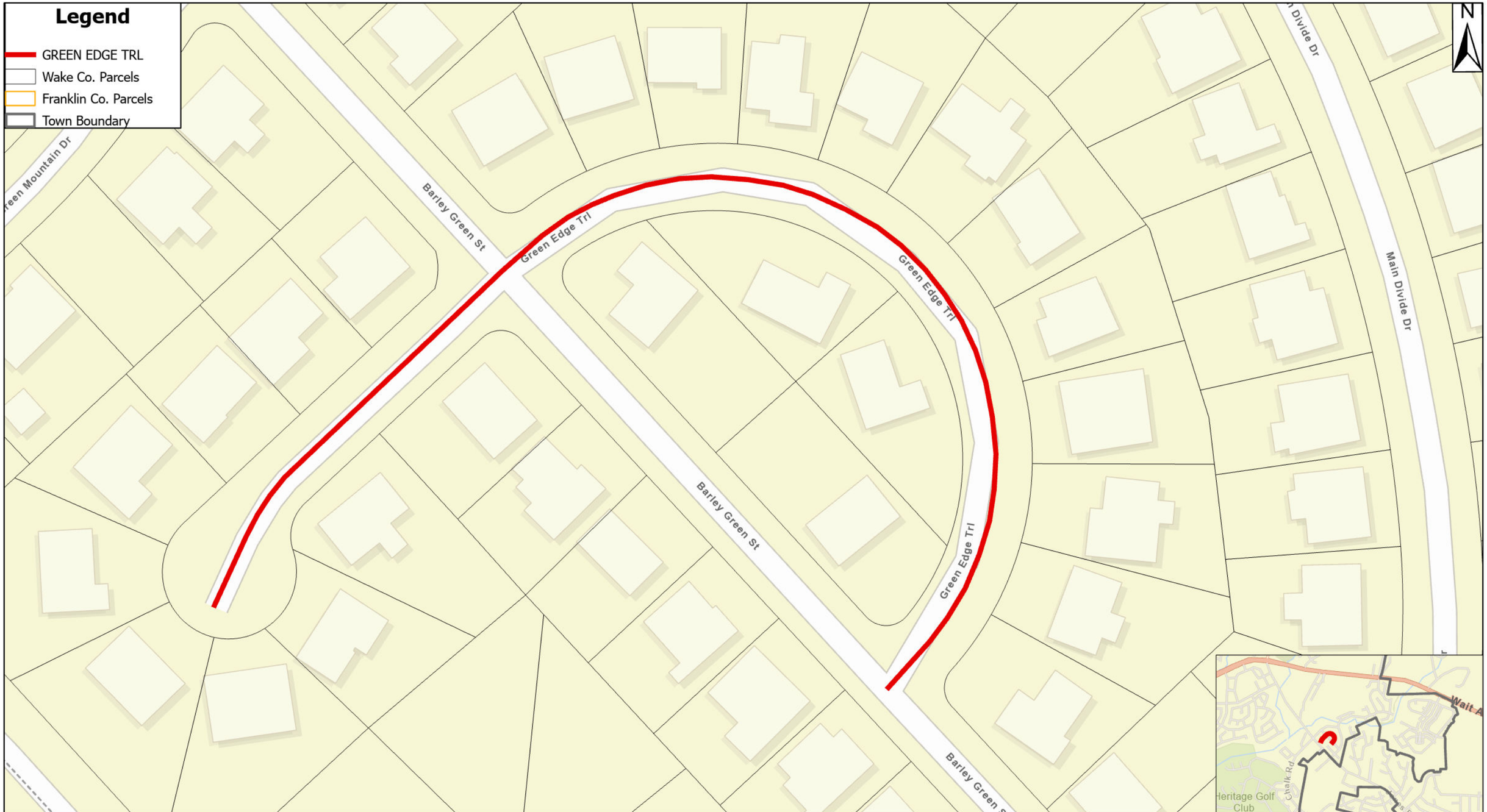
Miles

Min Htun - 3/30/2023

TOWN of WAKE FOREST

MAP No.22

GREEN APPLE CT

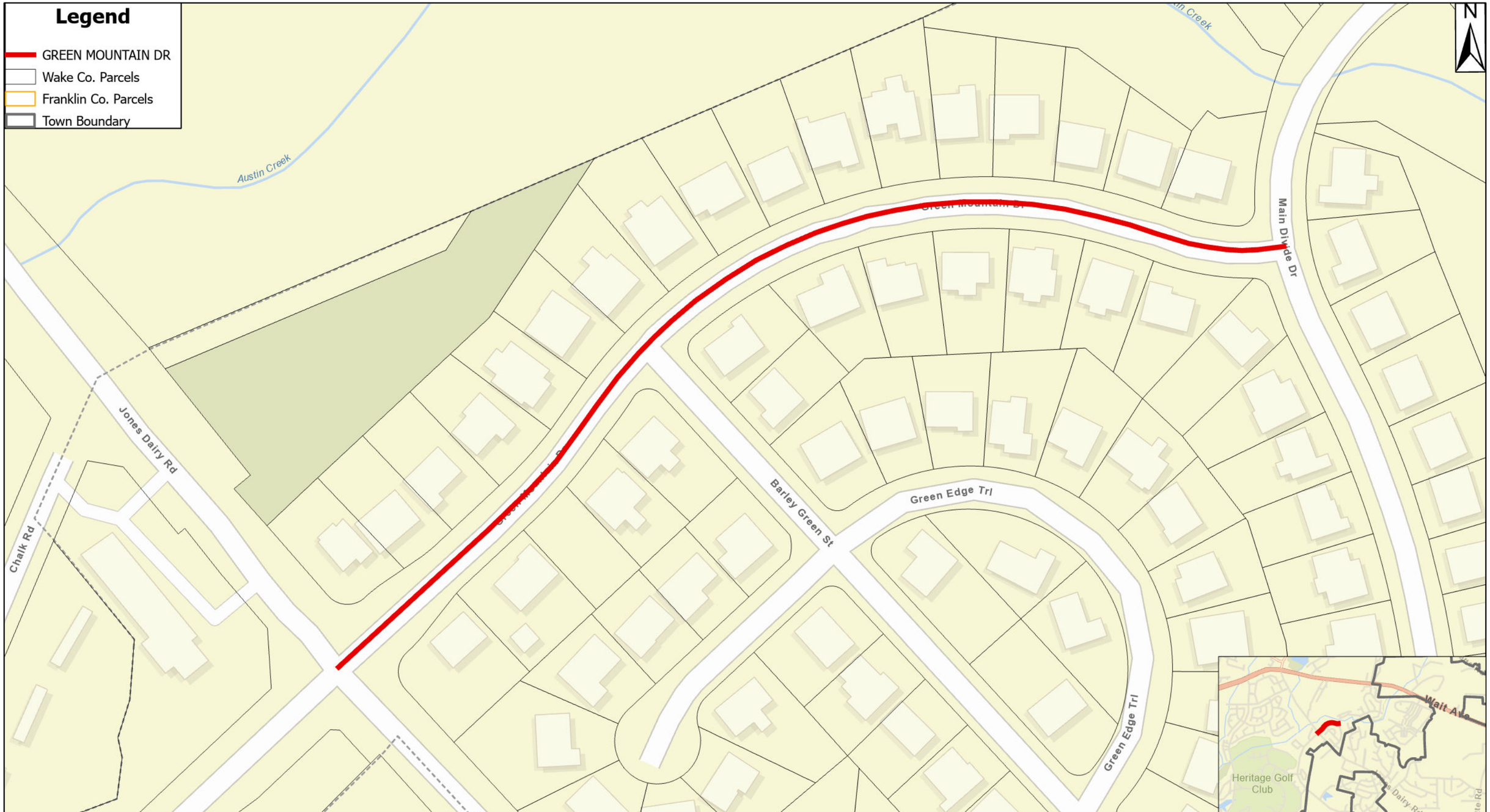


TOWN of WAKE FOREST

MAP No.23

GREEN EDGE TRL

Min Htun - 7/7/2023

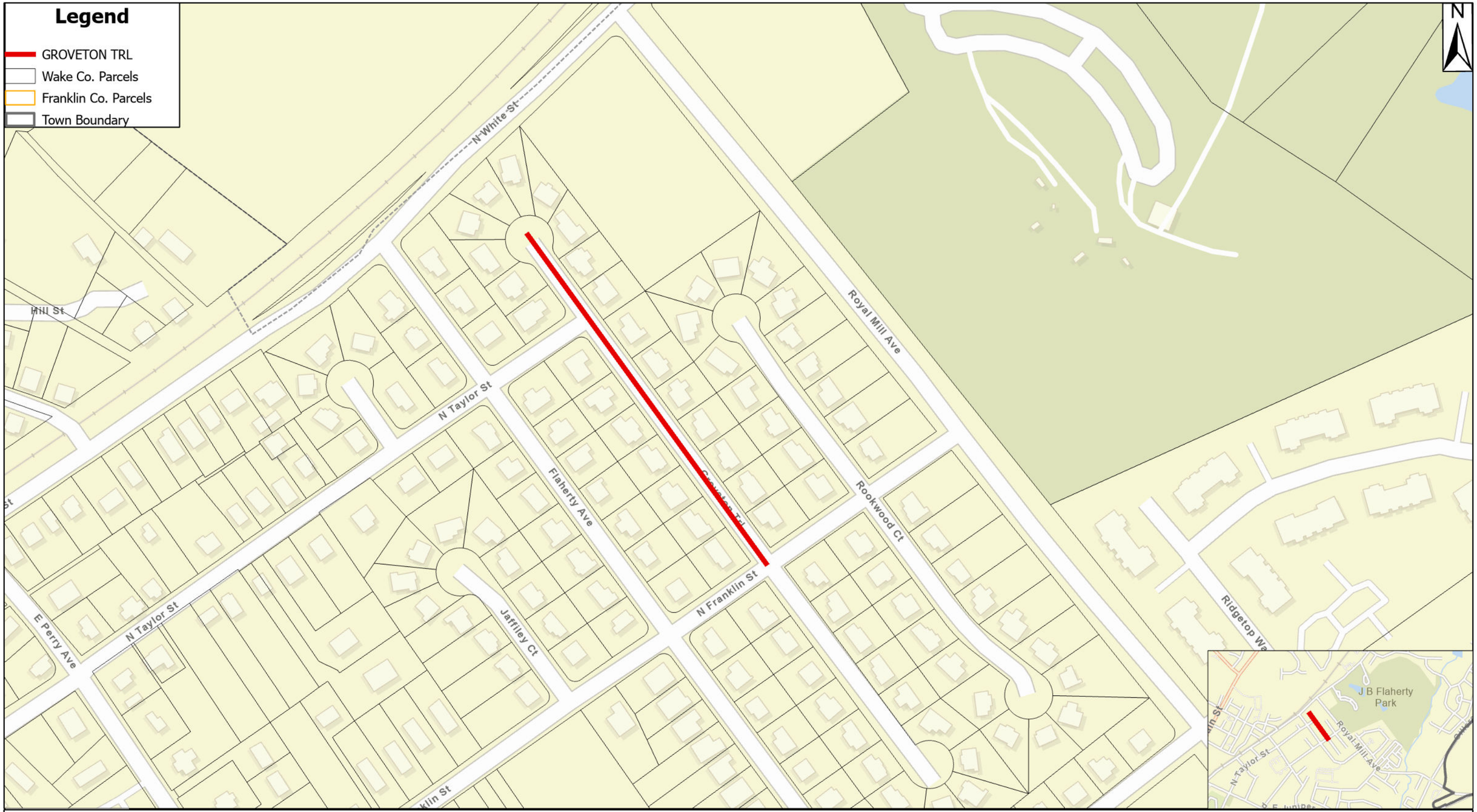


TOWN of WAKE FOREST

MAP No.24

GREEN MOUNTAIN DR

Min Htun - 3/23/2023



TOWN of WAKE FOREST

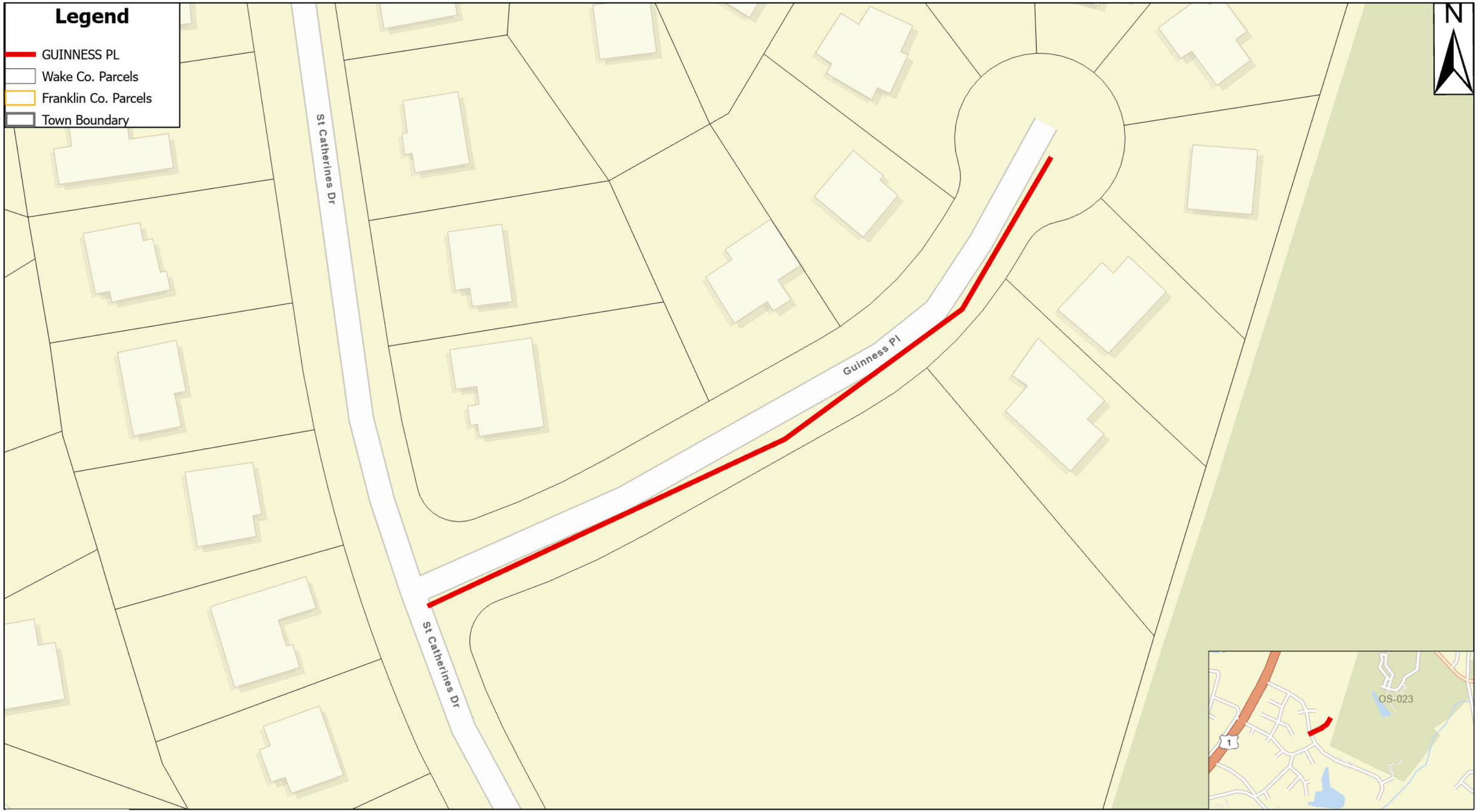
MAP No.25

GROVETON TRL

0 0.02 0.04 0.07

Miles

Min Htun - 7/7/2023



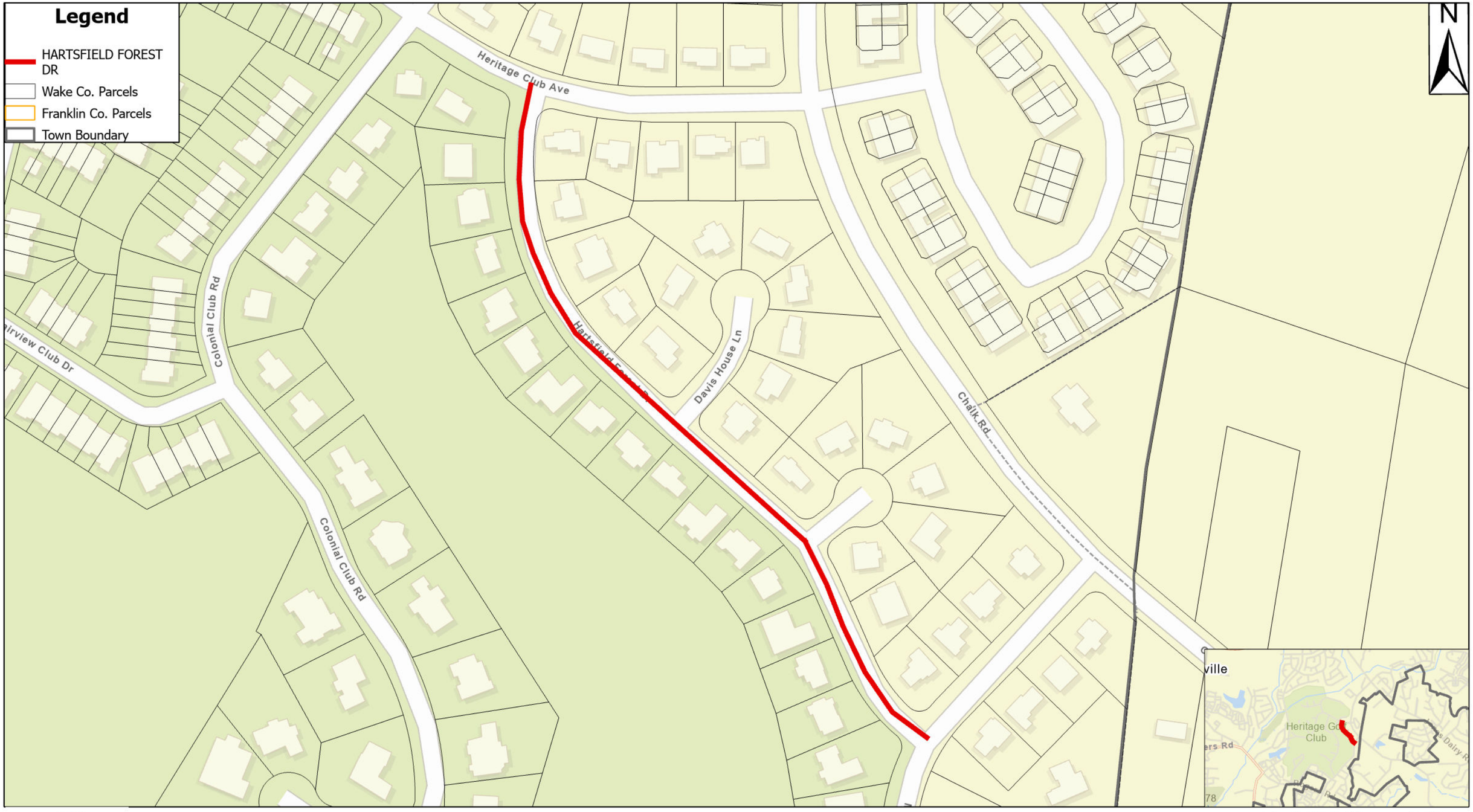
0 0.01 0.01 0.02
Miles

Min Htun - 3/31/2023

TOWN of WAKE FOREST

MAP No.26

GUINNESS PL

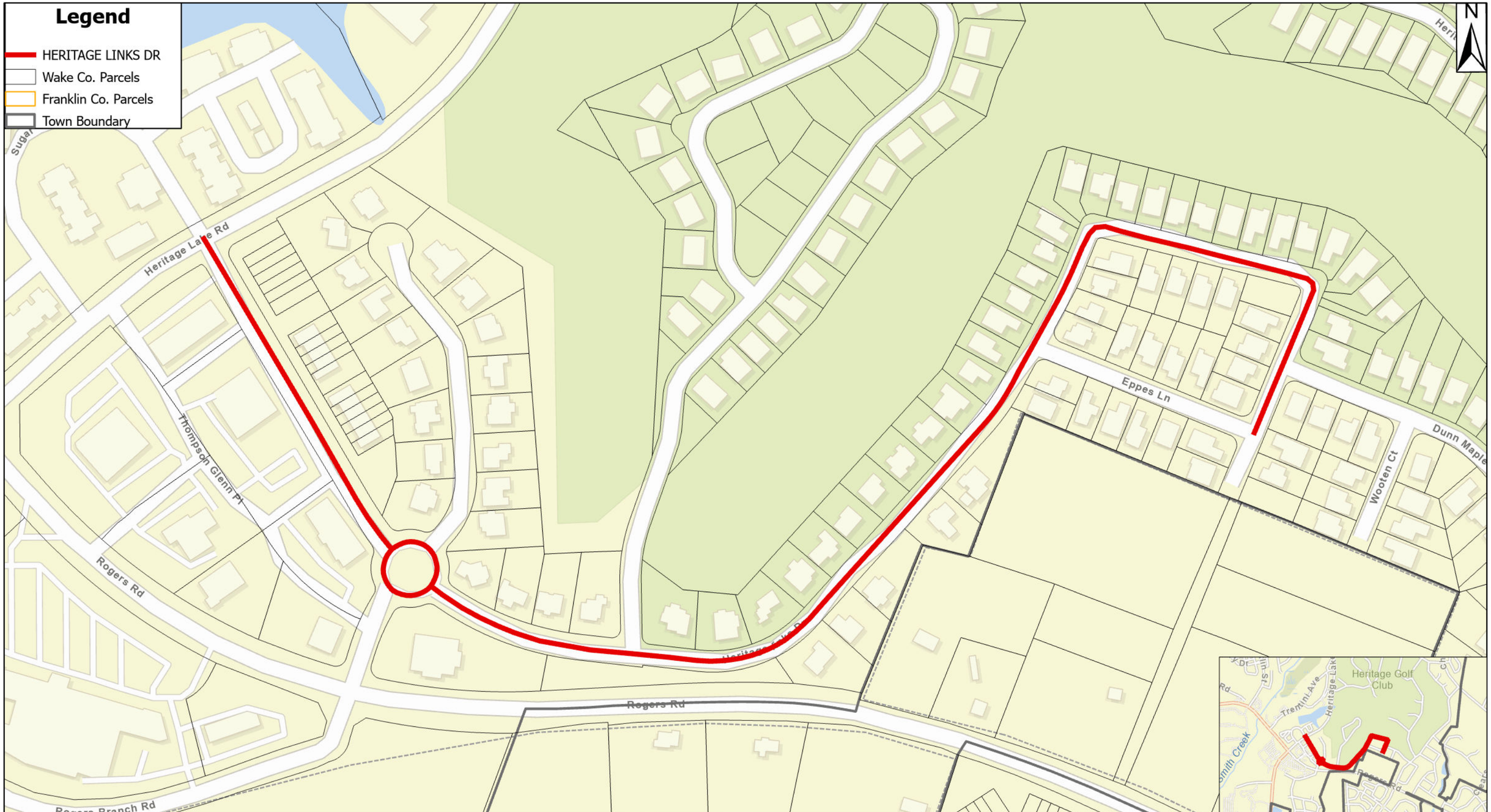


TOWN of WAKE FOREST

MAP No.27

HARTSFIELD FOREST DR

Min Htun - 3/29/2023

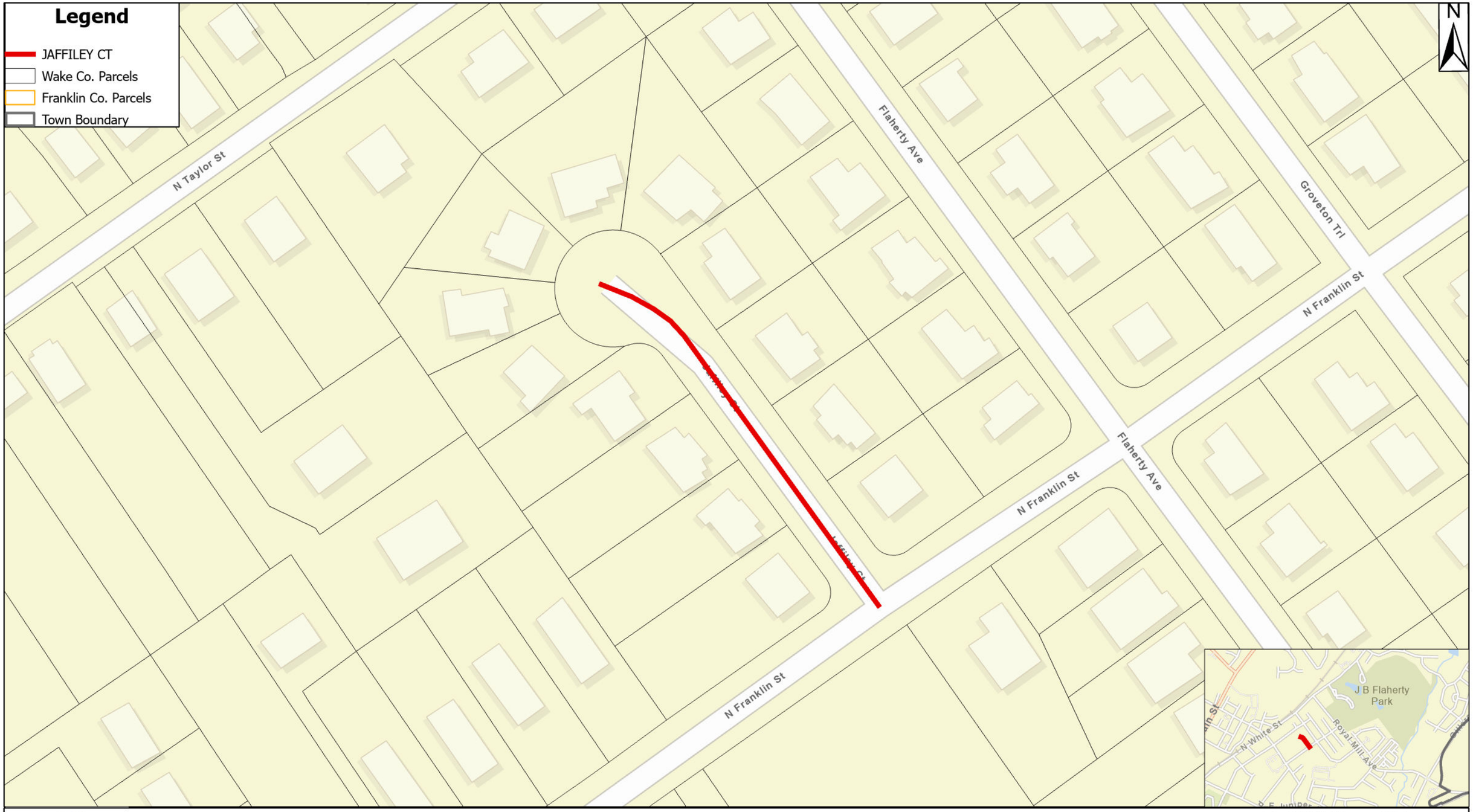


TOWN of WAKE FOREST

MAP No.28

HERITAGE LINKS DR

Min Htun - 3/23/2023



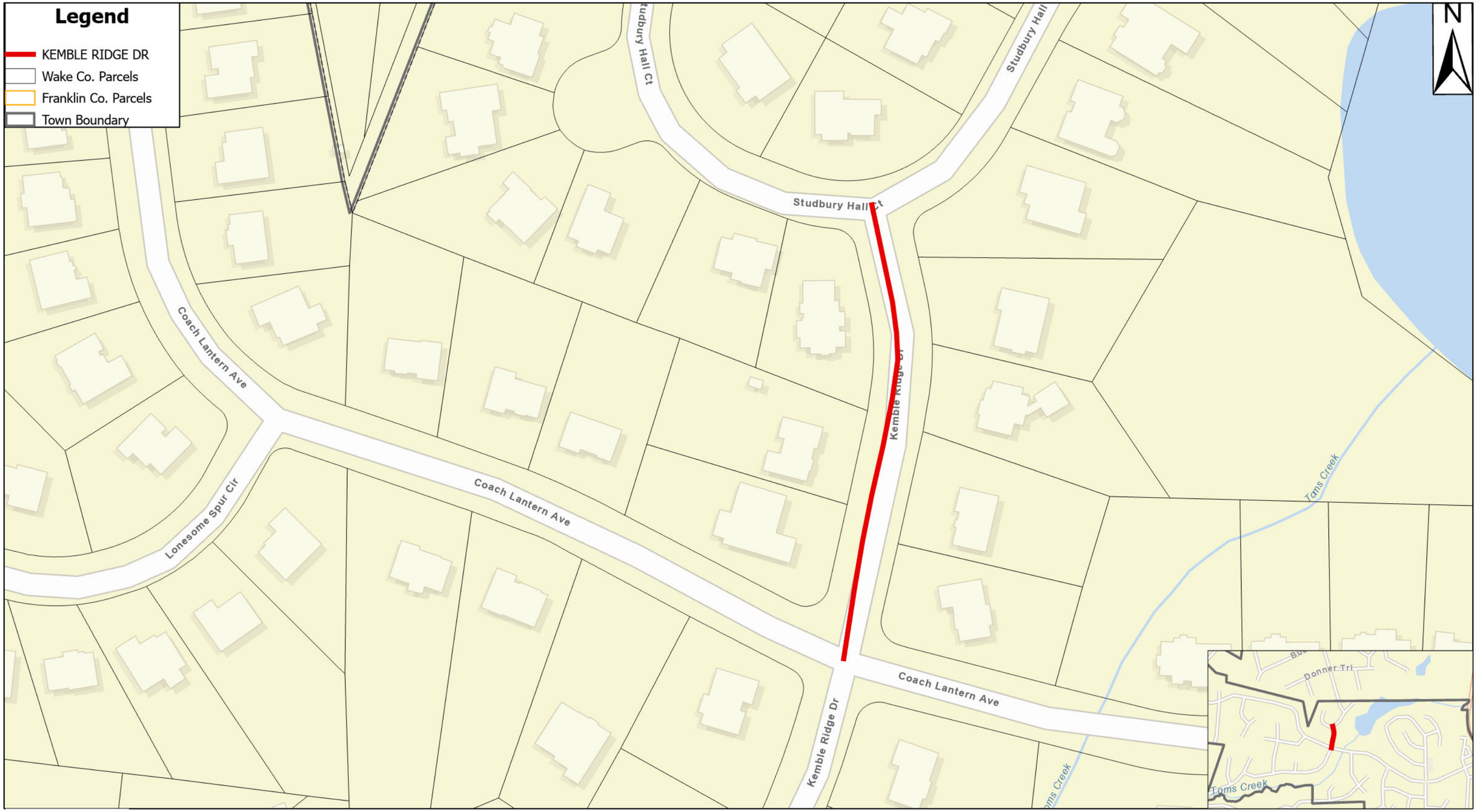
TOWN of WAKE FOREST

MAP No.29

JAFFILEY CT

0 0.010.01 0.02
Miles

Min Htun - 3/23/2023

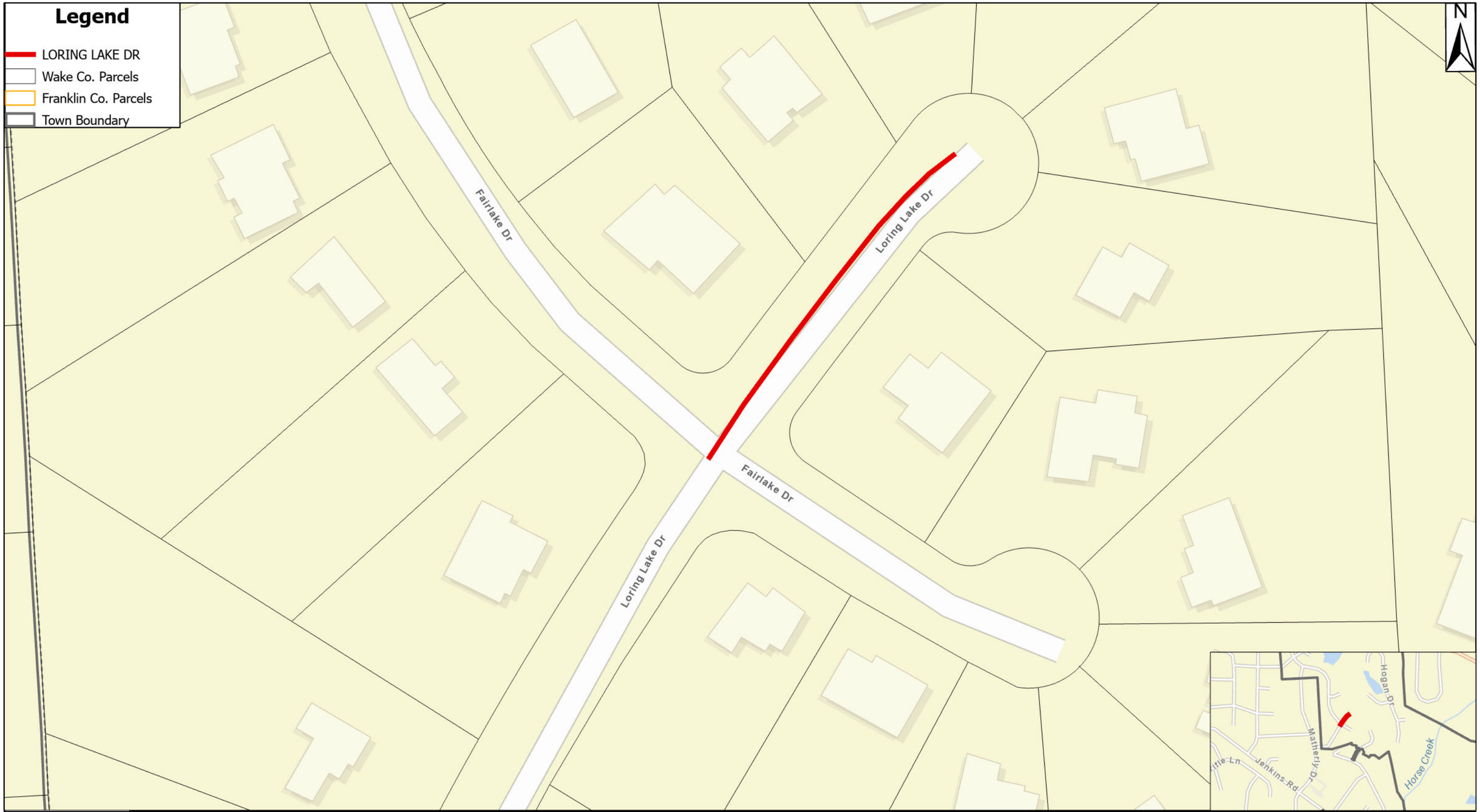


TOWN of WAKE FOREST

MAP No.30

KEMBLE RIDGE DR

Min Htun - 3/23/2023



TOWN of WAKE FOREST

MAP No.31

LORING LAKE DR

0 0.01 0.01 0.02
Miles

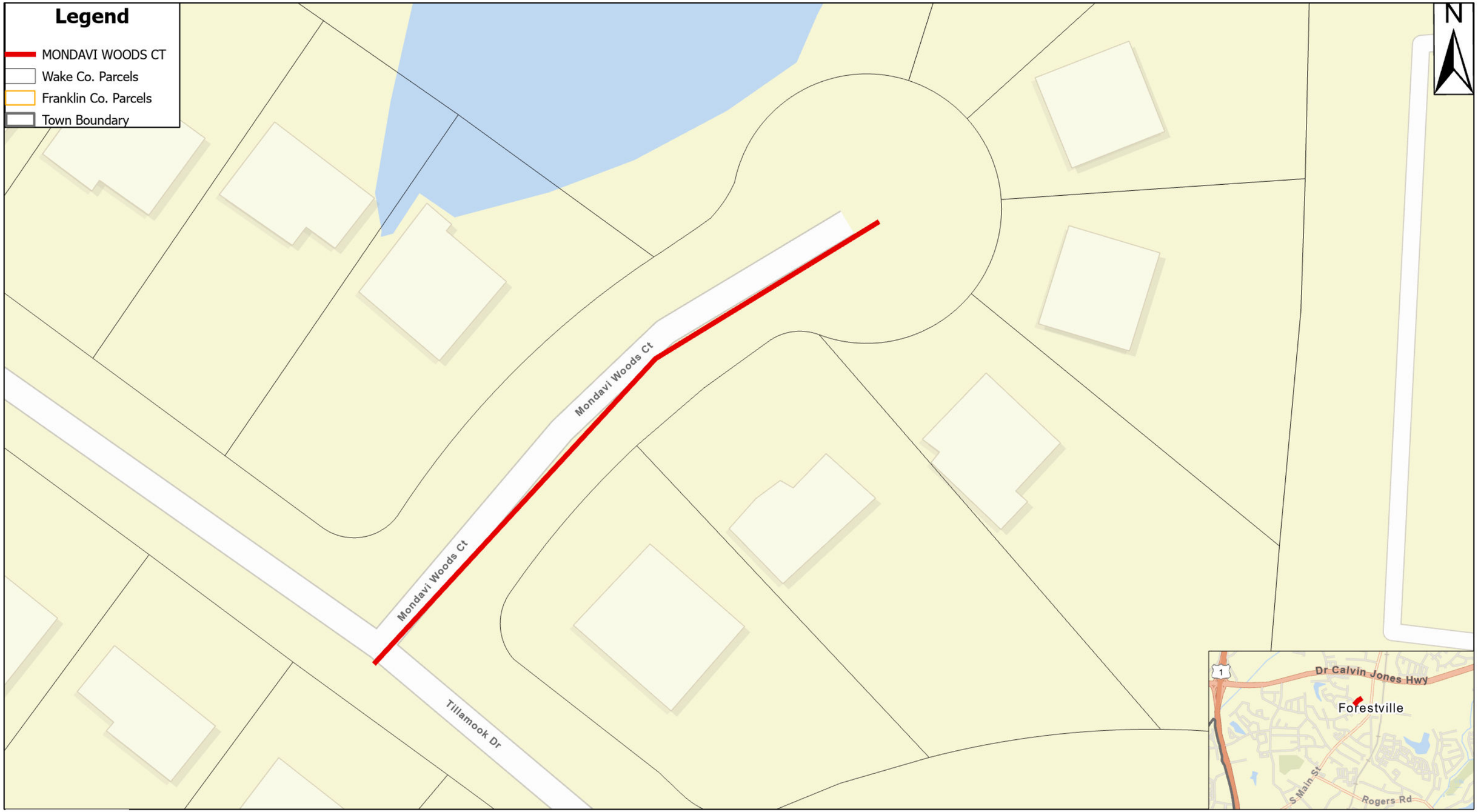
Min Htun - 3/23/2023

TOWN of WAKE FOREST

MAP No.32

MARSHALL FARM ST

Min Htun - 3/23/2023



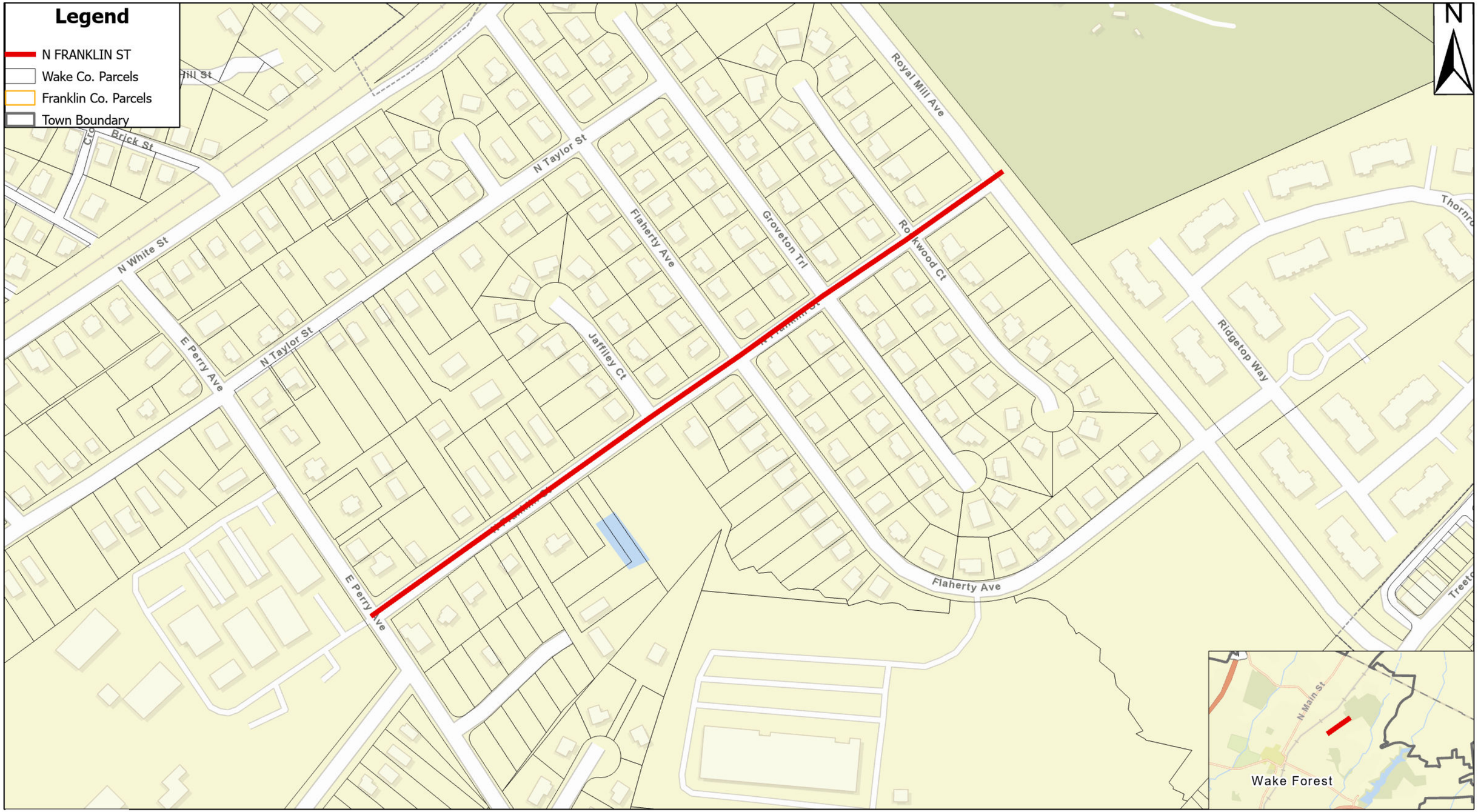
0 0 0.01 0.01
Miles

Min Htun - 3/23/2023

TOWN of WAKE FOREST

MAP No.33

MONDAVI WOODS CT

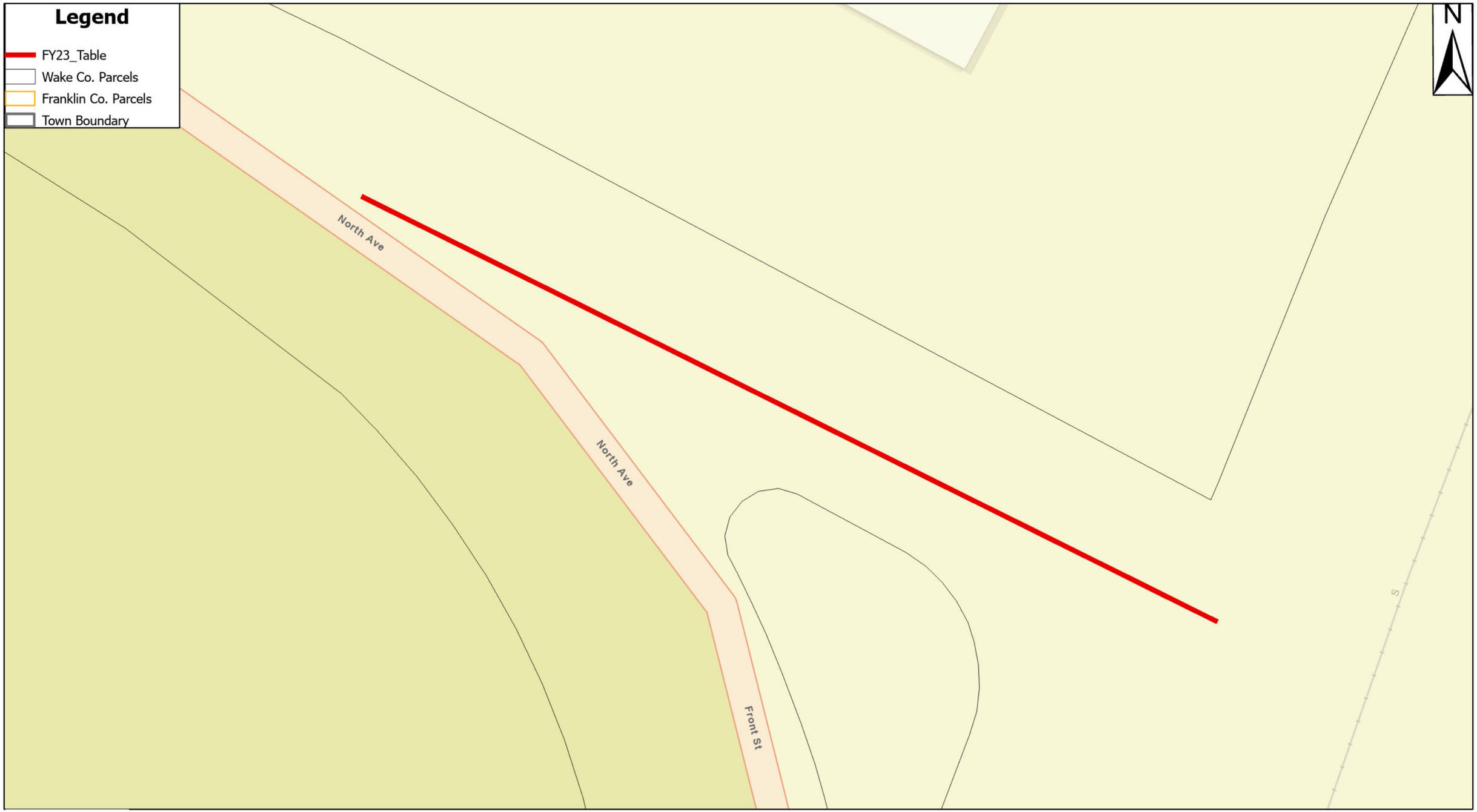


TOWN of WAKE FOREST

MAP No.34

N FRANKLIN ST

Min Htun - 3/31/2023



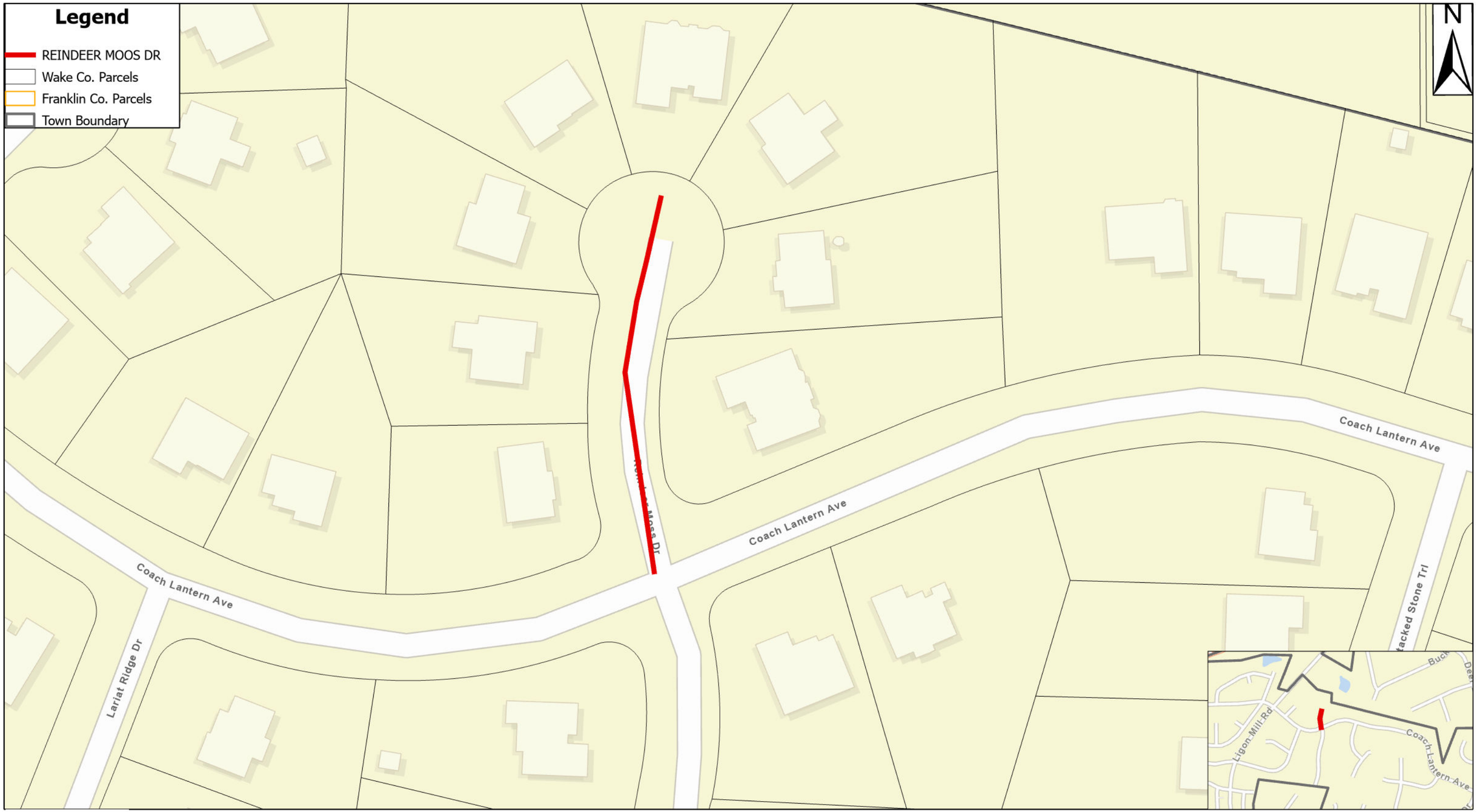
TOWN of WAKE FOREST

MAP No.35

North Ave

0 0 0 0.01
Miles

Min Htun - 6/15/2023

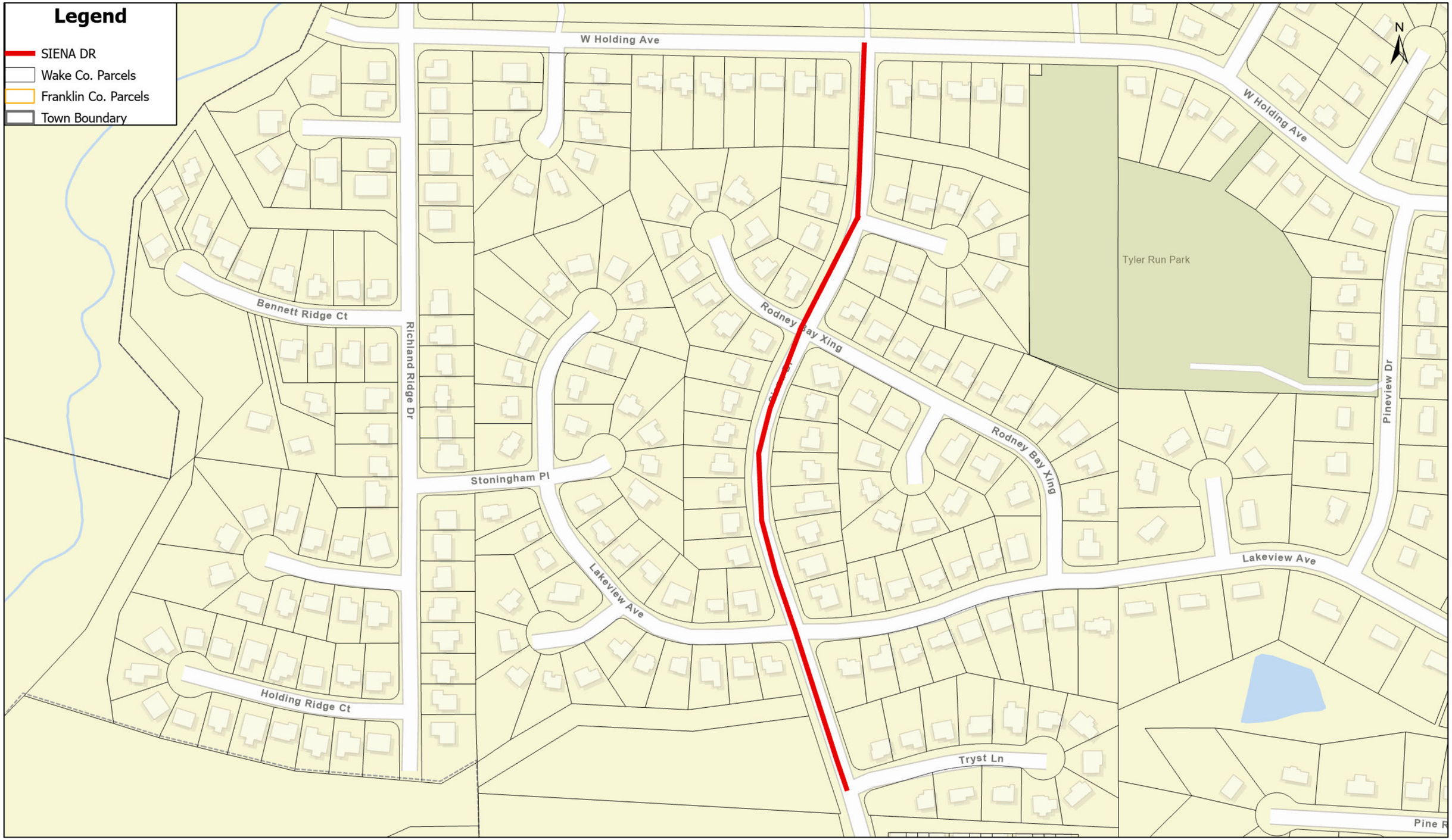


TOWN of WAKE FOREST

MAP No.36

REINDEER MOSS DR

Min Htun - 3/30/2023



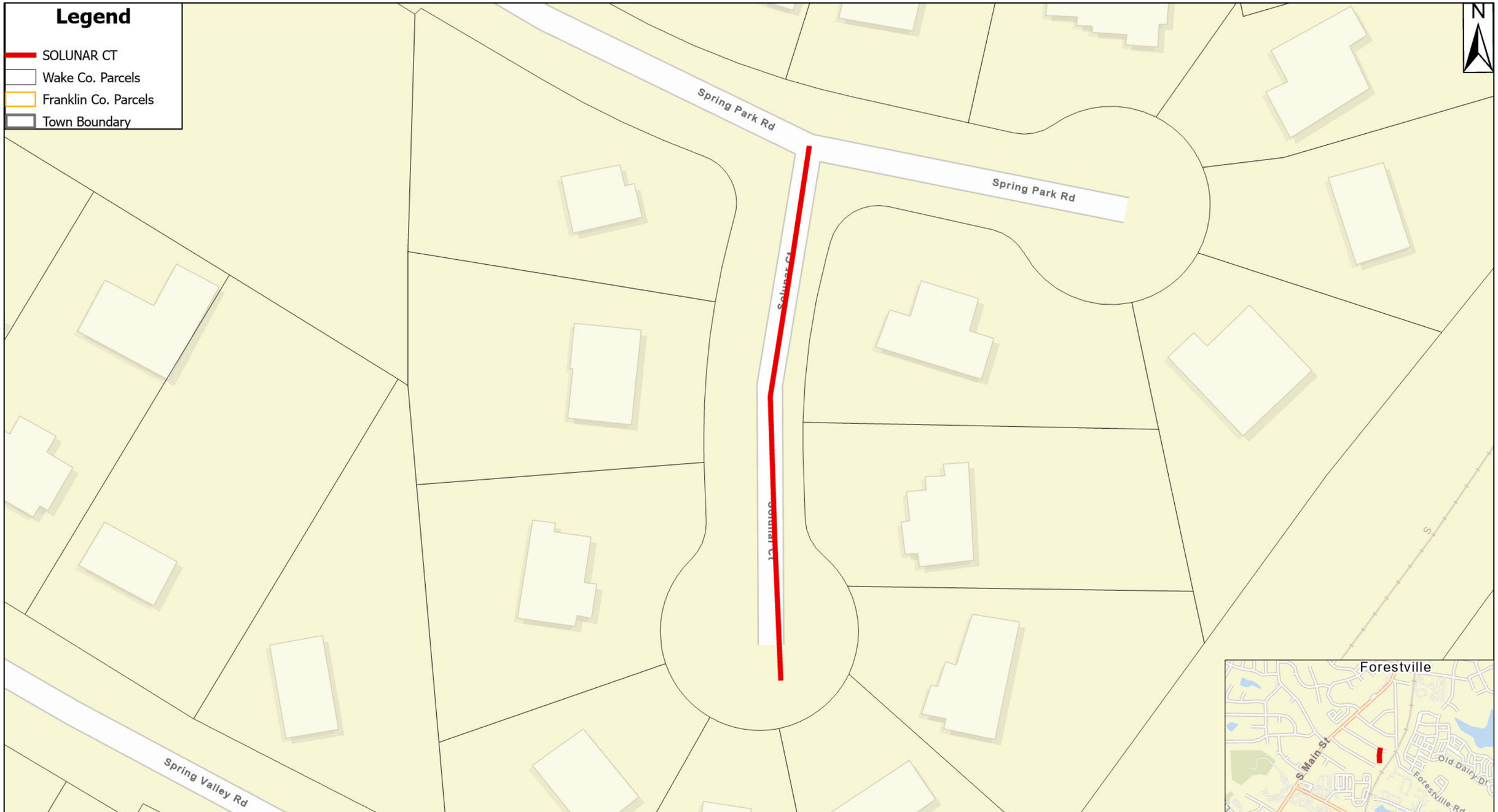
TOWN of WAKE FOREST

MAP No.37

SIENA DR

0 0.01 0.03 0.06
Miles

Min Htun - 7/24/2023



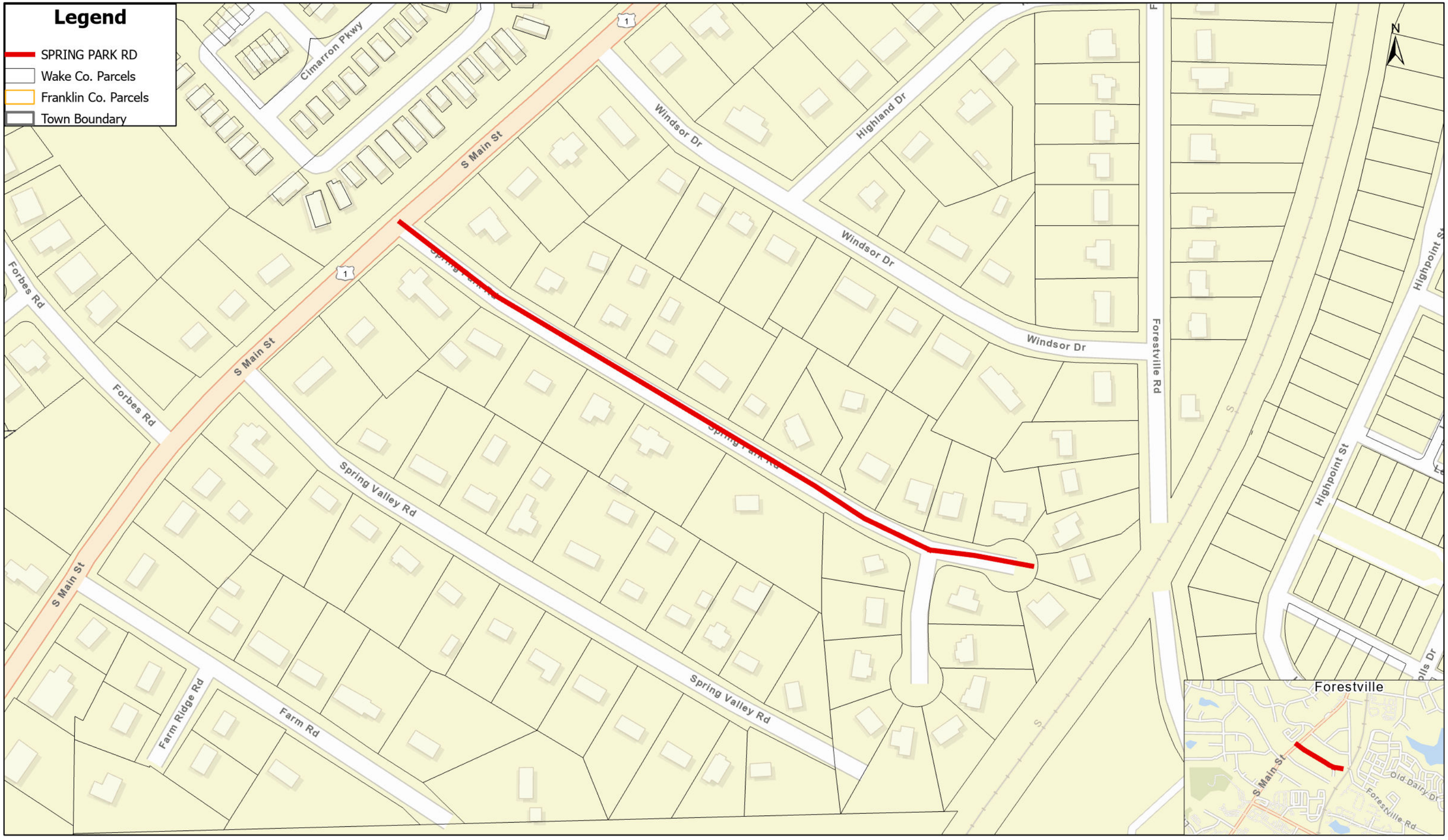
TOWN of WAKE FOREST

MAP No.38

SOLUNAR CT

0 0 0.01 0.02
Miles

Min Htun - 7/7/2023



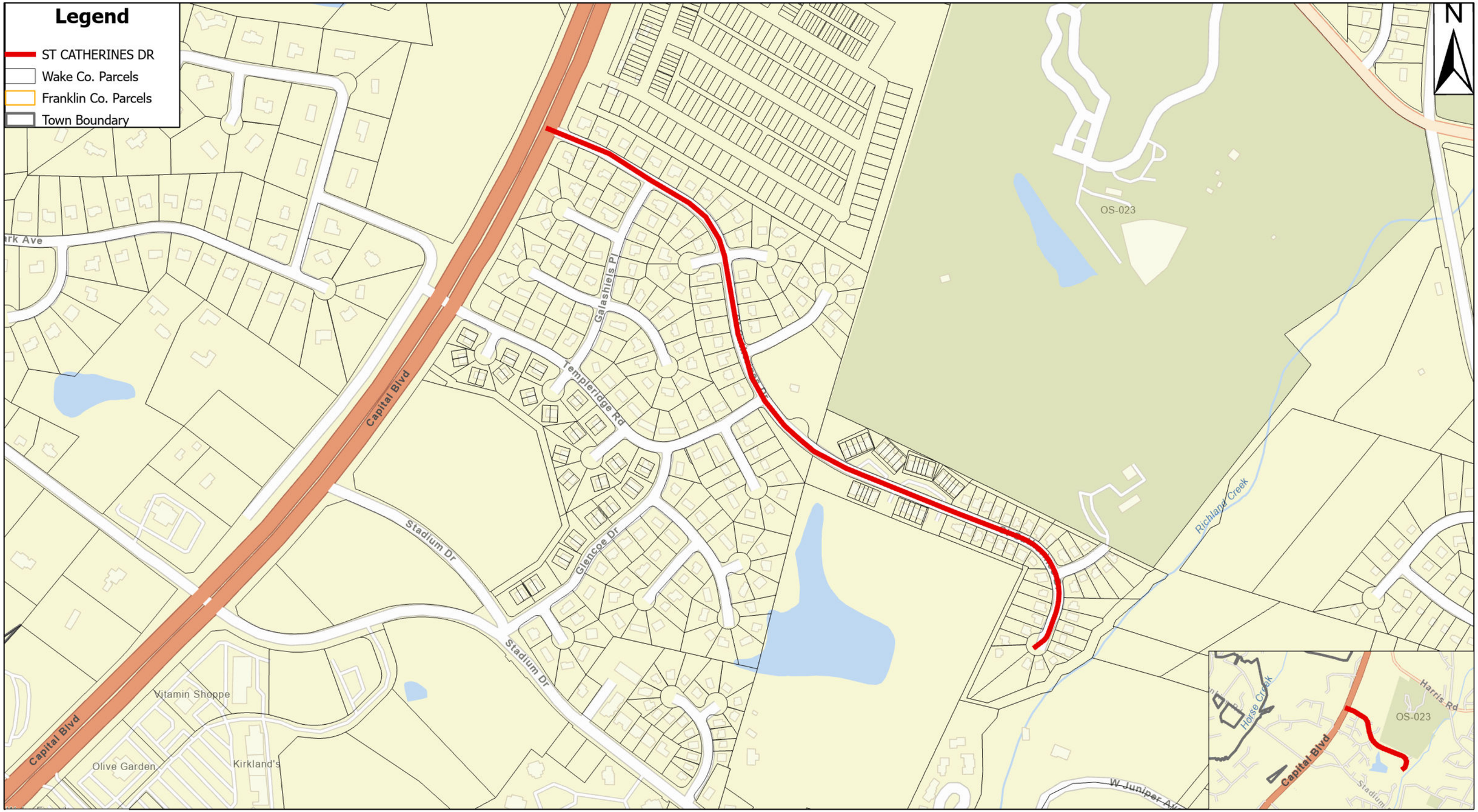
TOWN of WAKE FOREST

MAP No.39

SPRING PARK RD

0 0.02 0.04 0.07
Miles

Min Htun - 7/7/2023

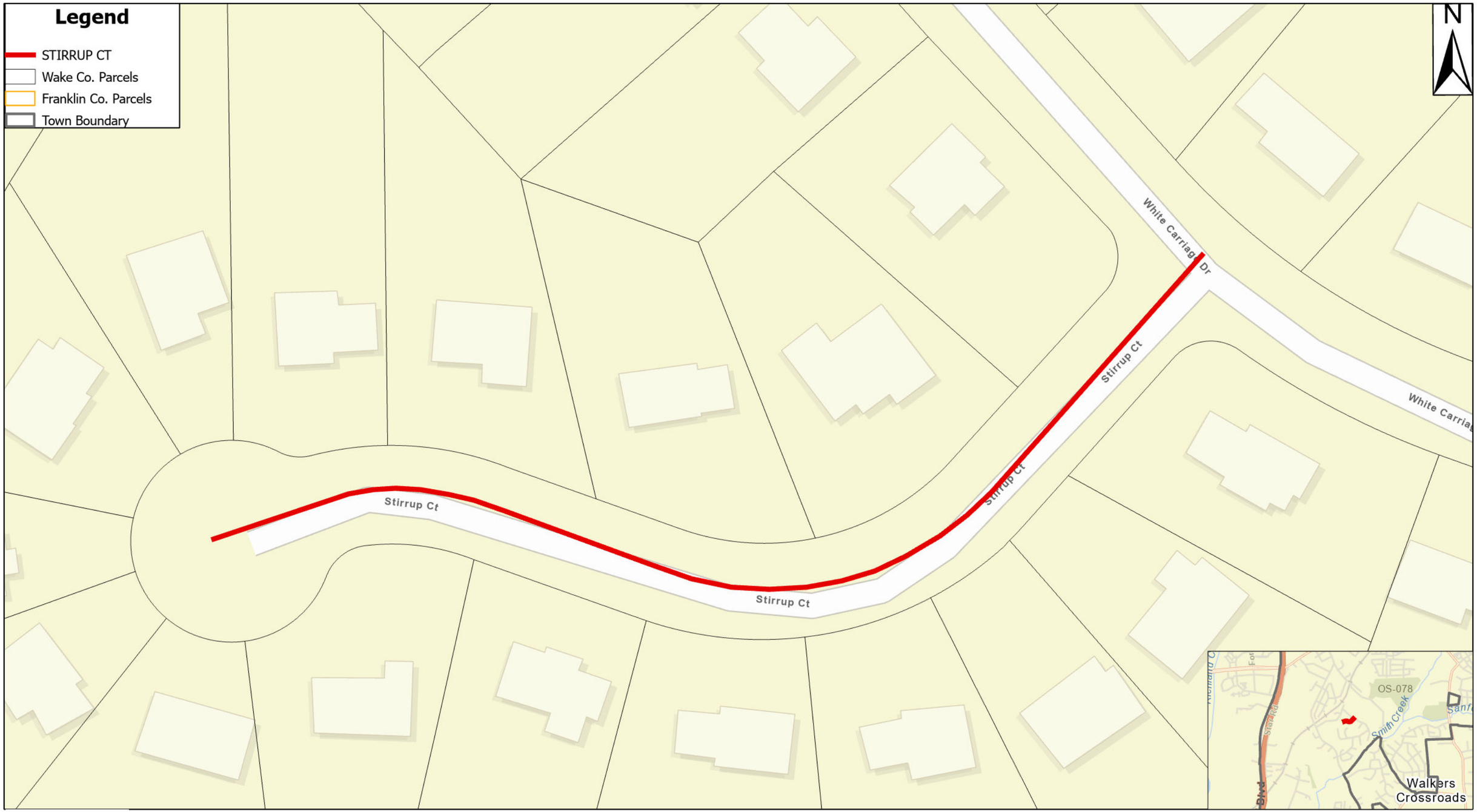


TOWN of WAKE FOREST

MAP No.40

ST CATHERINES DR

Min Htun - 3/31/2023



0 0 0.01 0.02

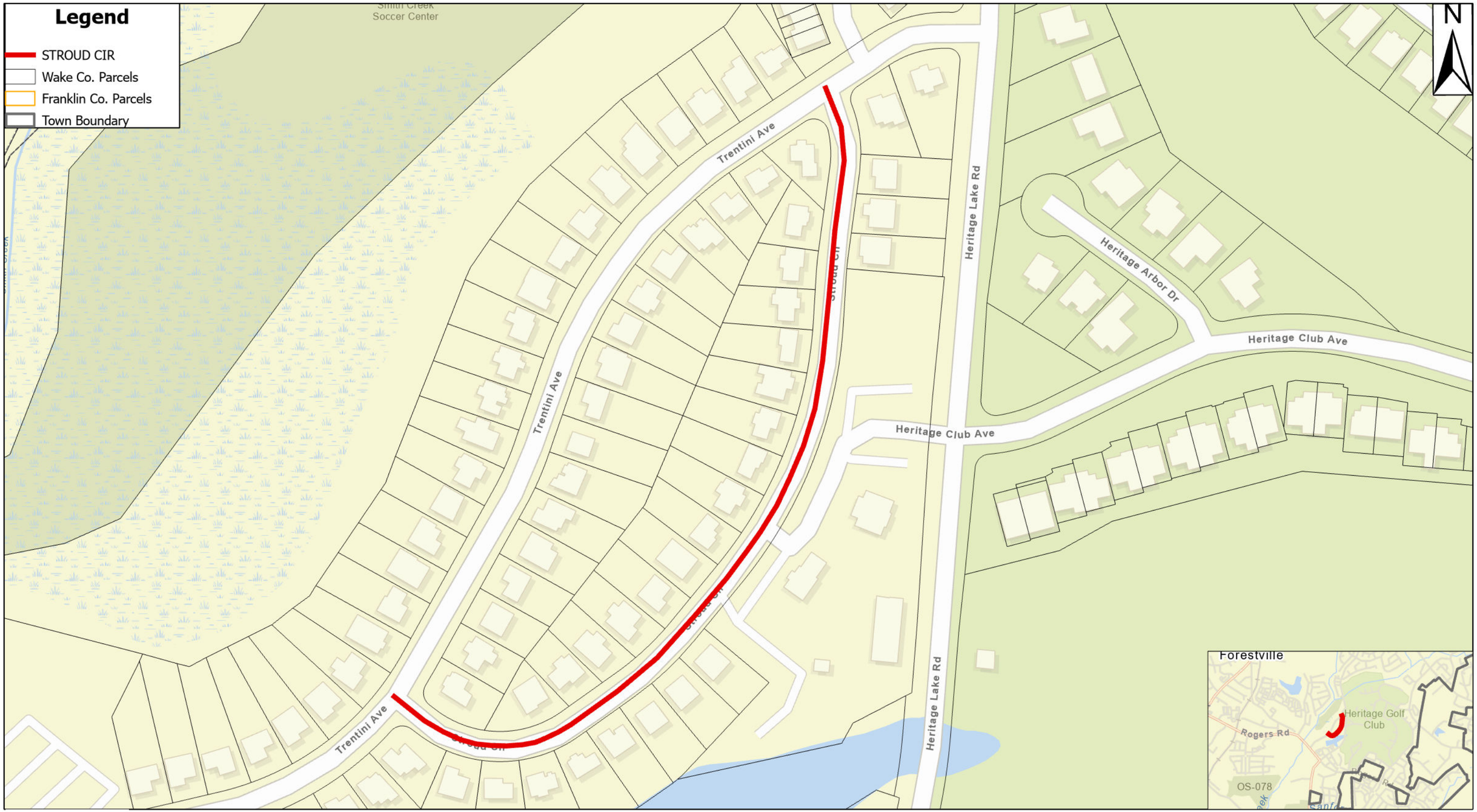
Miles

Min Htun - 3/23/2023

TOWN of
WAKE FOREST

MAP No.41

STIRRUP CT

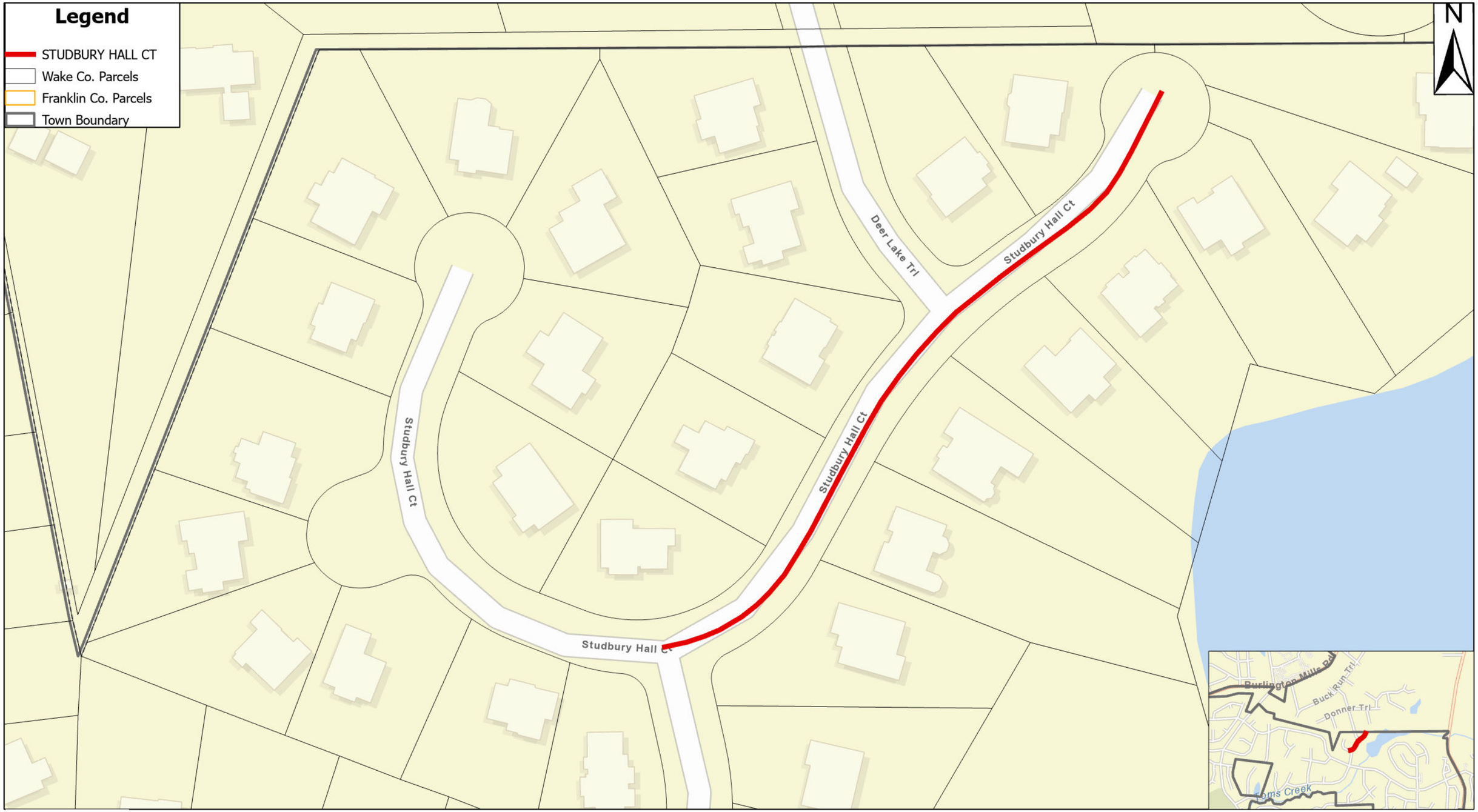


TOWN of
WAKE FOREST

MAP No.42

STROUD CIR

Min Htun - 3/23/2023



0 0.01 0.01 0.03

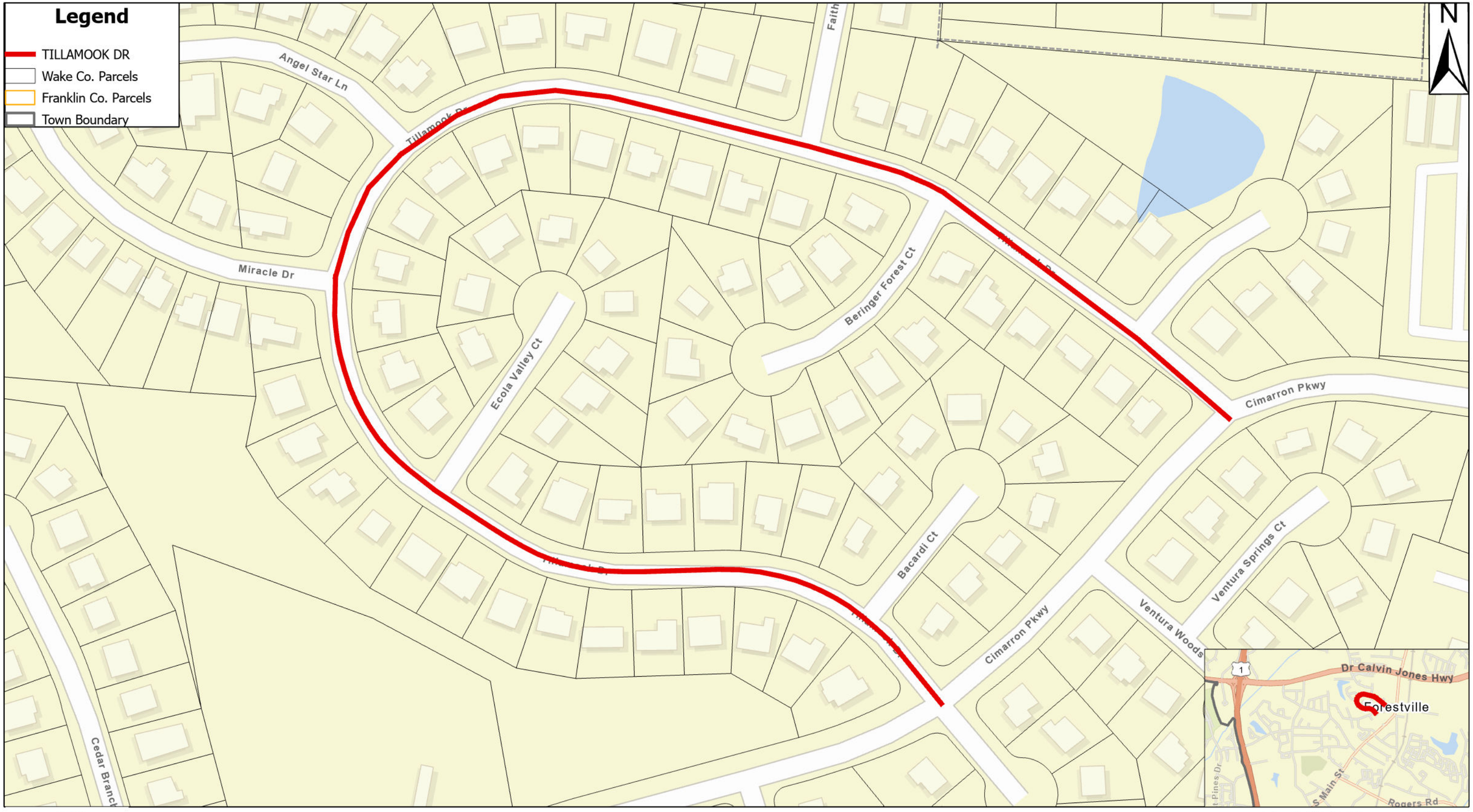
Miles

Min Htun - 7/7/2023

TOWN of WAKE FOREST

MAP No.43

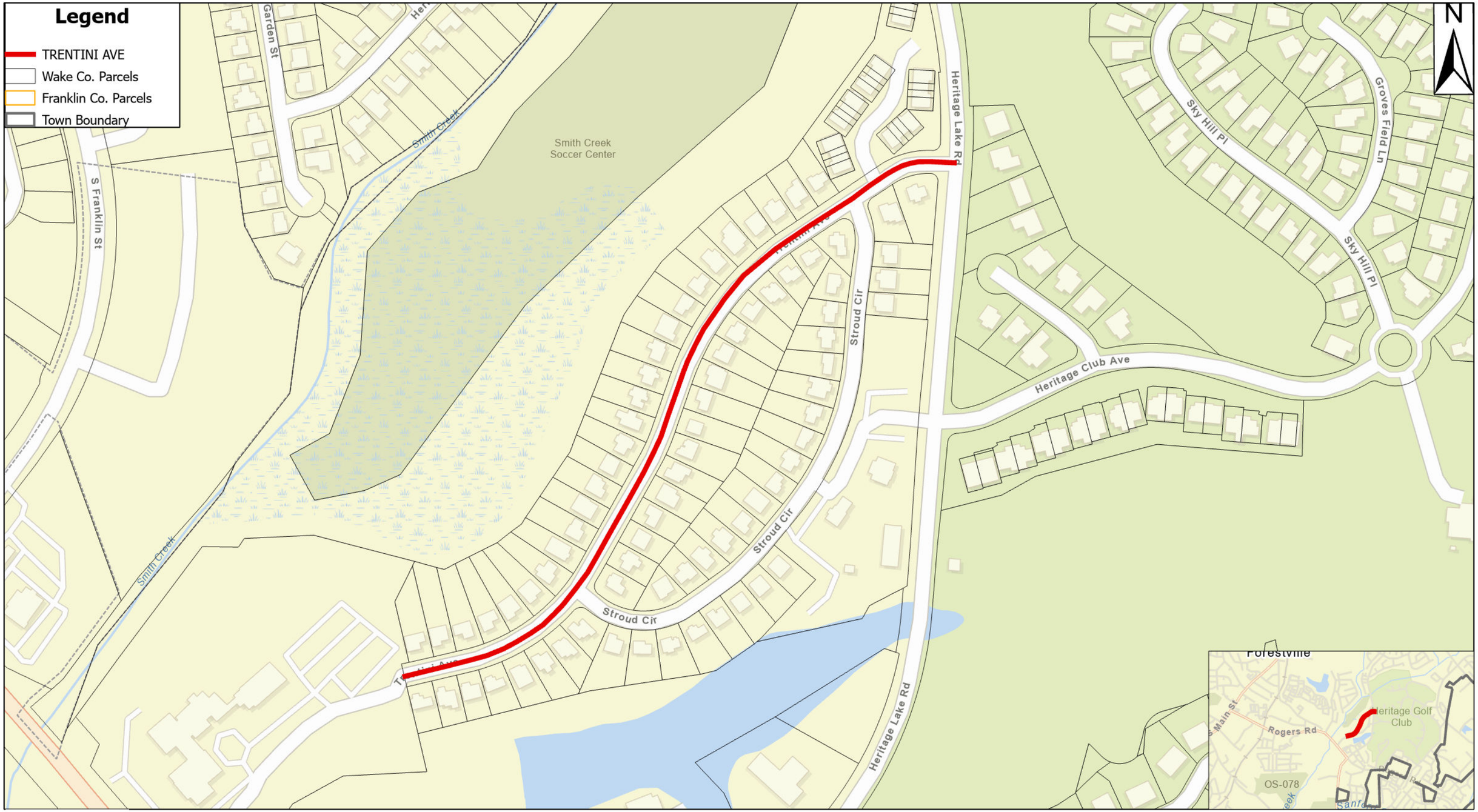
STUDBURY HALL CT



TOWN of WAKE FOREST

MAP No.44 TILLAMOOK DR

Min Htun - 3/23/2023



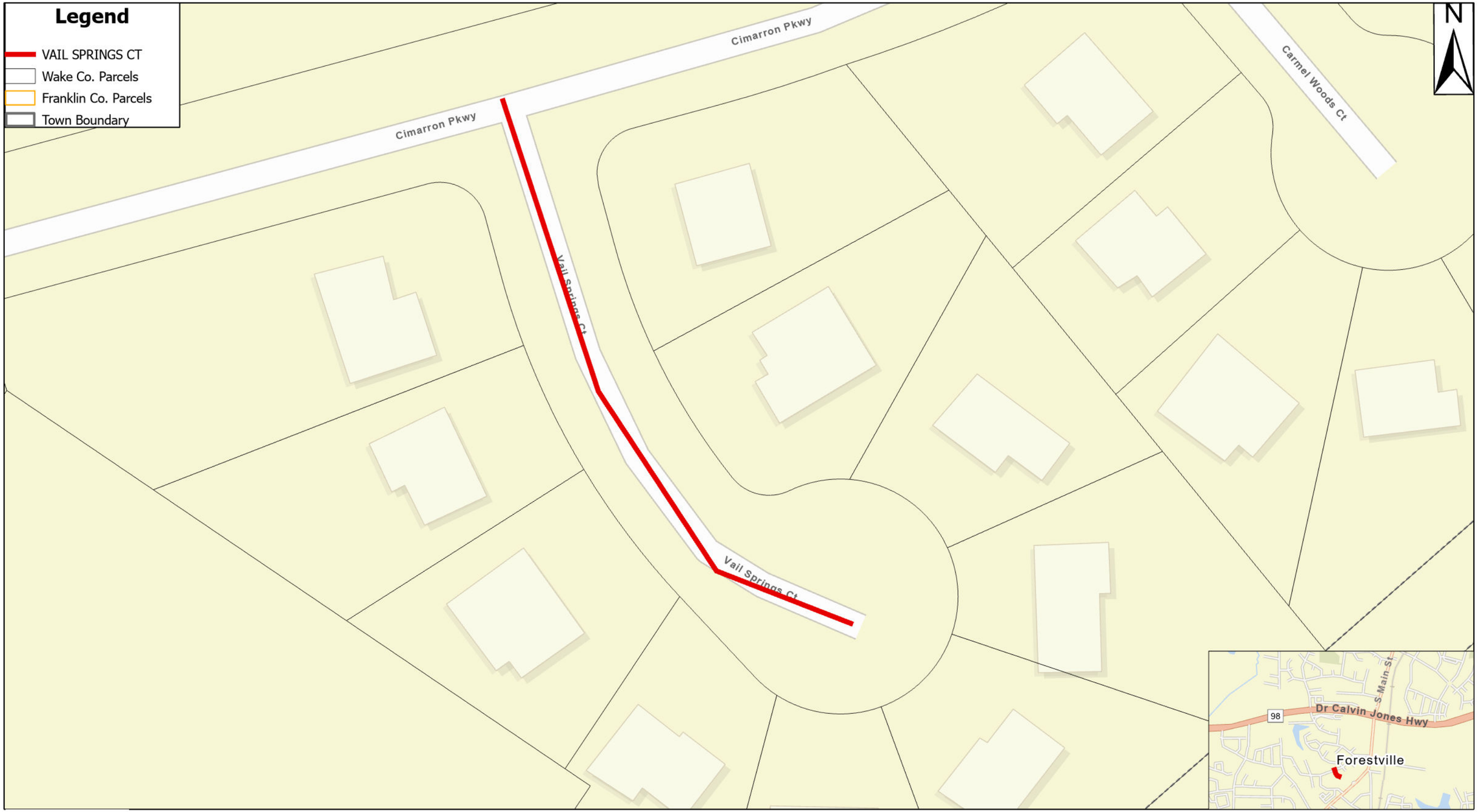
0 0.02 0.04 0.09
Miles

Min Htun - 3/23/2023

TOWN of WAKE FOREST

MAP No.45

TRENTINI AVE



0 0 0.01 0.01

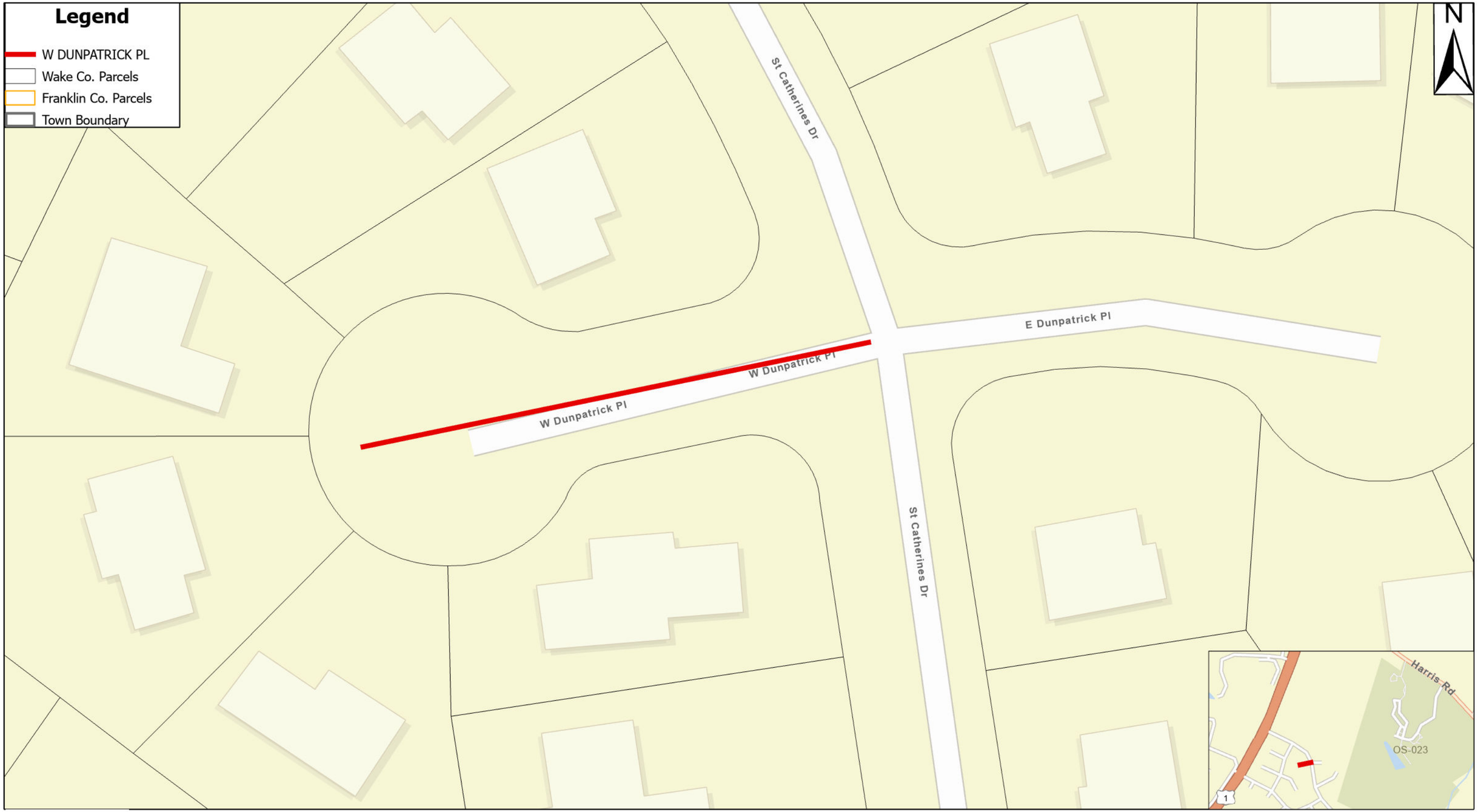
Miles

Min Htun - 3/23/2023

TOWN of WAKE FOREST

MAP No.46

VAIL SPRINGS CT



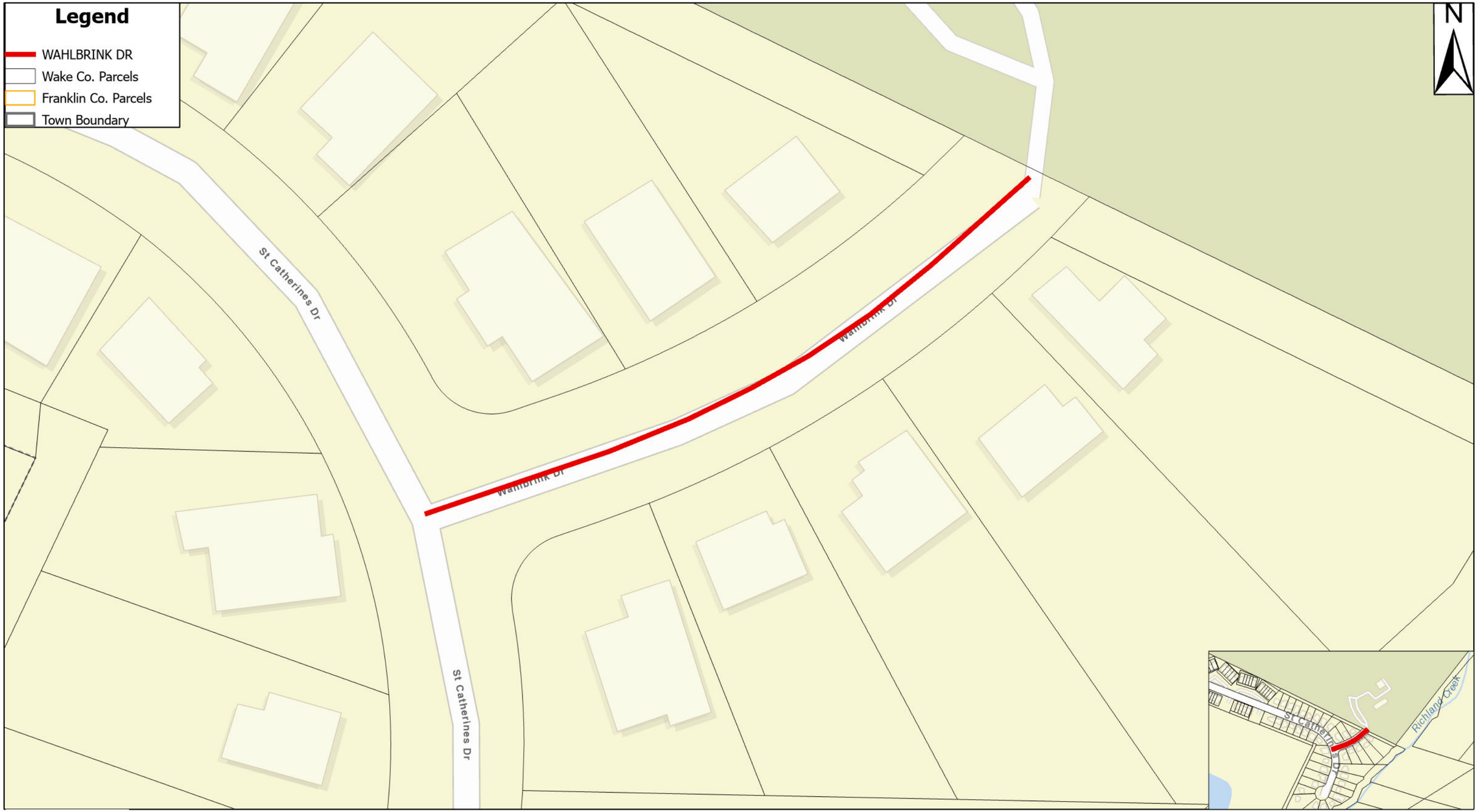
0 0 0.01 0.01
Miles

Min Htun - 4/3/2023

TOWN of WAKE FOREST

MAP No.47

W DUNPATRICK PL



0 0 0.01 0.01

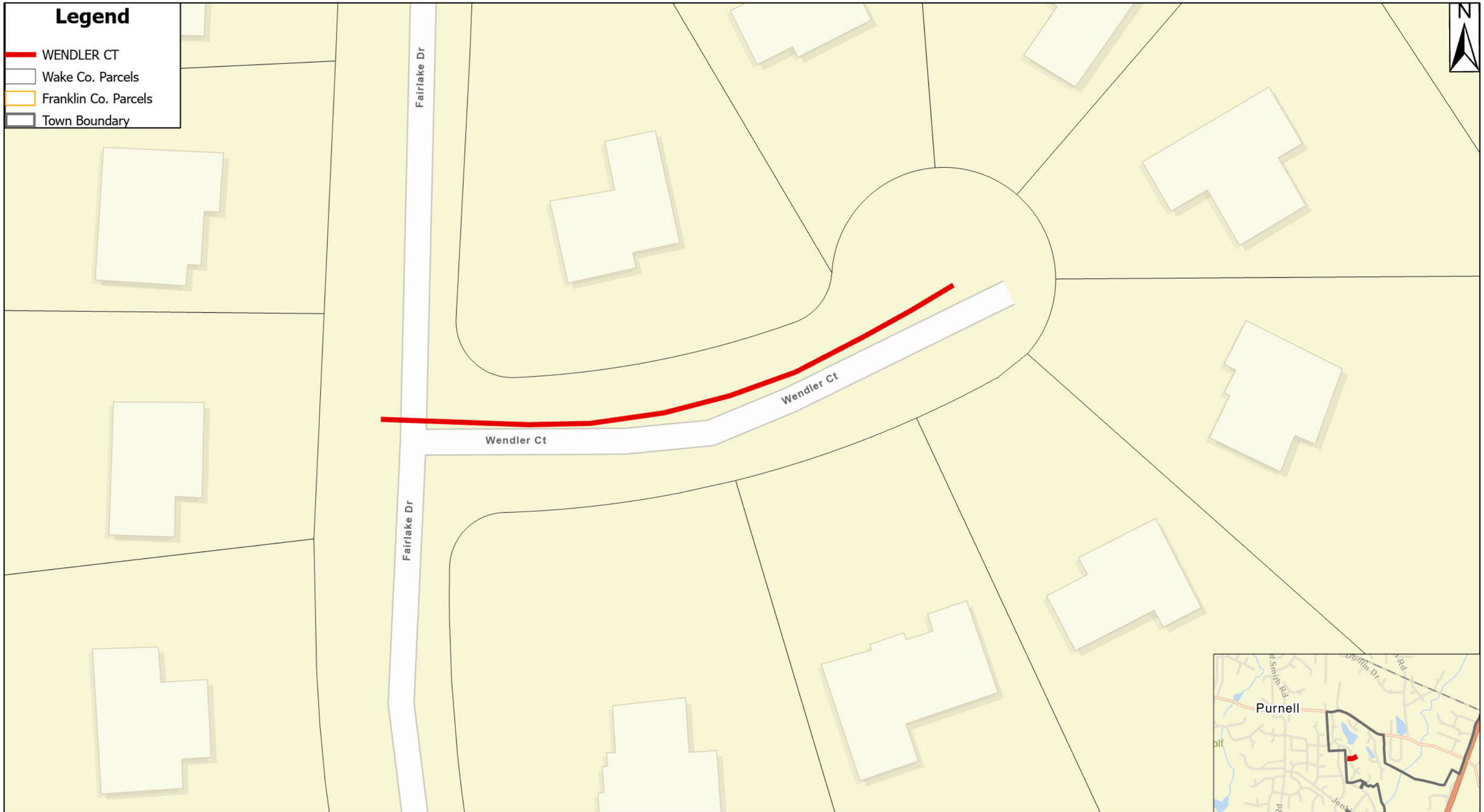
Miles

Min Htun - 3/31/2023

TOWN of WAKE FOREST

MAP No.48

WAHLBRINK DR

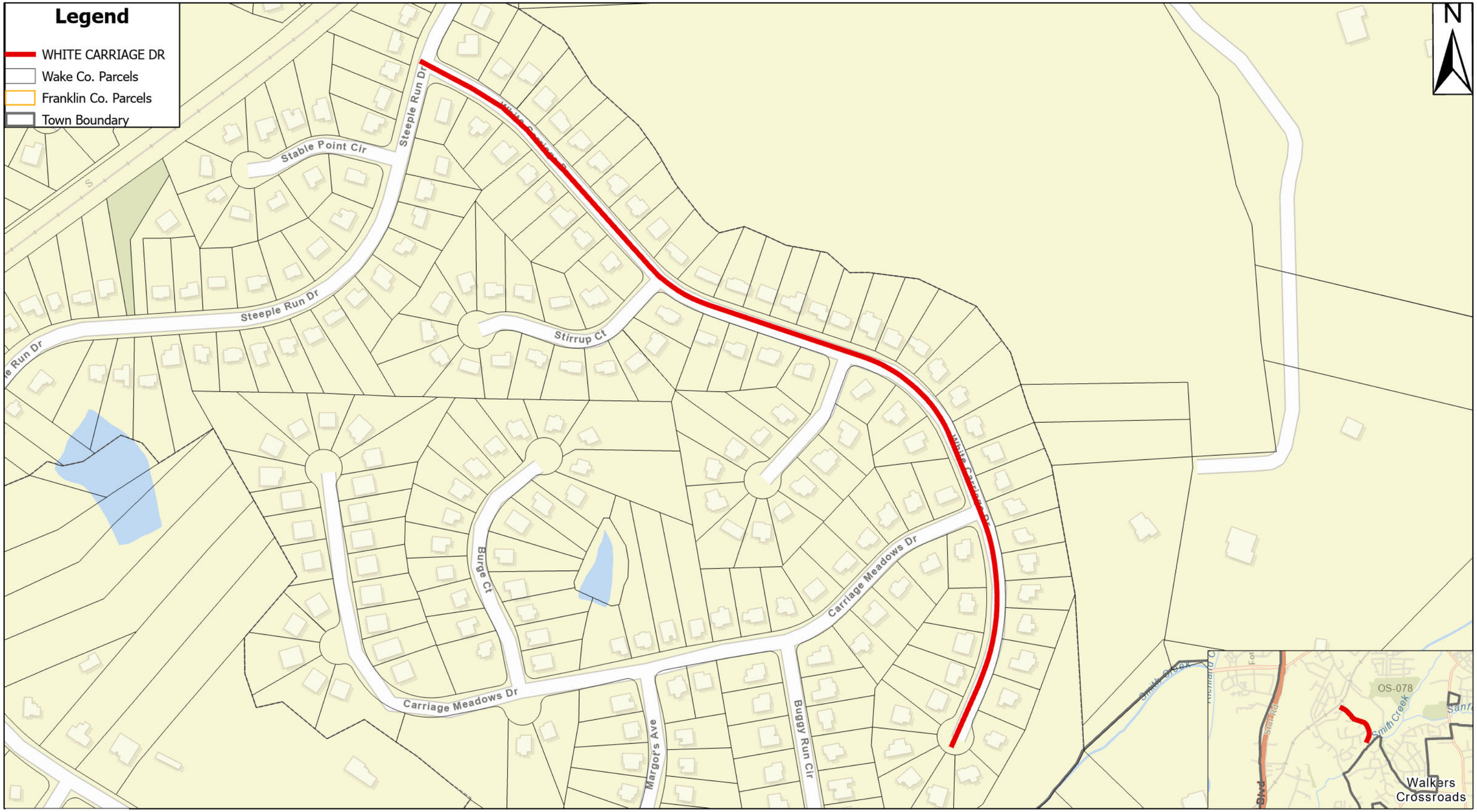


TOWN of WAKE FOREST

MAP No.49

WENDLER CT

Min Htun - 3/23/2023



0 0.02 0.04 0.09

Miles

Min Htun - 3/23/2023

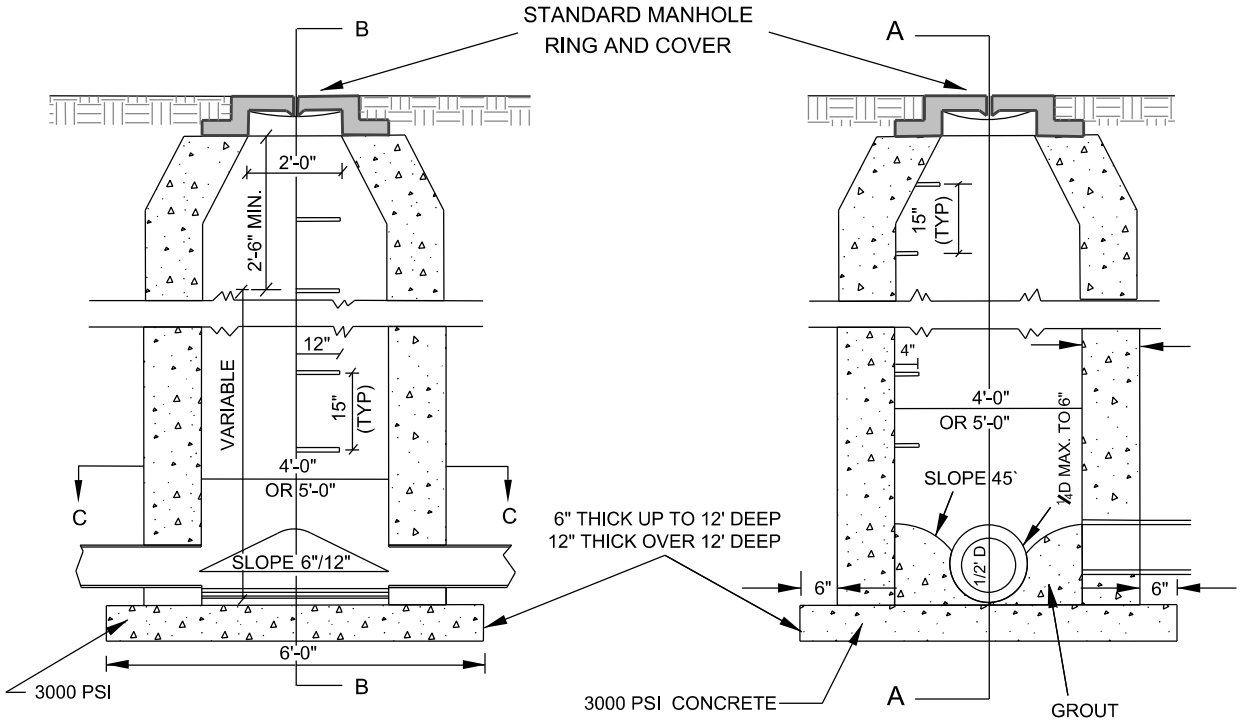
TOWN of WAKE FOREST

MAP No.50

WHITE CARRIAGE DR

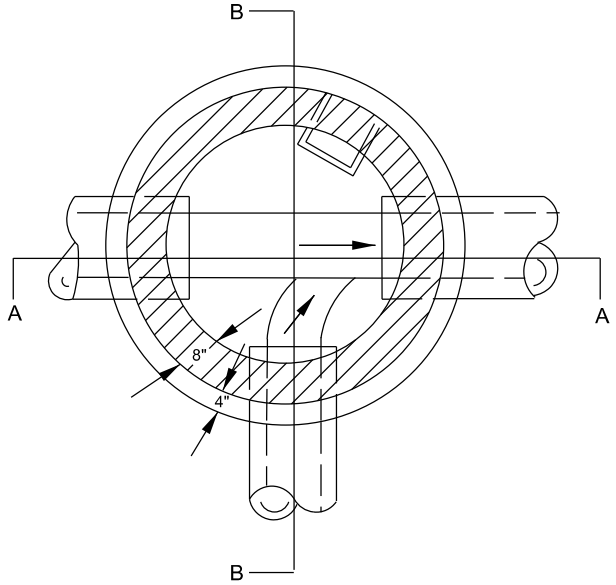
TYPICAL MH FOR STORM SEWER

PIPE SIZE	MH DIAMETER
12-24"	4'-0"
30-42"	5'-0"
48"	6'-0"
54"	8'-0"



SECTION A-A

SECTION B-B



TYPE A

SECTION C-C

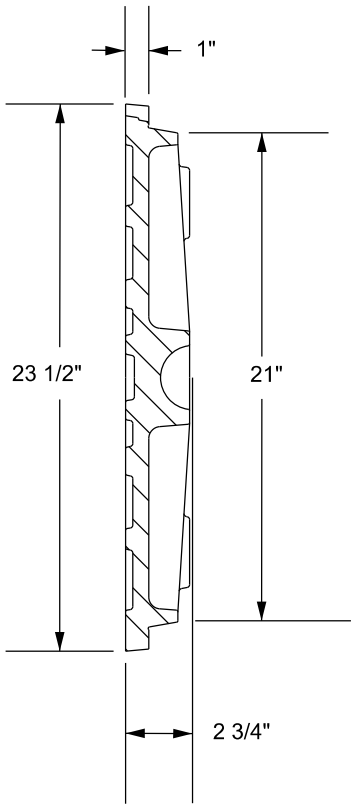
NOTES:

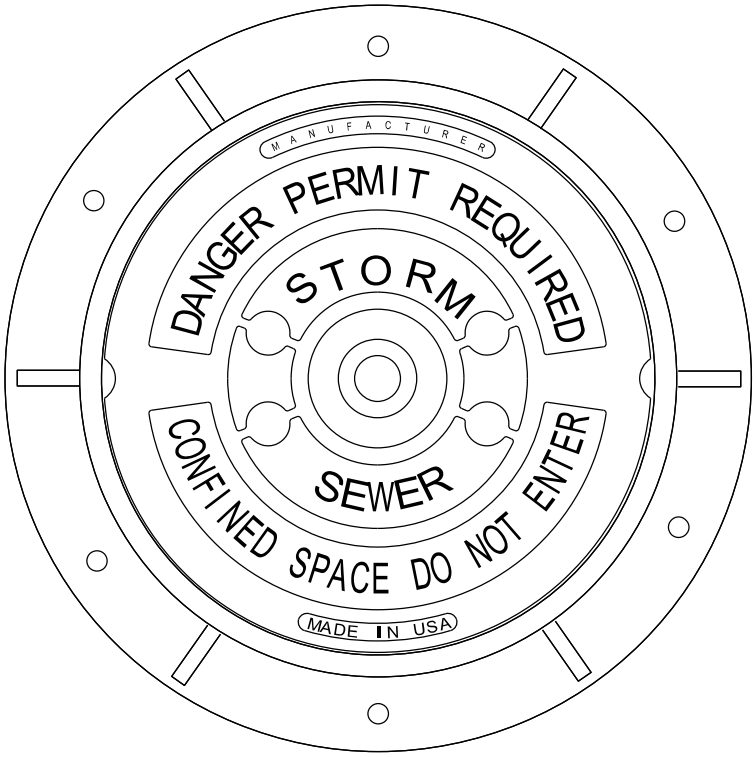
1. DEPTH MEASURED FROM TOP OF CASTING TO INVERT OF MANHOLE.
2. PRECAST MANHOLE COMPONENTS SHALL MEET ASTM-C-478 REQUIREMENTS.
3. SEE STANDARD. SW-10.10 FOR MANHOLE COVER DETAIL.
4. DOMESTIC CASTINGS REQUIRED WITHIN STREET RIGHT-OF-WAY.

CITY OF RALEIGH

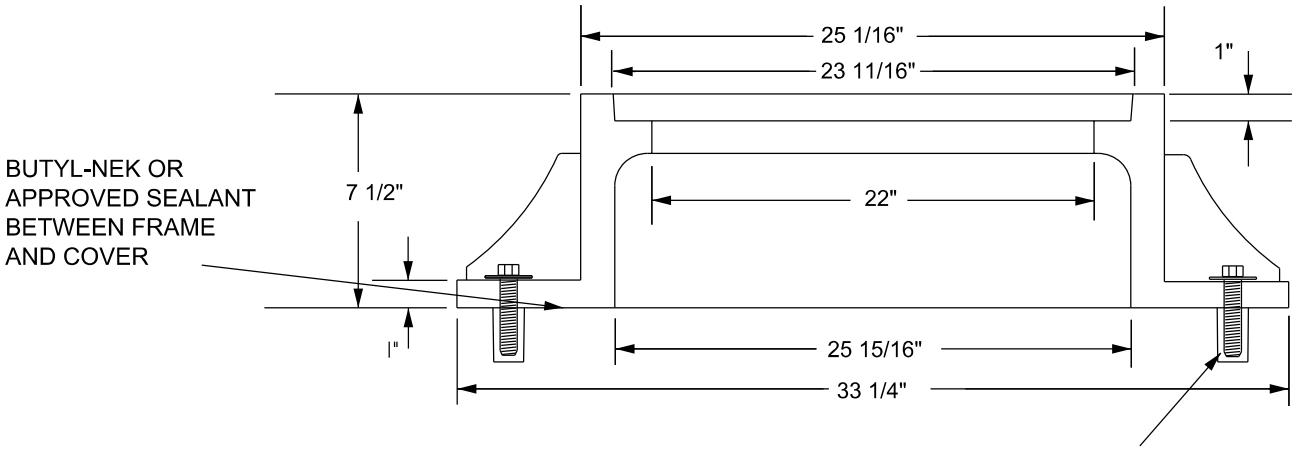
STANDARD DETAIL

REVISIONS	DATE: 8/2020	NOT TO SCALE
	STANDARD CLASS "A" MANHOLE	
	SW-10.05	





COVER 120 LBS. MINIMUM

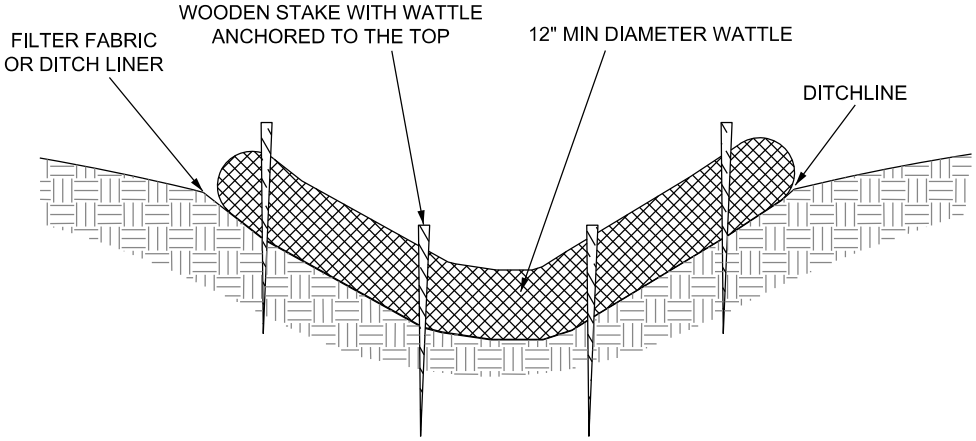


NOTES:

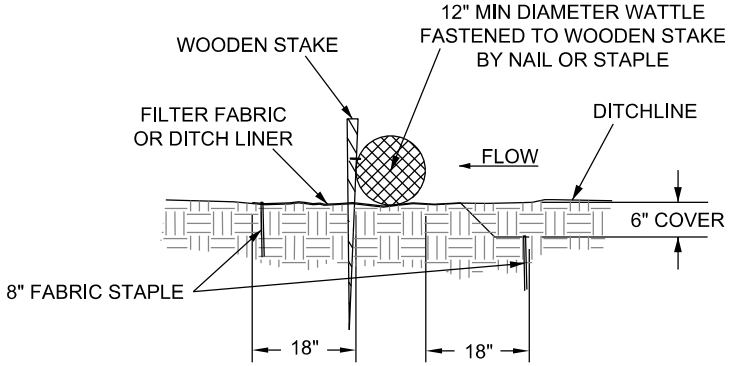
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3. COVER SHALL WEIGH A MINIMUM OF 120 LBS.
4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACE SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 8/2020	NOT TO SCALE
	STANDARD STORM MANHOLE COVER	
	SW-10.10	

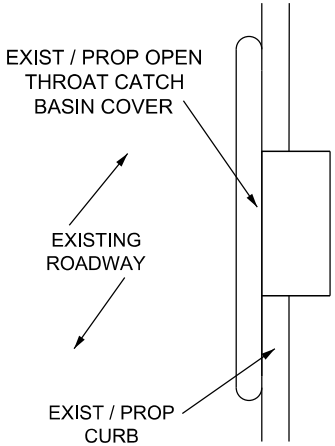


PROFILE VIEW

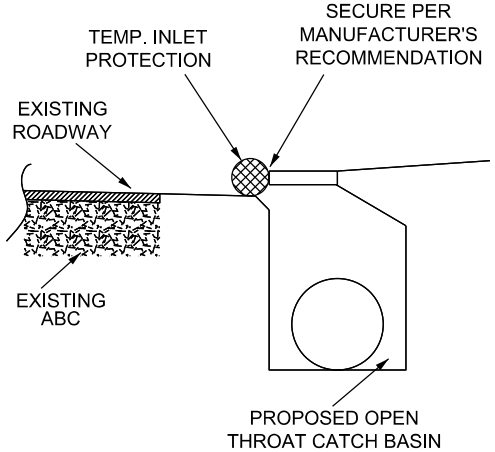


NOTES:

1. WATTLES SHALL BE FILLED WITH STRAW OR OTHER APPROVED MATERIAL.
2. SPACING FOR WATTLES SHALL BE DETERMINED BY THE SITE ENGINEER.
3. WATTLES MAY BE USED FOR PROTECTION OF CATCH BASINS AND DROP INLETS WITH APPROVAL BY THE STORMWATER PROGRAM MANAGER OR DESIGNEE.
4. FOR USE OF WATTLE IN A DITCH, GRADE OF DITCH MUST BE <2.5%.



PLAN W / INLET
INLET PROTECTION - COR BOX



CROSS SECTION

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS

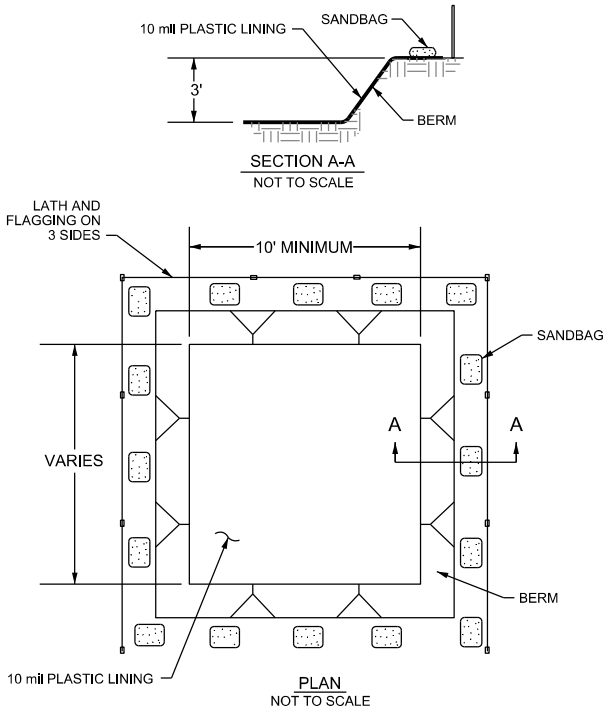
DATE: 8/2020

NOT TO SCALE

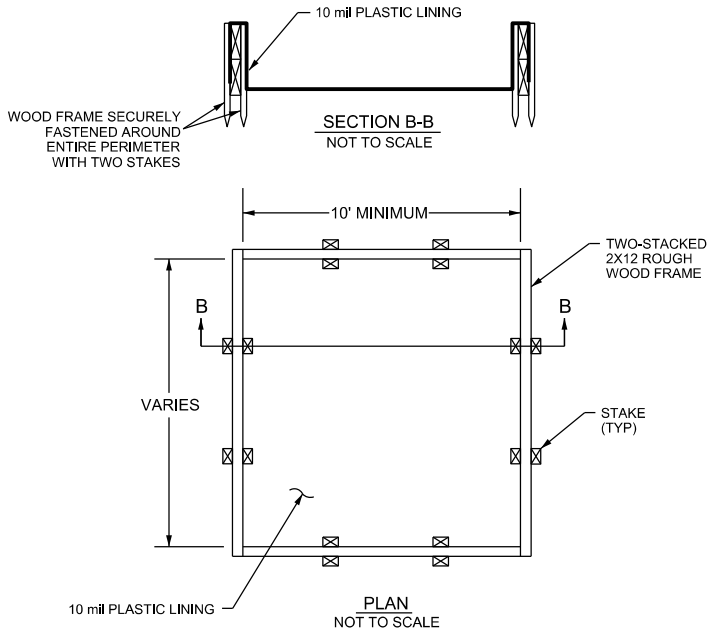
WATTLE / INLET
PROTECTION DETAIL

SW-20.23

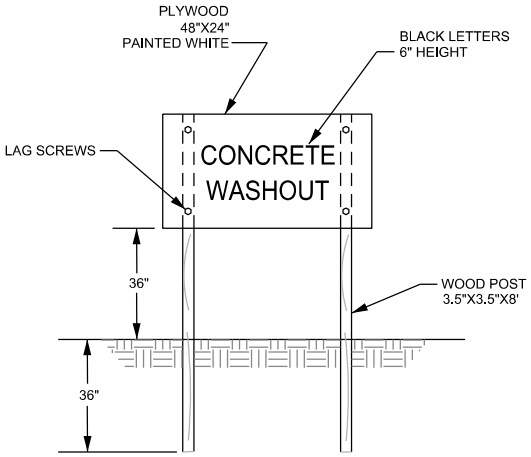
608



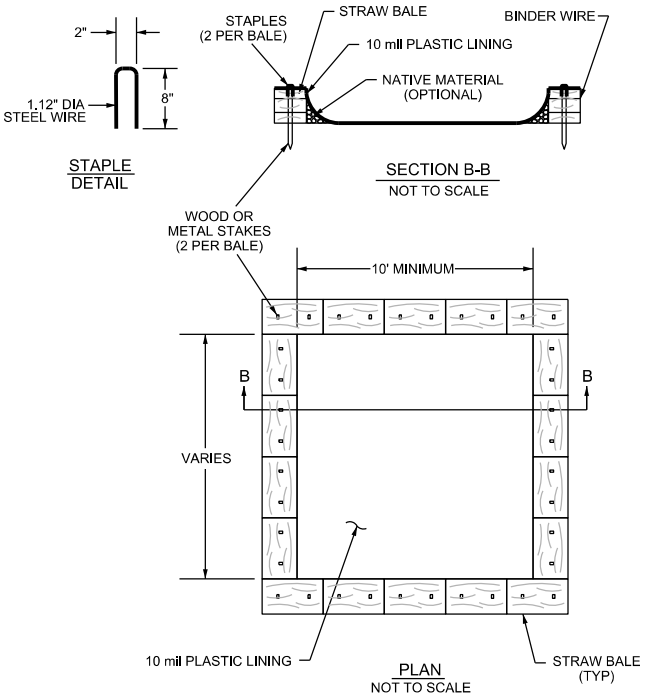
TYPE "BELOW GRADE"



TYPE "ABOVE GROUND"
WITH WOOD PLANKS



CONCRETE WASHOUT
SIGN DETAIL
(OR EQUIVALENT)



TYPE "ABOVE GRADE"
WITH STRAW BALES

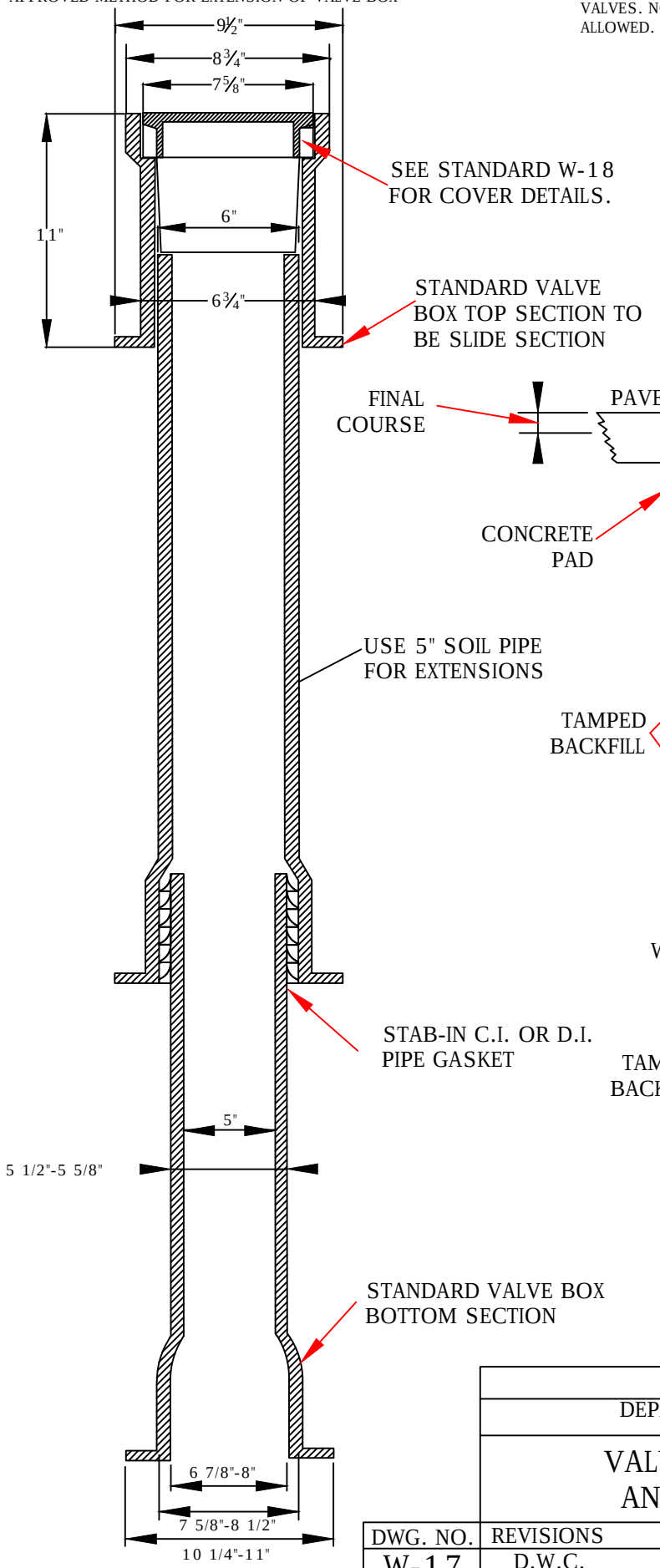
NOTES:

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.
5. MUST BE LOCATED >50 FT AWAY FROM INLETS/WATERWAYS UNLESS THERE IS NO OTHER PRACTICAL ALTERNATIVE.

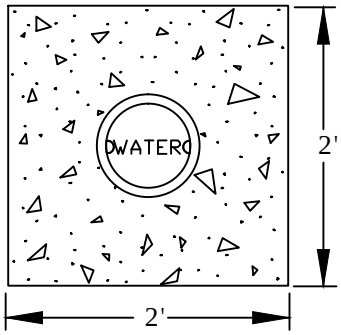
CITY OF RALEIGH
STANDARD DETAIL

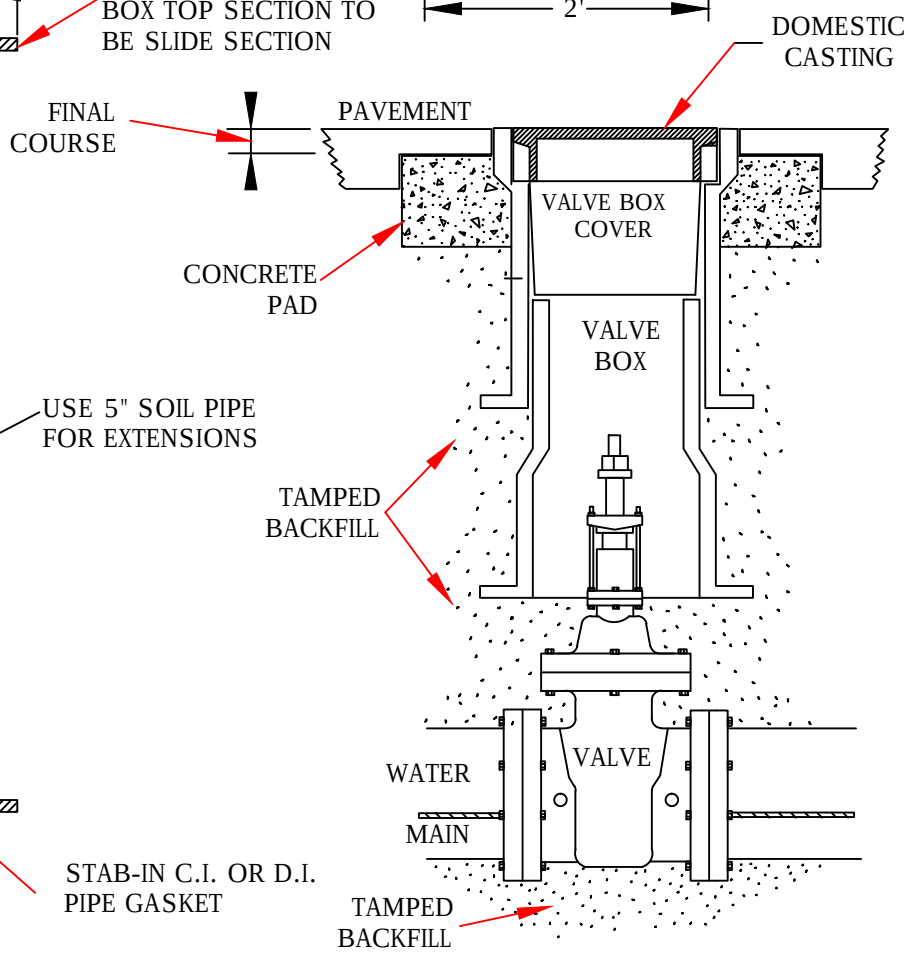
REVISIONS	DATE: 8/2020	NOT TO SCALE
	CONCRETE WASHOUT	
	SW-20.25	

APPROVED METHOD FOR EXTENSION OF VALVE BOX



NOTE: 2'x 2'x 6" CONCRETE PAD REQUIRED ON ALL VALVES. NO PRECAST CONCRETE DOUGHNUT ALLOWED.



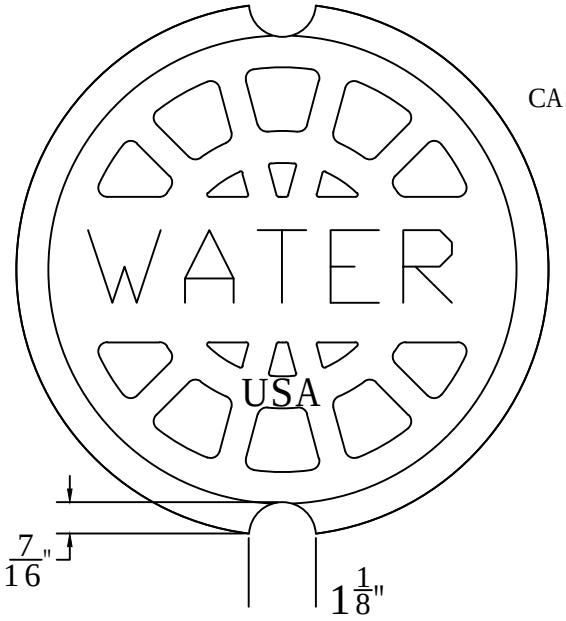


NOTES:
1) VALVE BOX NOT TO CONTACT WATER MAIN
2) ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
3) FOR ANY VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5', EXTENSION MUST BE A MINIMUM OF 1" SOLID STOCK.
4) TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.

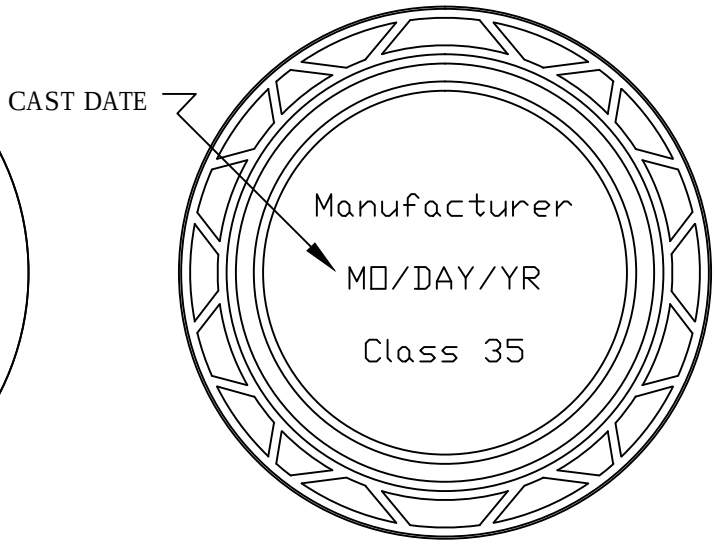
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES

VALVE BOX INSTALLATION AND EXTENSION DETAIL

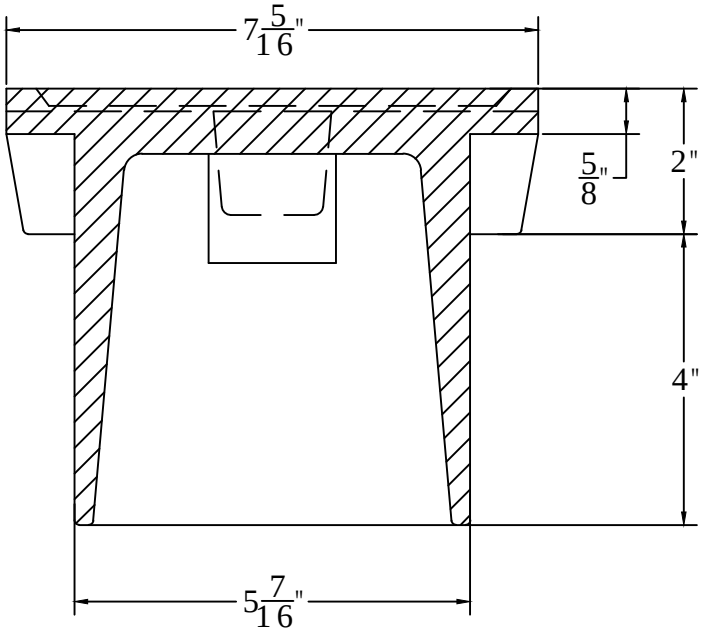
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	D.W.C.	9-7-99	A.B.B.	4-15-04
	RRH	3-31-00	DHL	8-16-07



PLAN VIEW



BOTTOM VIEW



SECTION VIEW

NOTE 1 - "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST.
NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 - COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

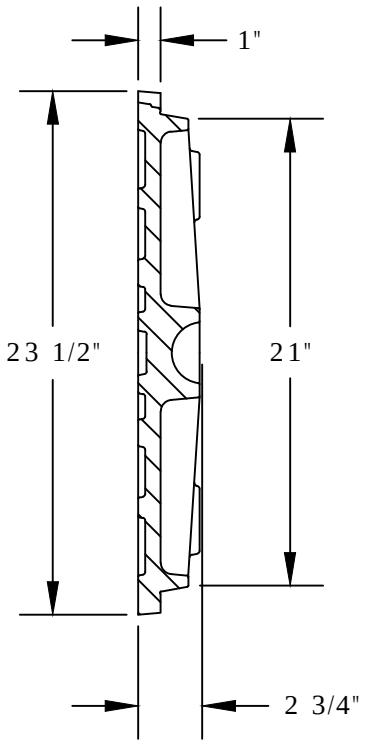
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES

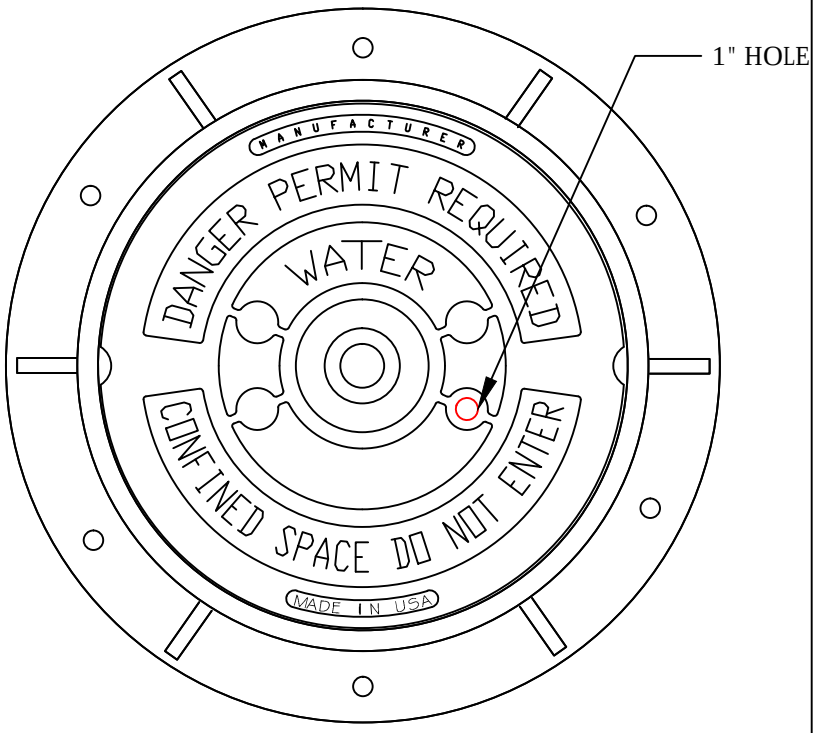
5 1/4" VALVE BOX DROP LID
WITH 4" SKIRT

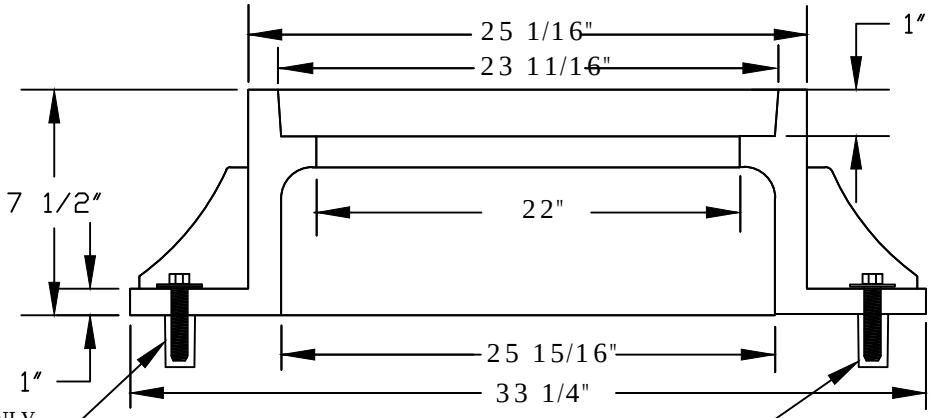
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-18				

MANHOLE FRAME AND COVER

COVER 120 LBS. MINIMUM







LAGSHIELDS MAY ONLY BE USED IN ROADWAY APPLICATIONS.

5/8"X3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DEPTH RECOMMENDED BY MANUFACTURER, AND 3/8"X3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.

NOTES:

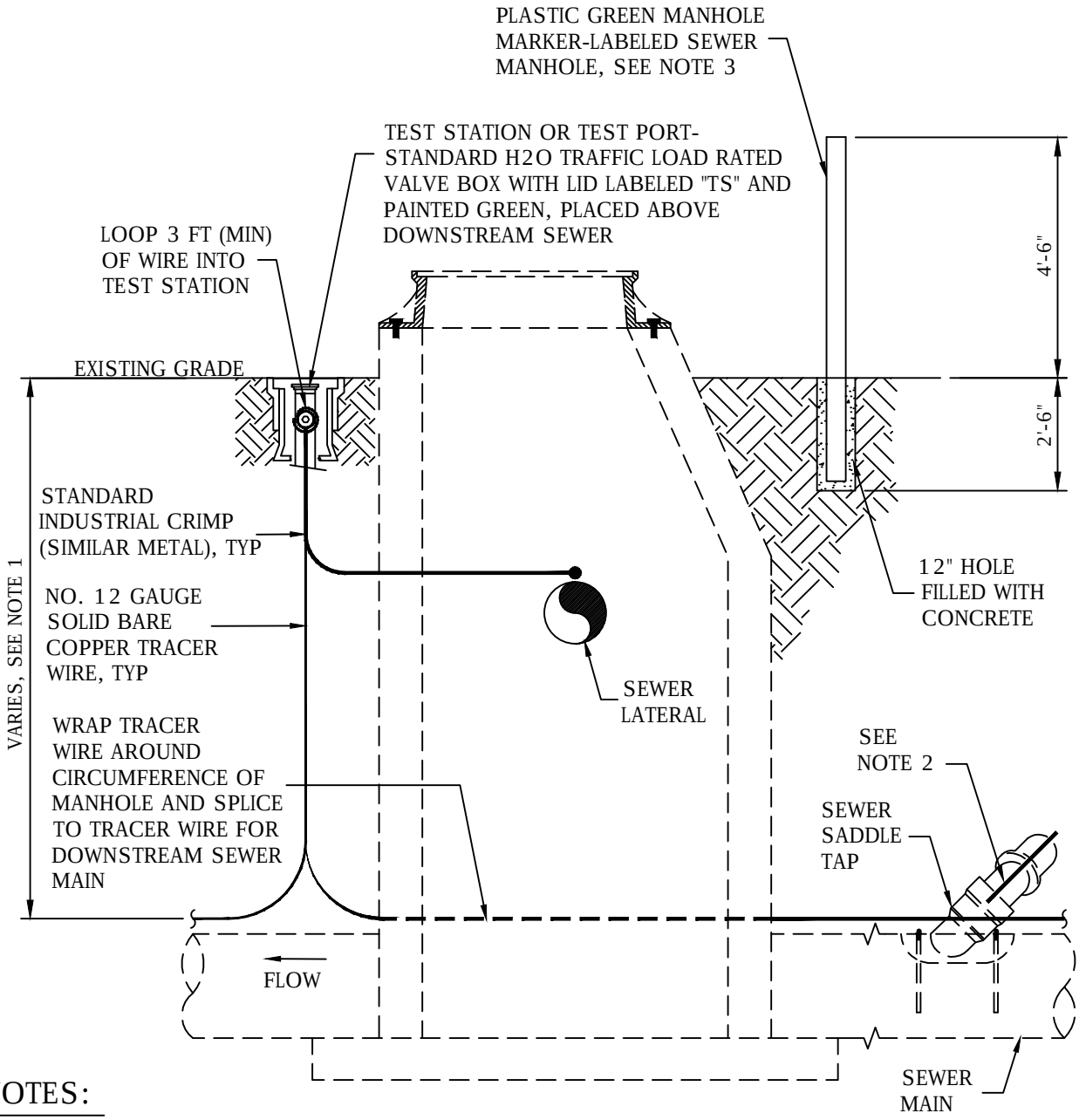
1) ALL MANHOLE FRAMES SHALL BE BE DOMESTICALLY CAST
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH S-29.

CITY OF RALEIGH

DEPARTMENT OF PUBLIC UTILITIES

STANDARD MANHOLE COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-20	A.B.B.	4-8-04		
	D.H.L.	6-18-08		



NOTES:

1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO TO BE PLACED BETWEEN THE SADDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNER'S REPRESENTATIVE.

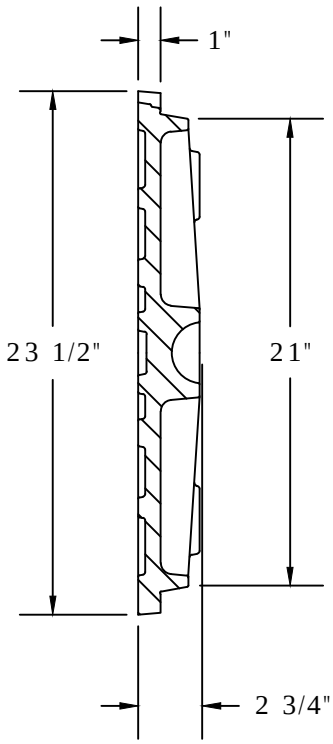
CITY OF RALEIGH

DEPARTMENT OF PUBLIC UTILITIES

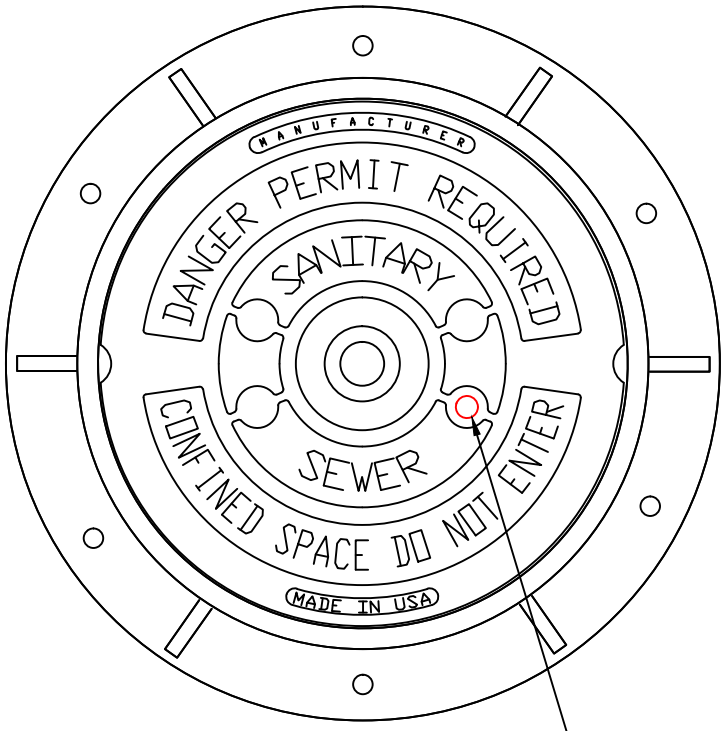
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20A	WKD	09-14		

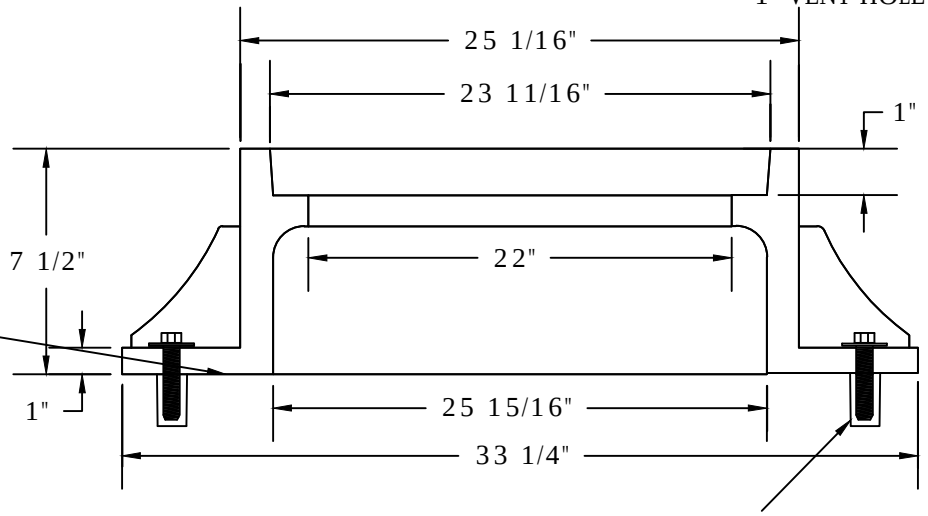
COVER 120 LBS. MINIMUM



MANHOLE FRAME AND COVER



1" VENT HOLE



BUTYL-NEK OR APPROVED SEALANT BETWEEN FRAME AND COVER

5/8"X3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DESIGN DEPTH, AND 3/8"X3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.

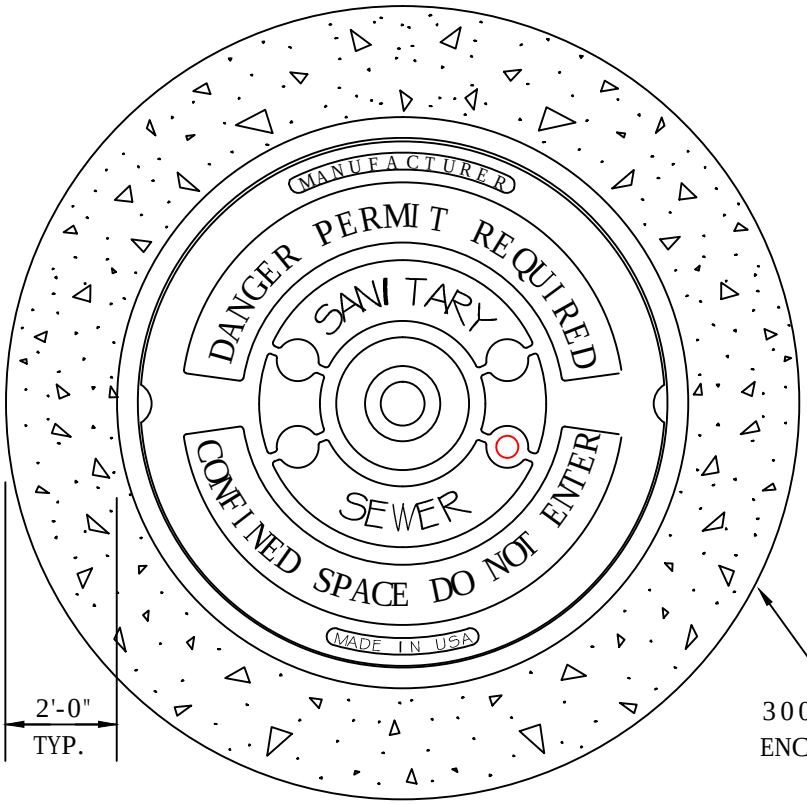
NOTES:
1) ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACES SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH

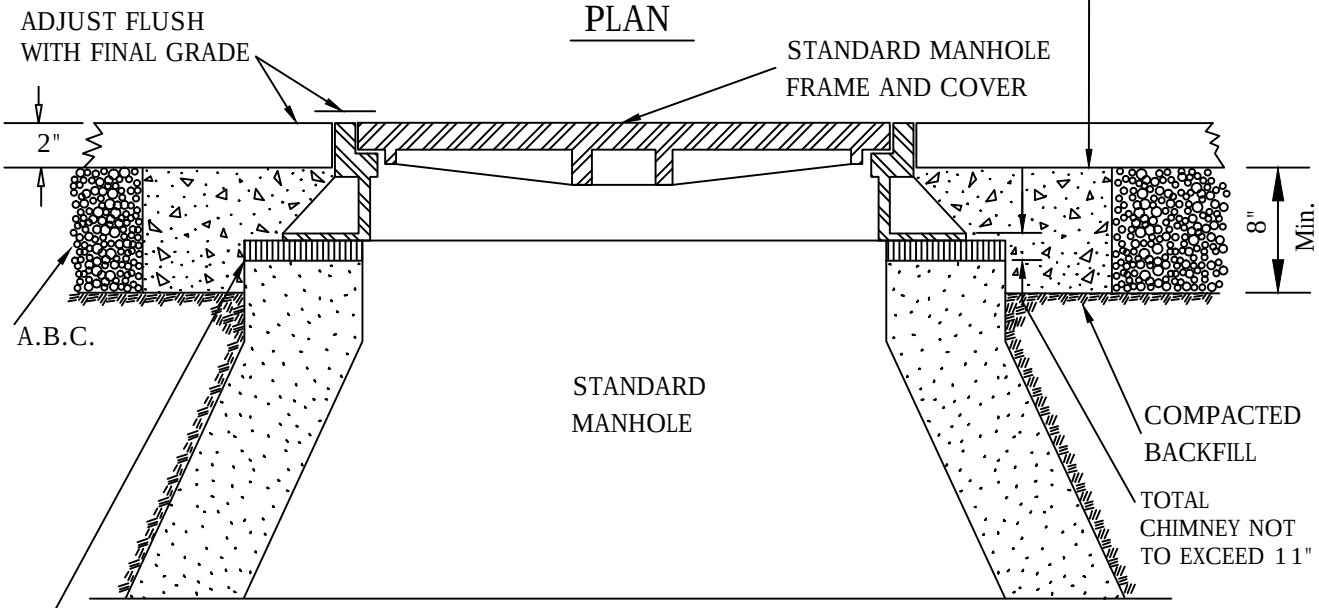
DEPARTMENT OF PUBLIC UTILITIES

STANDARD MANHOLE COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25	3-1-87	3-1-87	A.B.B.	2-9-05
	RRH	3-30-00	D.H.L.	6-18-0



PLAN



SECTION

PRECAST CONCRETE SPACER (DONUT RINGS) IN TRAFFIC AREAS ONLY. DONUT RINGS NOT ALLOWED IN EASEMENTS.

CITY OF RALEIGH

DEPARTMENT OF PUBLIC UTILITIES

STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	Y.C.A.	12-31-91	ABB	9-20-04
	RRH	3-30-00	DHL	11-29-07

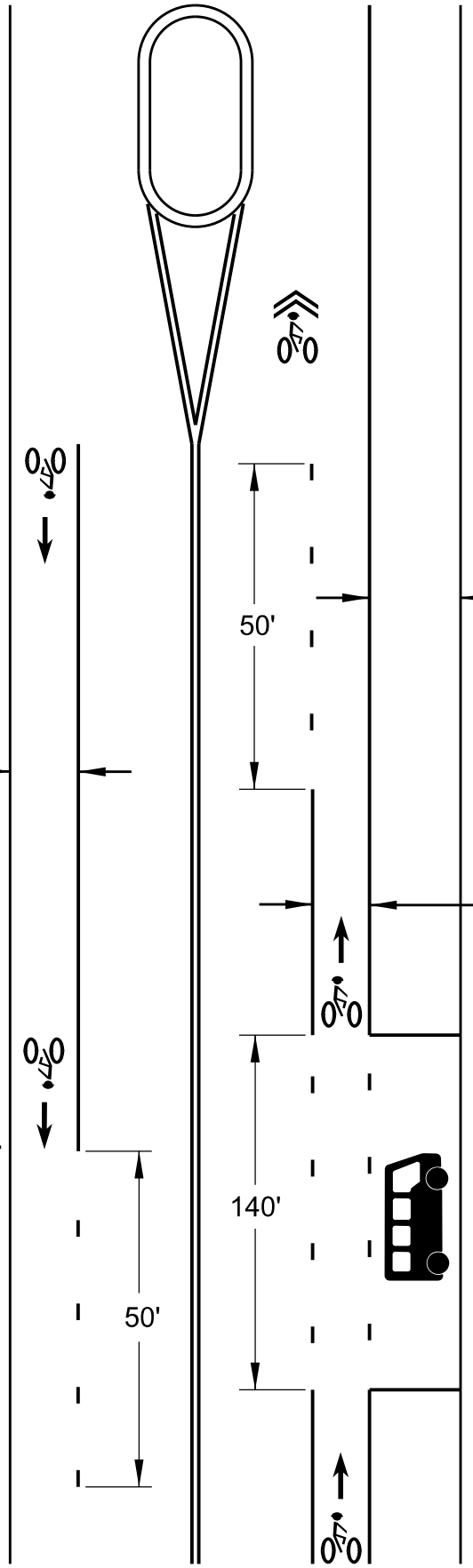
PLACEMENT & SPACING

PLACE BIKE LANE MARKINGS AT THE BEGINNING OF EACH BIKE LANE SEGMENT - I.E. AFTER EVERY INTERSECTION AND MAJOR DRIVEWAY AND WHERE BIKE LANES END.

CONSIDER ADDITIONAL BIKE LANE MARKINGS AS NEEDED TO CLEARLY DELINEATE THE BIKE LANE ON A CASE-BY-CASE BASIS. DESIRED SPACING IS 250' IN DOWNTOWN RALEIGH AND 500' ELSEWHERE.

MEDIAN TRANSITIONS

END BIKE LANE AND PLACE SHARED LANE MARKINGS IN THE CENTER OF THE TRAVEL LANE THROUGH A MEDIAN AREA



PARKING LANE WIDTH, W_3

THE PARKING LANE WIDTH (INCLUDING THE GUTTER PAN) SHOULD BE : 8' DESIRED
7.5' MINIMUM

BIKE LANE WIDTH,W_1

WHERE ADJACENT TO THE EDGE OF PAVEMENT, THE BIKE LANE WIDTH (EXCLUDING THE GUTTER PAN) SHOULD BE: 5' DESIRED
4' MINIMUM

BIKE LANE WIDTH, W_2

WHERE ADJACENT TO A PARKING LANE, THE BIKE LANE WIDTH SHOULD BE: 5' MINIMUM, 6' DESIRED
2' STRIPED BUFFER DESIRED

BIKE LANE SIGN

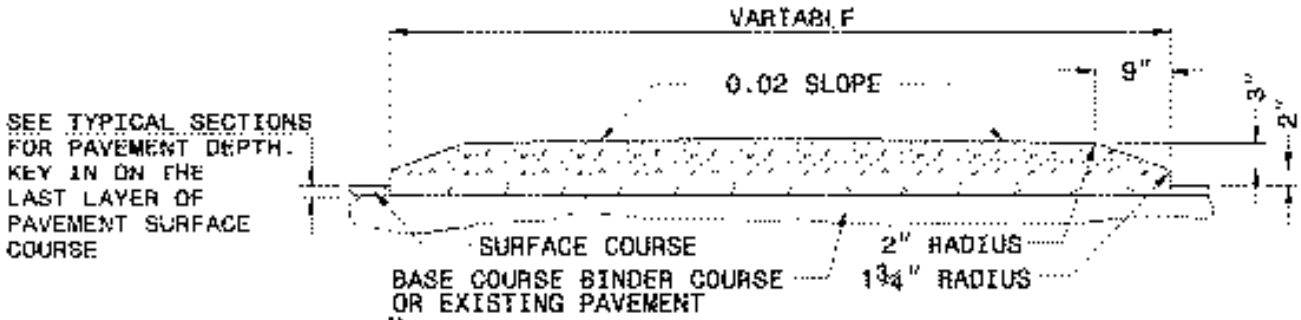
WHERE THE BIKE LANE ENDS AT MID-BLOCK LOCATIONS, PLACE "BIKE LANE ENDS" SIGNAGE AT THE BEGINNING OF THE BIKE LANE MINI-SKIPS.

BIKE LANE MINI-SKIPS

USE 2' DASHED WITH 6' GAPS TO END BIKE LANES AND INDICATE CONFLICT ZONES, E.G. AT BUS STOPS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 8/2020	NOT TO SCALE
	BIKE LANE SIGNS AND MARKINGS	
	B-10.01	

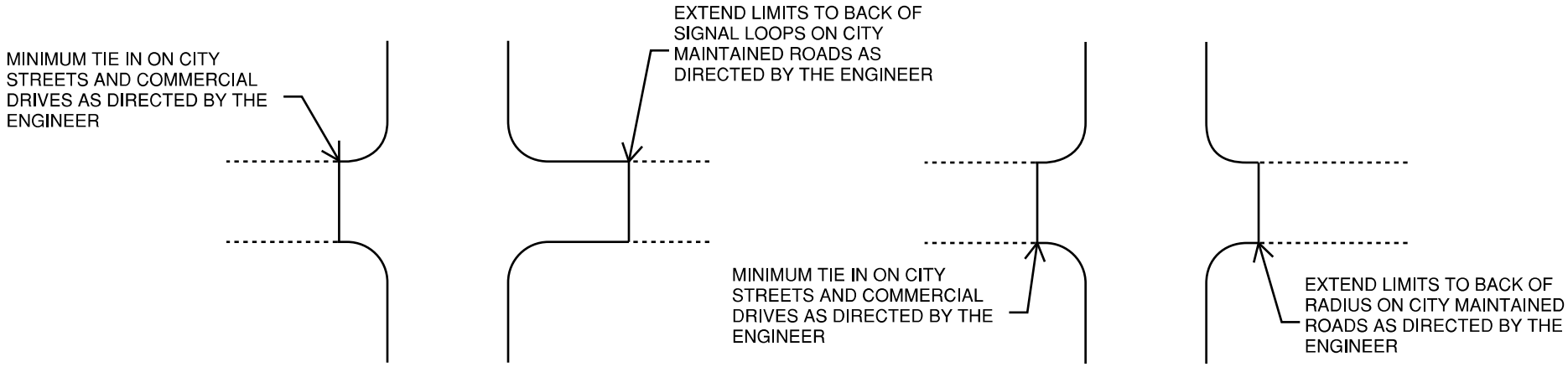


5" MONOLITHIC CONCRETE ISLAND (KEYED IN)

ON ASPHALT CONCRETE PAVEMENT

(USE ON ISLAND LESS THAN 4' WIDE)

STANDARD DETAIL FOR CONCRETE ISLANDS

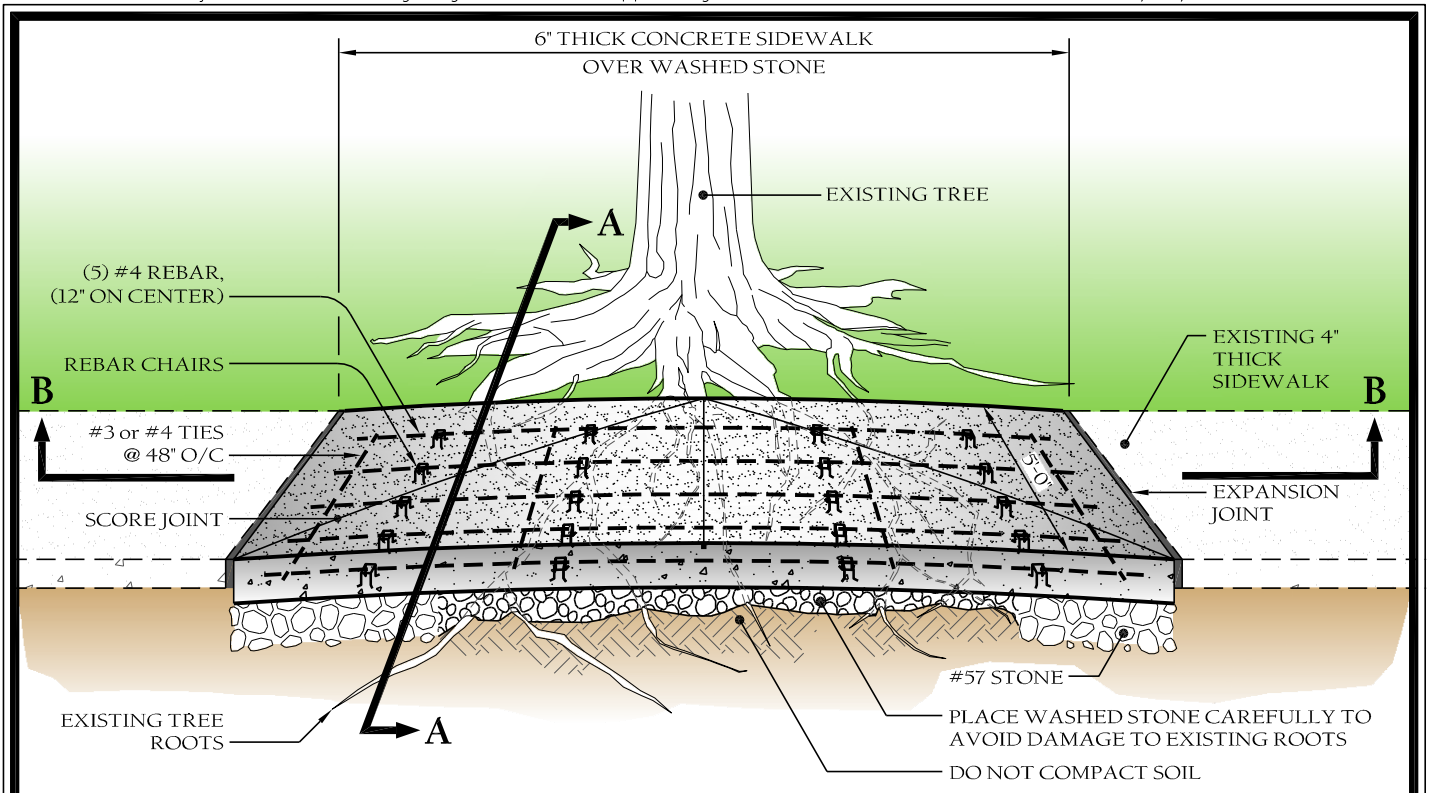


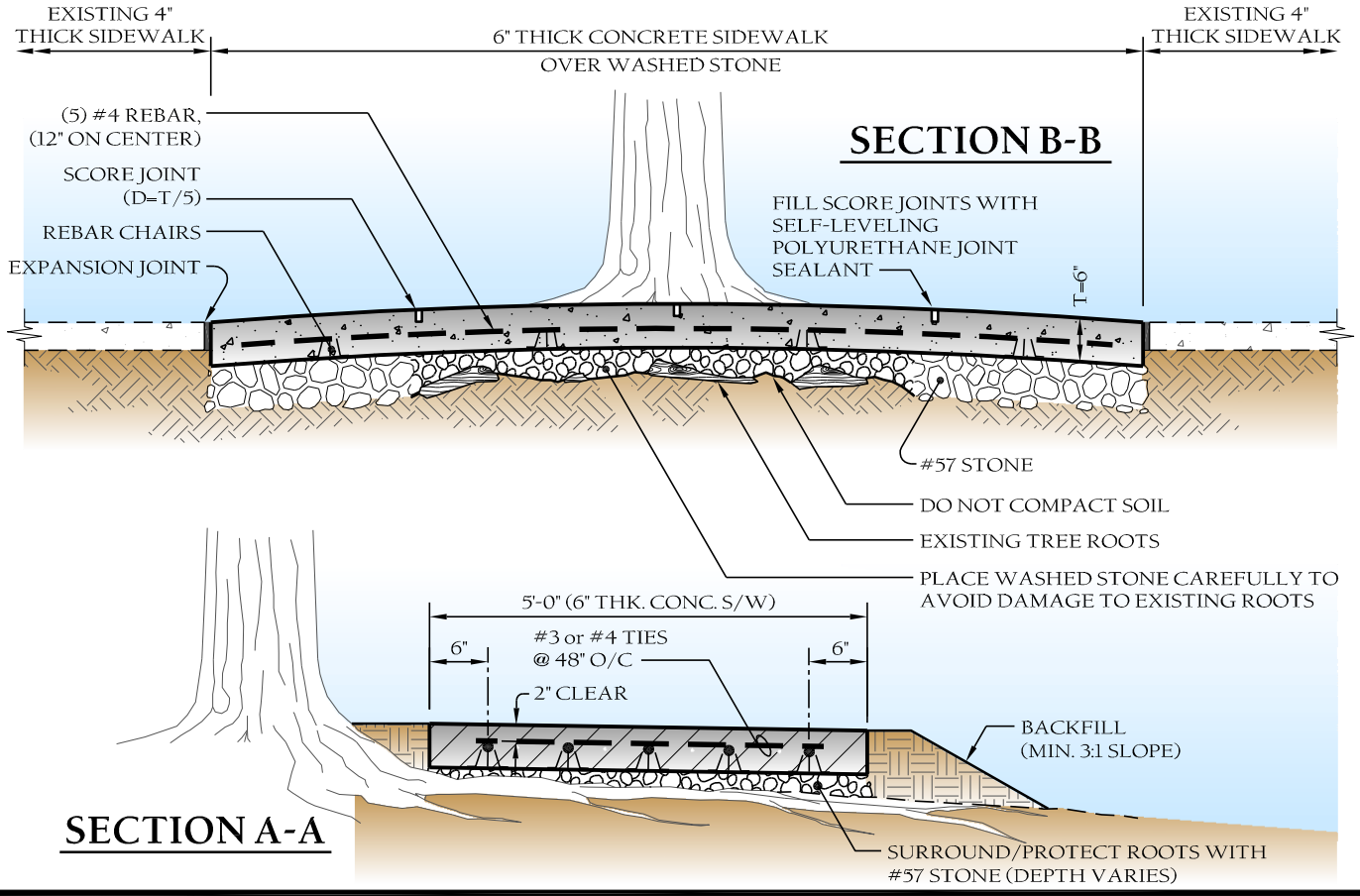
DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES

DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES

NOTES:
1. Y-LINE STREETS SHALL NOT BE PULLED AS PART OF THE MAIN-LINE STREET RESURFACING OPERATION. ALL Y-LINE STREETS SHALL BE RESURFACED AFTER THE MAIN STREET.

RESURFACING LIMITS AT Y-LINES AND COMMERCIAL DRIVES





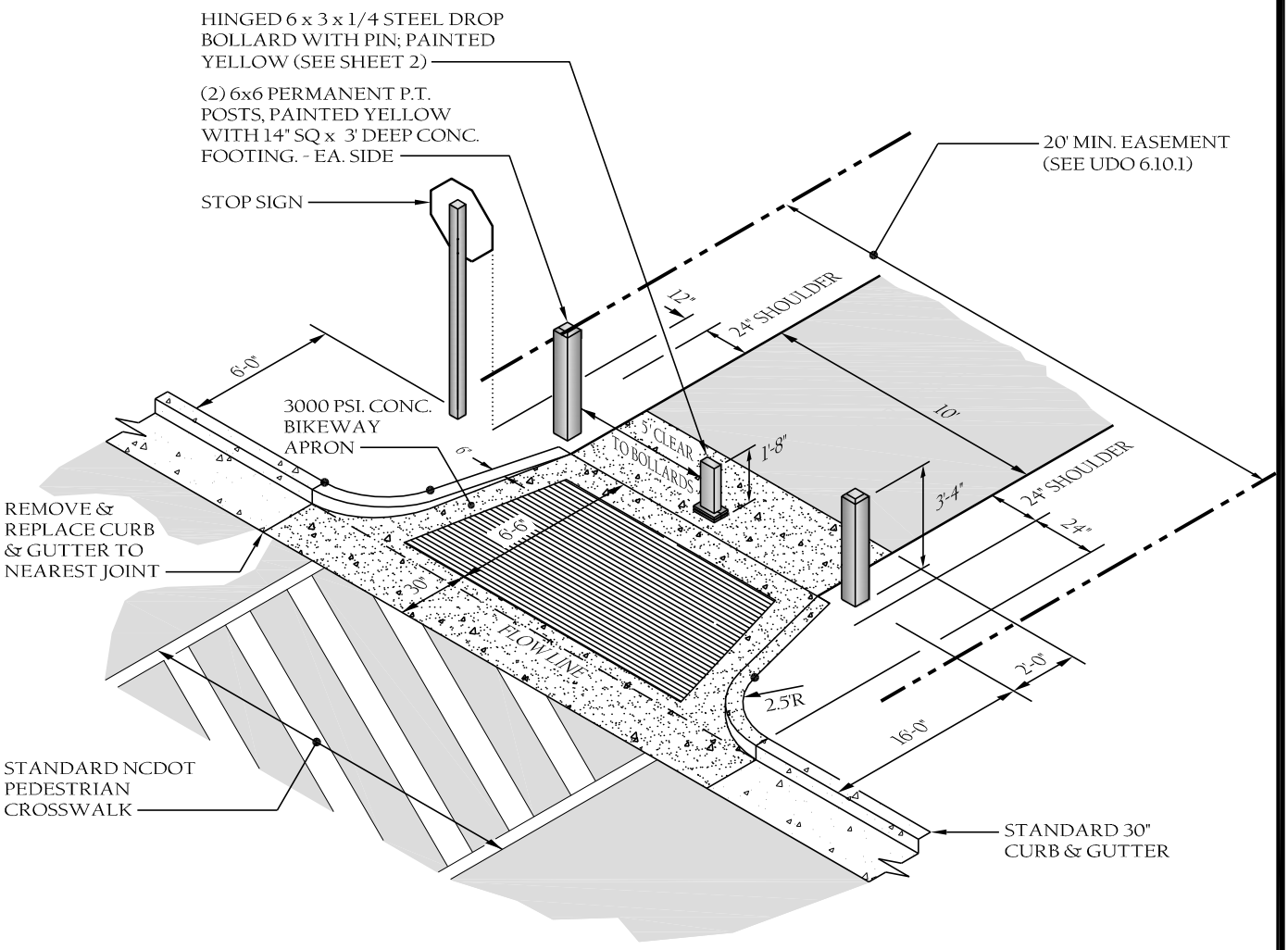
TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

REINFORCED CONCRETE SIDEWALK (BRIDGING TREE ROOTS)

Scale:	Detail #:
Not To Scale	8.07
Revision Date: Feb., 2015	619



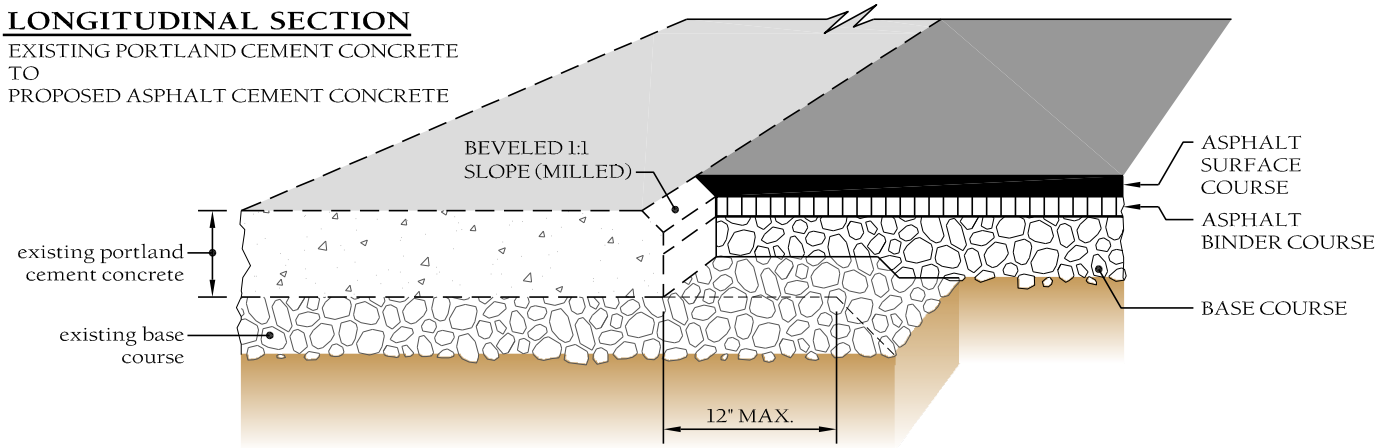
NOTES:

1. *Steel drop bollard may be constructed as shown on sheet 2 or a Traffic Guard Low Profile Heavy Duty Hinged Bollard may be used (Model LPHDHB) installed per manufacturer's directions.*

TOWN of WAKE FOREST	**TOWN of WAKE FOREST, NC** Manual of Specifications, Standards and Design		
	MULTI-USE PATH DETAIL STREET TIE-IN	Scale: Not To Scale	Detail #: 8.08
		Revision Date: Feb., 2015	620

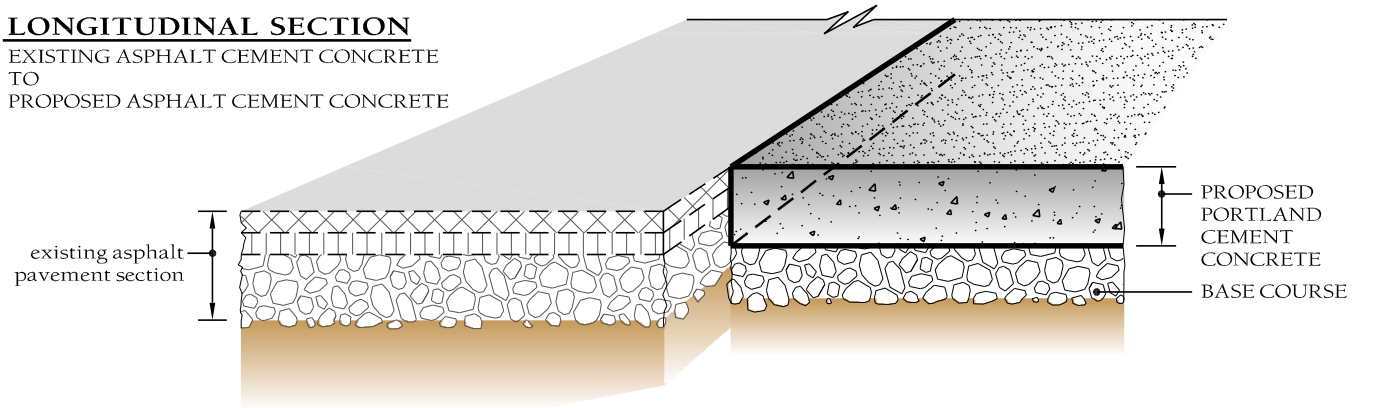
LONGITUDINAL SECTION

EXISTING PORTLAND CEMENT CONCRETE
TO
PROPOSED ASPHALT CEMENT CONCRETE



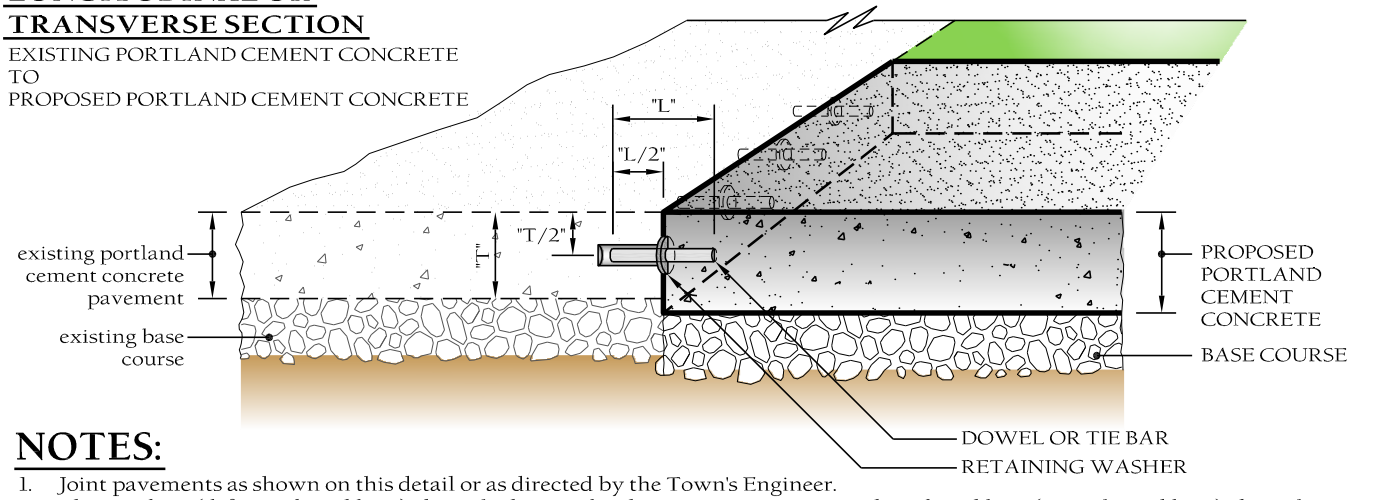
LONGITUDINAL SECTION

EXISTING ASPHALT CEMENT CONCRETE
TO
PROPOSED ASPHALT CEMENT CONCRETE



LONGITUDINAL OR TRANSVERSE SECTION

EXISTING PORTLAND CEMENT CONCRETE
TO
PROPOSED PORTLAND CEMENT CONCRETE



NOTES:

1. Joint pavements as shown on this detail or as directed by the Town's Engineer.
2. Place tie bars (deformed steel bars) along the longitudinal joints at 30" on center. Place dowel bars (smooth steel bars) along the traverse joints at 12" on center. The placement and/or spacing of tie or dowel bars may be modified by the plans of the Town's Engineer. Measure the holes, to accept these bars, the O.D. of the bar plus 1/8" in diameter and 1/2 the length of the bar plus 1" unless otherwise specified by the manufacturer of the adhesive. Use retaining washers (nylon, plastic or composite) on all bars to hold the adhesive material in place. The retaining washers shall be: I.D. = bar O.D., O.D. = hole I.D. + 1/4" min., thickness = 1/16" min. See NCDOT standard drawing 700.01 for bar sizes and other joint related information. Provide adhesive bonding material specified by Section 1081 of the 2012 NCDOT Standard Specifications for Type 3 or 3A adhesives.
3. See typical sections for pavement composition and for other specific information.

TOWN of
WAKE FOREST

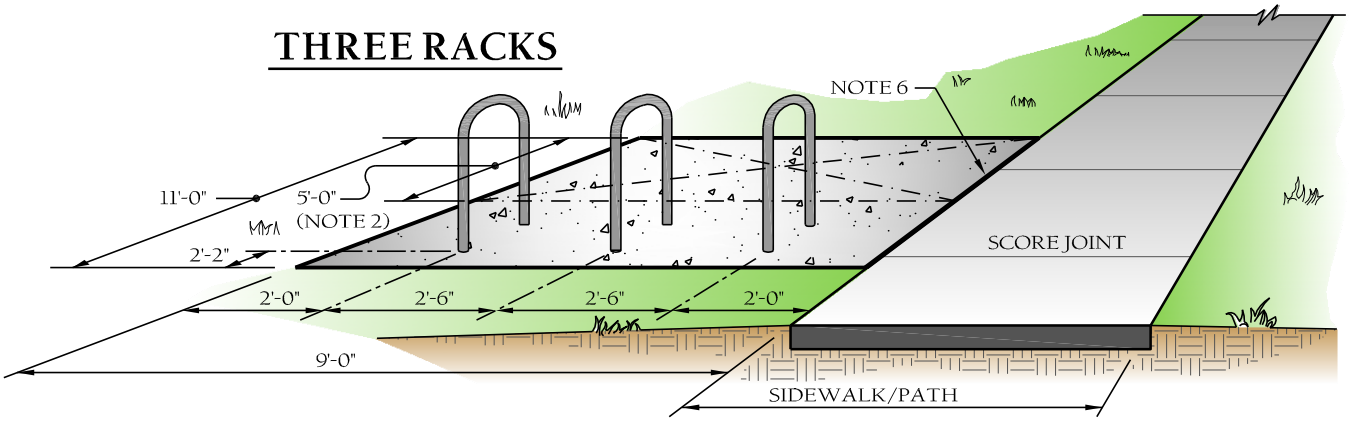
TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

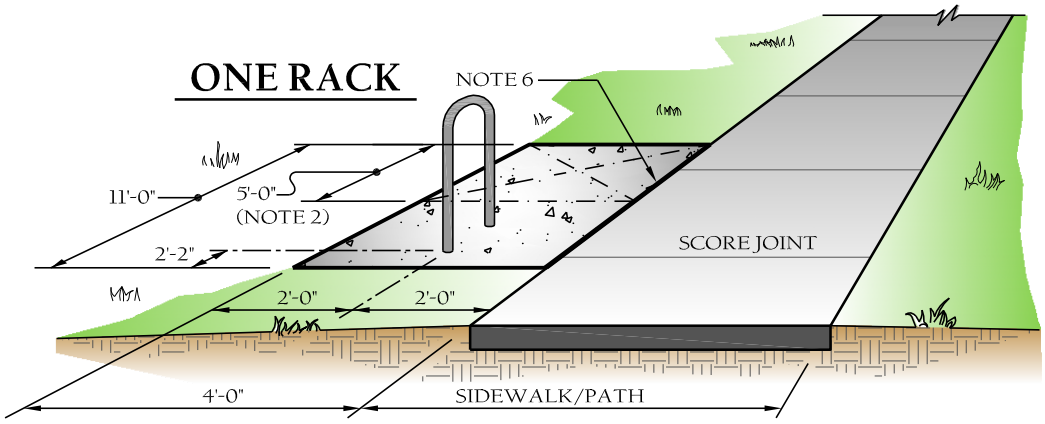
TYING PROPOSED PAVEMENT TO EXISTING PAVEMENT

Scale:	Detail #:
Not To Scale	8.09
Revision Date: Feb., 2015	621

THREE RACKS



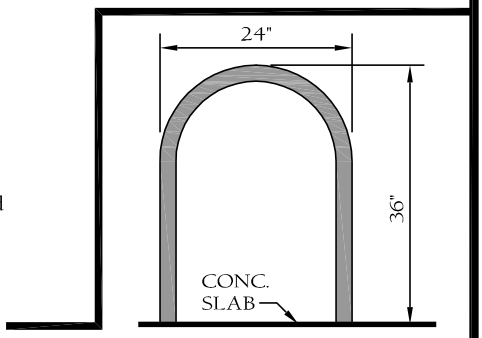
ONE RACK



OPTION 1:
PARALLEL TO SIDEWALK
(PREFERRED)

NOTES:

1. Parking pad to be min. 6" thick, 3,000 psi concrete. Size as shown. (Pad to be min. 4X6 for single rack and 2'-6" additional width per rack, with racks spaced 2'-6" o/c if more than one.)
2. A 5'-0" wide unobstructed maneuvering area is required behind racks when orientated parallel to a sidewalk as shown; requires a min. 4'-0" x 11'-0" pad.
3. Racks shall be flange mounted and shall have black polyester powder coat. Other placements shall meet minimum size requirements.
4. Bicycle parking shall not encroach on accessible paths.
5. Designated placement within parking lots may also be acceptable.
6. Provide expansion joint where concrete pad abuts concrete sidewalk, pad or pathway.
7. Other bike rack designs will be considered upon approval of the Town of Wake Forest Planning Department.



INVERTED "U" RACKS

TOWN of WAKE FOREST

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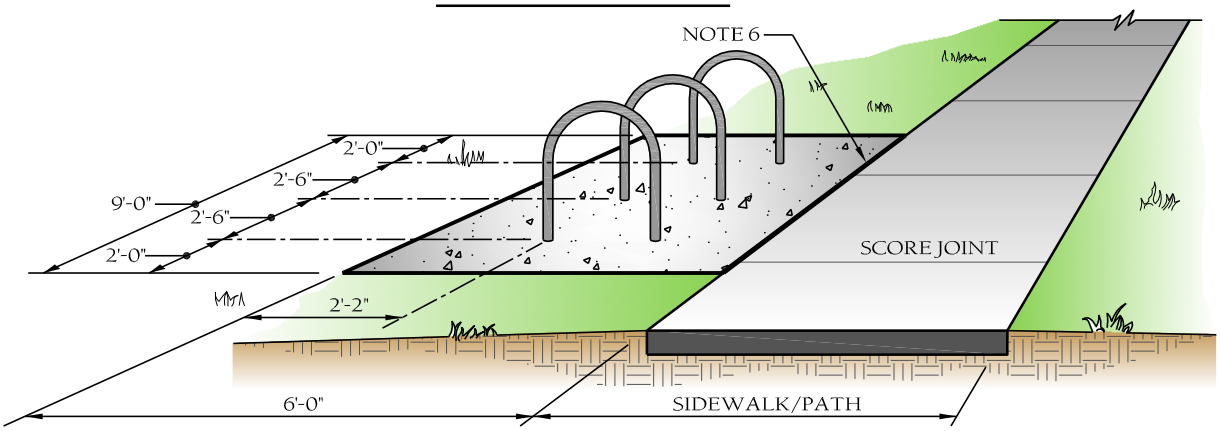
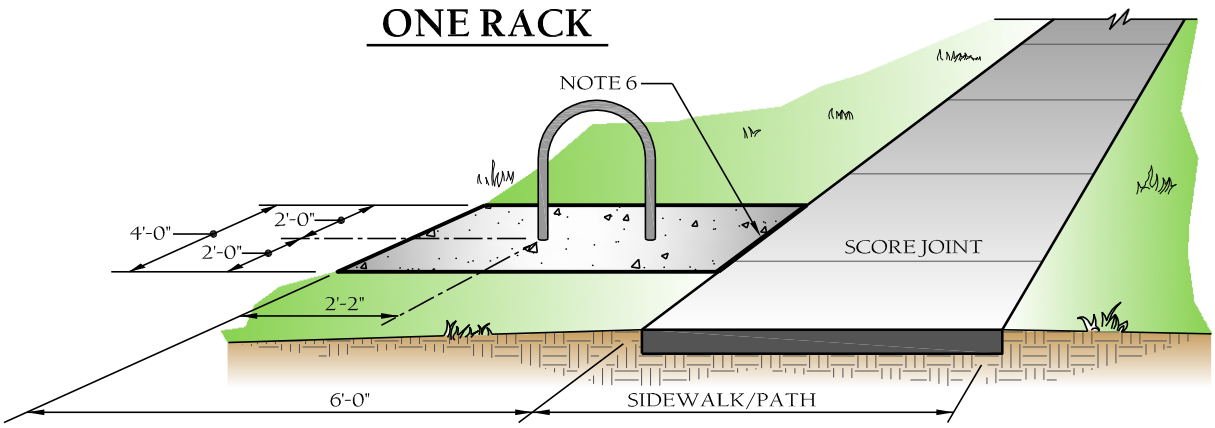
BICYCLE PARKING PARALLEL TO SIDEWALK

Scale:	Detail #:
Not To Scale	8.16
Revision Date: Feb., 2015	622

THREE RACKS



ONE RACK



OPTION 2:

PERPENDICULAR TO SIDEWALK
(OPTIONAL)

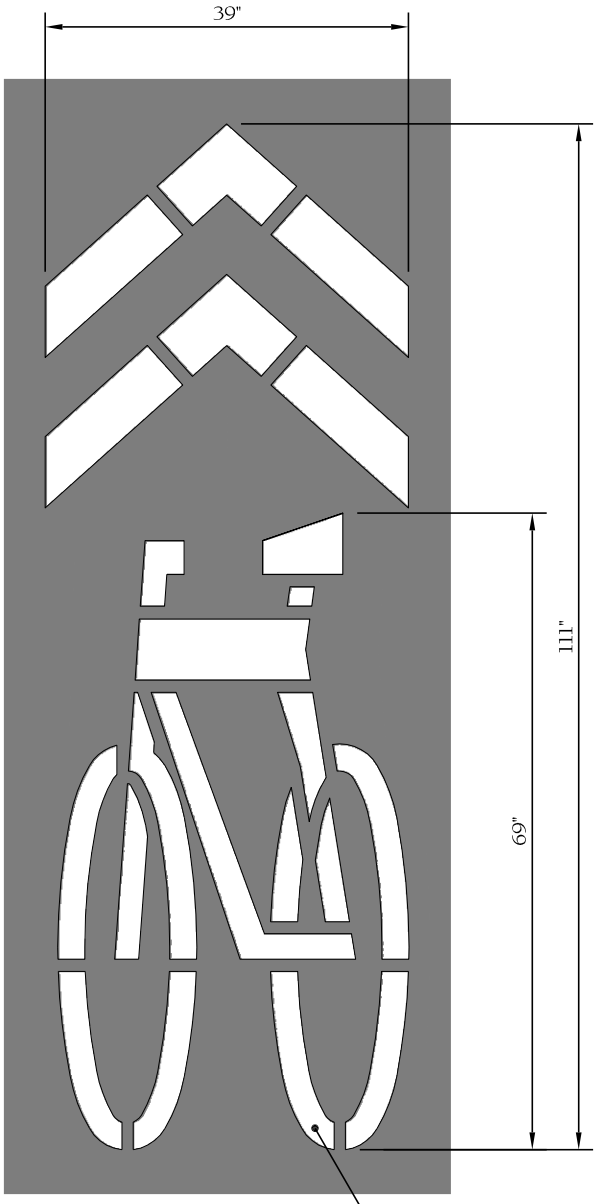
TOWN of WAKE FOREST

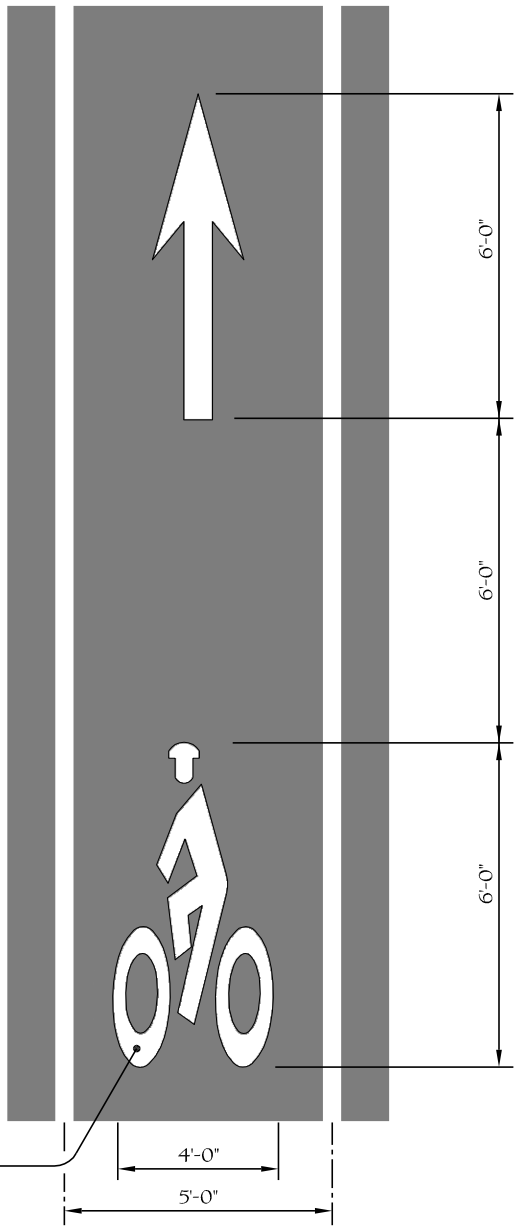
TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

BICYCLE PARKING PERPENDICULAR TO SIDEWALK

Scale:	Detail #:
Not To Scale	8.16
Revision Date: Feb., 2015	623





WHITE REFLECTORIZED PAINT OR THERMOPLASTIC MARKINGS

SHARED BIKE LANE MARKINGS

"SHARROW"

BIKE LANE SYMBOL MARKINGS

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

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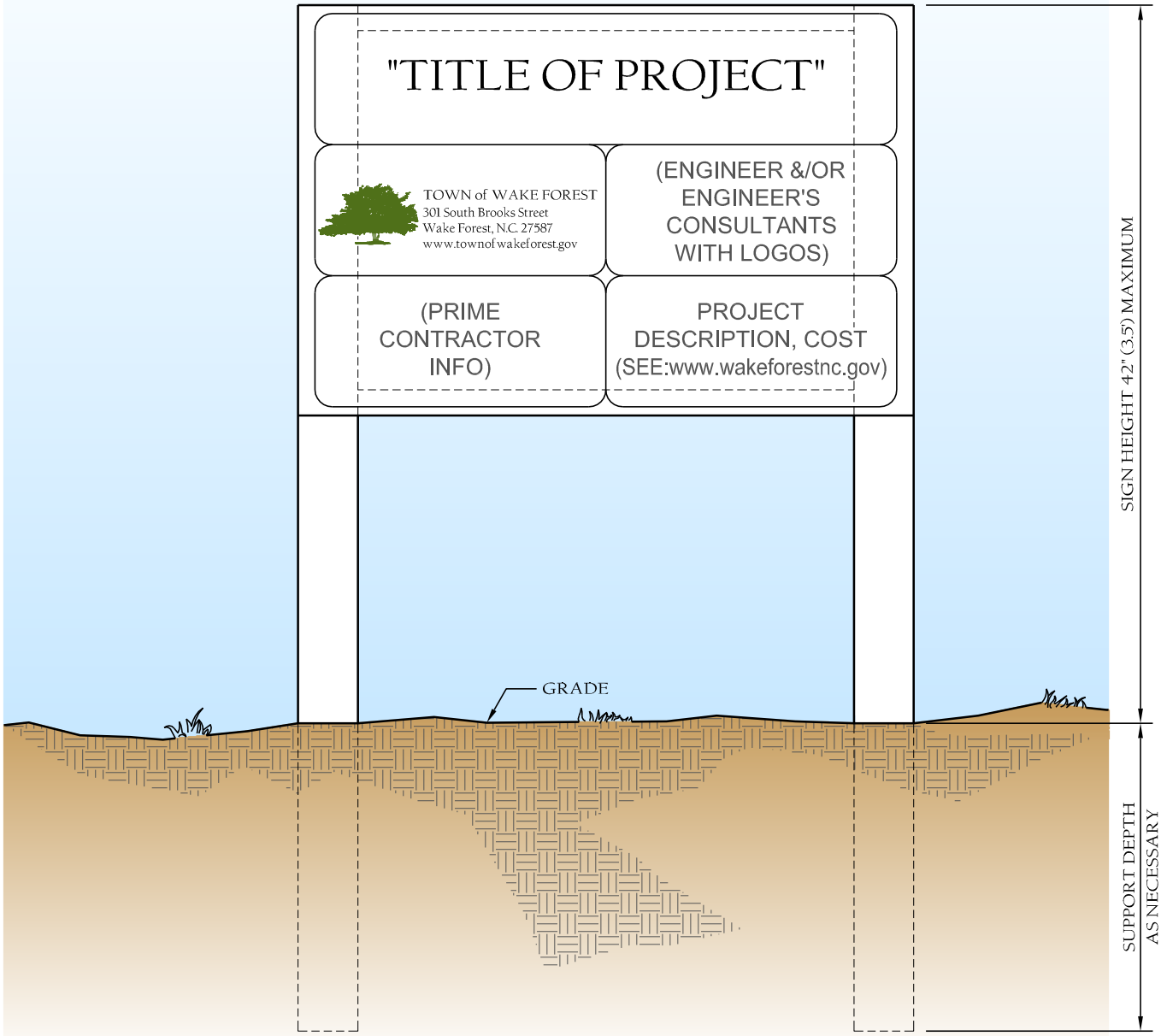
BIKE LANE SYMBOL MARKINGS

Scale:	Detail #:
Not To Scale	8.17
Revision Date: Feb., 2015	624



NOTES:

1. Total sign area = 32 S.F. per side (Maximum).

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

PROJECT IDENTIFICATION SIGN for TOWN FUNDED CAPITAL PROJECTS

Scale:	Detail #:
Not To Scale	8.18
Revision Date: Feb., 2015	625

PAVEMENT SECTION MATRIX

UDO Street Type (See UDO paragraph 6.7.2 "Town Street Classifications" for R/W & street cross-section requirements	ADT (vpd)	Minimum Pavement Section					
		SuperPave Asphalt Thickness			Aggregate Base (ABC)	Geogrid [1]	Curb & Gutter [2]
		Riding Surface (S-9.5B)	Intermediate Course (I-19.0B)	Base Course (B-25.0)			
Urban Boulevard (UDO 6.7.2B)	25k to 55k	As Designed	As Designed	As Designed	8	Note 1	Type 3
Avenue (UDO 6.7.2C)	15k to 30k	As Designed	As Designed	As Designed	5	-	Type 2
Commercial Street (UDO 6.7.2D)	10k to 18k	2	-	4	5	-	Type 1
Large Residential Street (UDO 6.7.2E)	2.5k to 15k	2	-	4	5	-	Type 2 or 4
Residential Yield Street (UDO 6.7.2F)	0 to 1k	2	-	-	8	Note 1	Type 2 or 4
Lane (UDO 6.7.2G)	0 to 3k	2	-	-	8	Note 1	Type 1 or 5
Alley (UDO 6.7.2H)	N/A	2	-	-	6	-	N/A
Industrial Access [3]	N/A	As Designed	As Designed	As Designed	8	Note 1	Type 3

1. *For all street classifications within the street right-of-way, the aggregate base thickness may be reduced by 2 inches if an approved Geogrid is installed between the compacted subgrade and the aggregate base. Geogrid to be Tensar BX1100 (SS-2), an approved equal, or as otherwise specified by a NC Licensed PE (Geotechnical Engineer).*
2. *Curb & Gutter Types (see Standard Detail 9.02):*
   - *Type 1 = 30-inch Standard Curb & Gutter.*
   - *Type 2 = 30-inch Standard Curb & Gutter or approved alternate.*
   - *Type 3 = 30-inch Standard Curb & Gutter with 5 inches of ABC below curb and extending a minimum of 6 inches beyond the back of the curb or approved alternate.*
   - *Type 4 = 30-inch Valley Curb.*
   - *Type 5 = LID or Swale.*
3. *Right-of-way and street section to be as required by Town Engineer.*
4. *Street pavement sections must be designed using the procedures outlined in the UDO, Section 3, Street and Subdivision Design, paragraph 3.3 Pavement Design Methods except that individual elements shall not be less than shown in the above table.*
5. *See UDO Section 6, Infrastructure Standards, paragraphs 6 5.3 Pedestrian/Bicycle Connections, 6.7.2 Town Street Classification, 6.8 Sidewalk and Other Pedestrian Facilities and 6.9 Bikeway Facilities for sidewalk and bikeway requirements.*

TOWN of WAKE FOREST

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PAVEMENTS SECTION MATRIX

Scale:	Detail #:
Not To Scale	9.01
Revision Date: Feb., 2015	Sheet #: 1 of 2

Notes:

1. *Sidewalk and curb to be 3000 psi at 28 days air entrained concrete. Sidewalk to be scored every 5 ft with 1/2" expansion joints at 30 ft intervals. Provide non-slip finish. Concrete sidewalks to be 4" except thickness to increase to 6" at all driveway crossings and for a distance 5' either side of the driveway. Place 1/2" expansion joints at junction of 4" and 6" sidewalks.*
2. *Maximum grades and "K" valves for streets shall follow NCDOT guidelines for the Piedmont area (rolling topography). See Table 9.03.*
3. *All pavement thickness' shall generally be confirmed by a geotechnical investigation and report. However, if a developer wishes, he may design residential streets using a subgrade CBR one standard deviation to the left of the average of all CBR's determined by geotechnical reports thus far. If, in the opinion of the Town's representative, soils appear weaker or have inherent problems such as a high mica content, the services of a geotechnical engineer shall be required in any case for the design of pavements.*
4. *Electric service will not go in until street section is graded at final and approved.*
5. *The Town Engineer shall require a 1" overlay over any segment of street in which there are 3 or more trench failures, utility cuts, egregious imperfections or patches per 800 foot of street. If final surface is already placed, it must be milled down so as not to encroach into the gutter pan. A trench failure shall be defined as a depression of 1/2" or greater at the deepest point over a trench width. Extent of length of resurfacing shall be as determined by the Town's Engineer.*
6. *Time limits for completion of improvement: Refer to UDO Section 6.38.*

Concrete Testing Requirements:

Initial Test

The initial test (from first ready-mix truck) is to be taken after the second yard is dispatched from the mixer and is to consist of the following:

1. *One slump test*
2. *Pull, prepare and store 3 cylinders on-site for 24 hours.*
3. *Temperature*

Subsequent Tests

After the above tests are pulled from the initial truck, every 5th truck thereafter is to be tested in the same manner as noted above.

Asphalt Testing Requirements:

Compaction: *Testing for asphalt density is to follow NCDOT "Standard Specifications for Roads and Structures", Section 609-7 "Field Compaction Quality Control" and Section 609-9, "Quality Assurance" latest revision.*

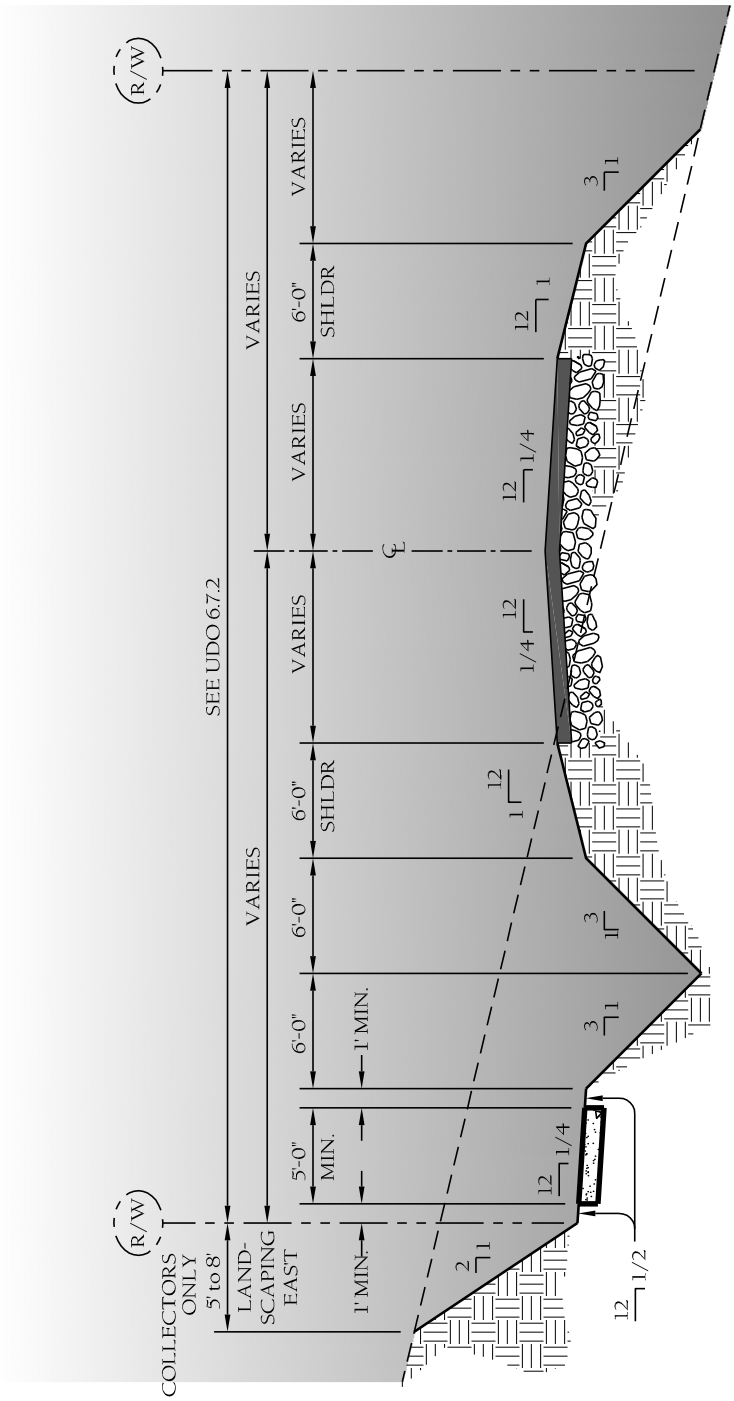
Thickness: *The minimum frequency of coring for thickness testing shall be on the basis of test sections consisting of not more than 1500 linear feet of lay down width, exclusive of intersections and irregular areas. The test sample is to be a 6-inch cored sample. The sample is to be numbered and logged for identification purposes.*

Contractor's Quality Control System:
Follow NCDOT "Standard Specifications for Roads and Structures", Section 609-4 "Contractor's Quality Control Personnel Requirements" and Section 609-5, "Contractor's Quality Control Field Laboratory Requirements," latest revision.

Mixture and Job Mix Formula Adjustments:
Follow NCDOT "Standard Specifications for Roads and Structures", Section 609-3. "Field Verification of Mixture and Job Mix Formula Adjustments", latest revision.

General: *All other applicable sections of Section 609 of the NCDOT "Standard Specifications for Roads and Structures" shall apply relating to Quality Control Plan, mix design, control limits, corrective action, equipment and measurement.*

Testing Cost: *Project Owner is responsible for cost of testing.*



APPLIES TO STREET WHERE SIDE WALK IS REQUIRED

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

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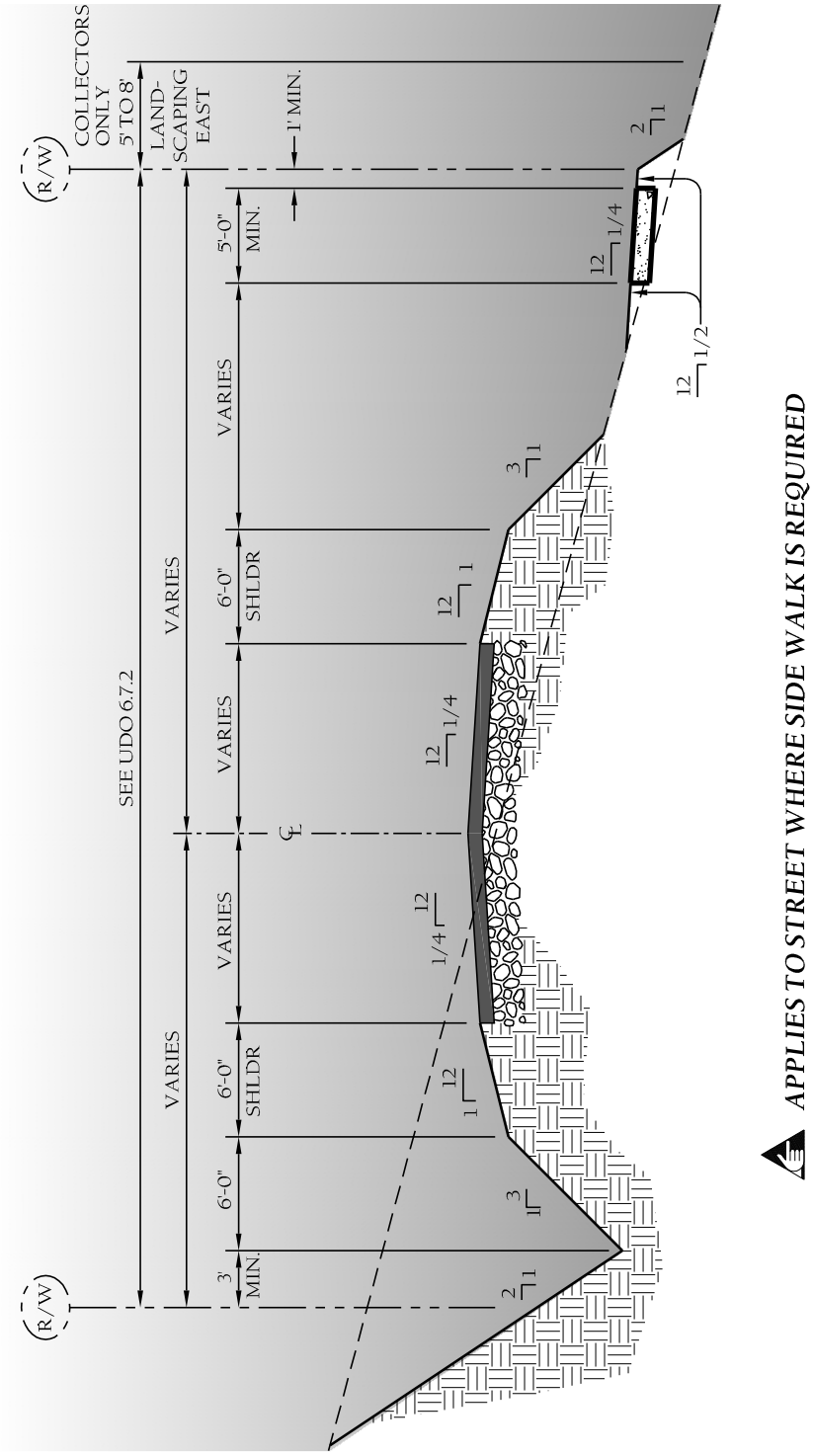
TYPICAL ASYMETRIC X-SECTION WITH SIDEWALK (ON CUT SLOPE)

Scale:	Detail #:
Not To Scale	9.01A
Revision Date:	Sheet #:
Feb., 2015	1 of 2



APPLIES TO STREET WHERE SIDE WALK IS REQUIRED

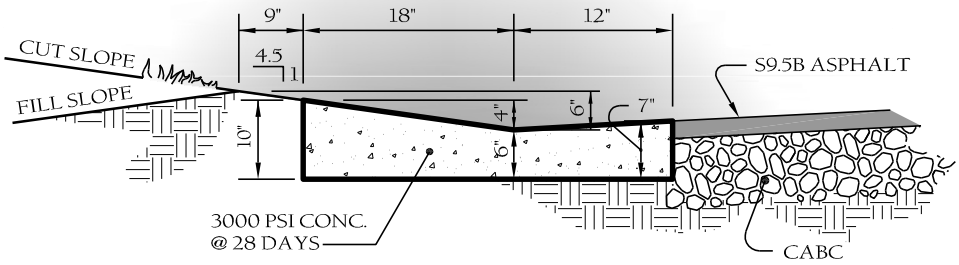
TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

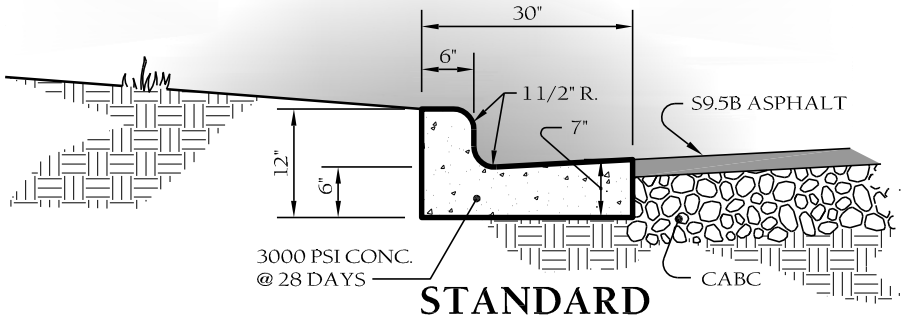
Manual of Specifications, Standards and Design

TYPICAL ASYMETRIC X-SECTION WITH SIDEWALK (ON FILL SLOPE)

Scale:	Detail #:
Not To Scale	9.01A
Revision Date:	Sheet #:
Feb., 2015	2 of 2



30" VALLEY - STANDARD

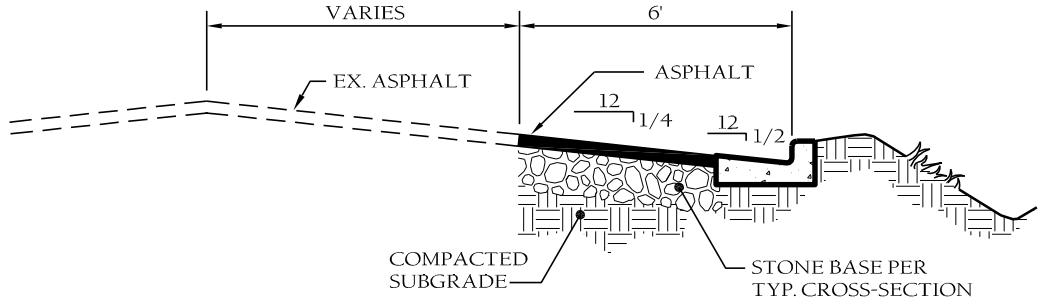


STANDARD

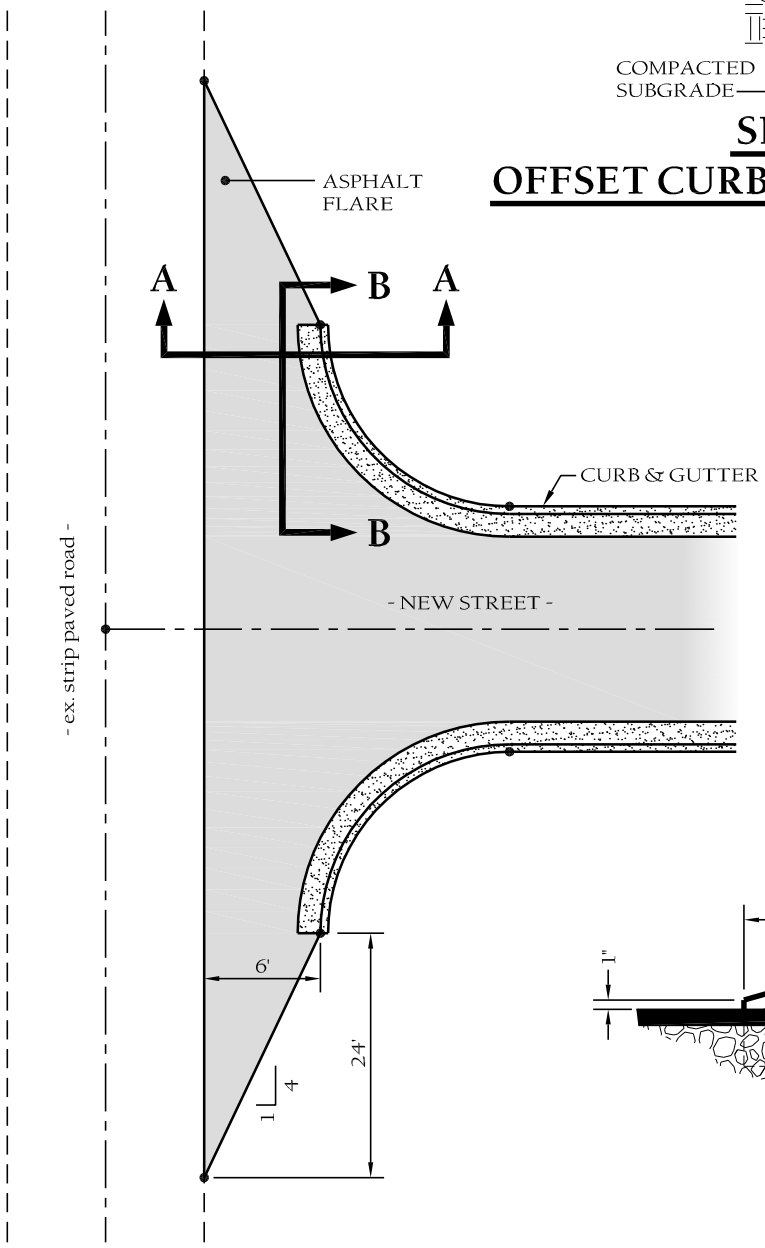
NOTES:

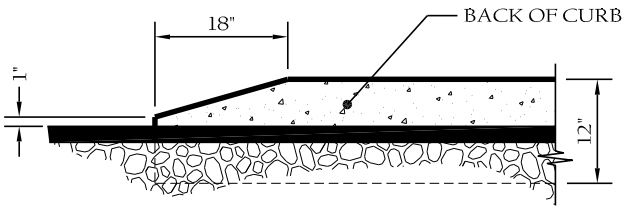
1. *Score curb / valley gutter at 15' O.C.*
2. *Provide 1/2" expansion joints at 90' O.C.*
3. *For transition of curb to curb opening inlet, see standard detail 9.50*

TOWN of WAKE FOREST	**TOWN of WAKE FOREST, NC** Manual of Specifications, Standards and Design		
	STD. CURB & GUTTER & VALLEY GUTTER DETAIL	Scale: Not To Scale	Detail #: 9.02
		Revision Date: Feb., 2015	Sheet #: 1 of 1



SECTION A-A
OFFSET CURB PAVEMENT WIDENING





SECTION B-B
CURB END TAPER

TOWN of WAKE FOREST

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TERMINAL END OF CURB at SHOULDER SECTIONS

Scale:	Detail #:
Not To Scale	9.03
Revision Date:	Sheet #:
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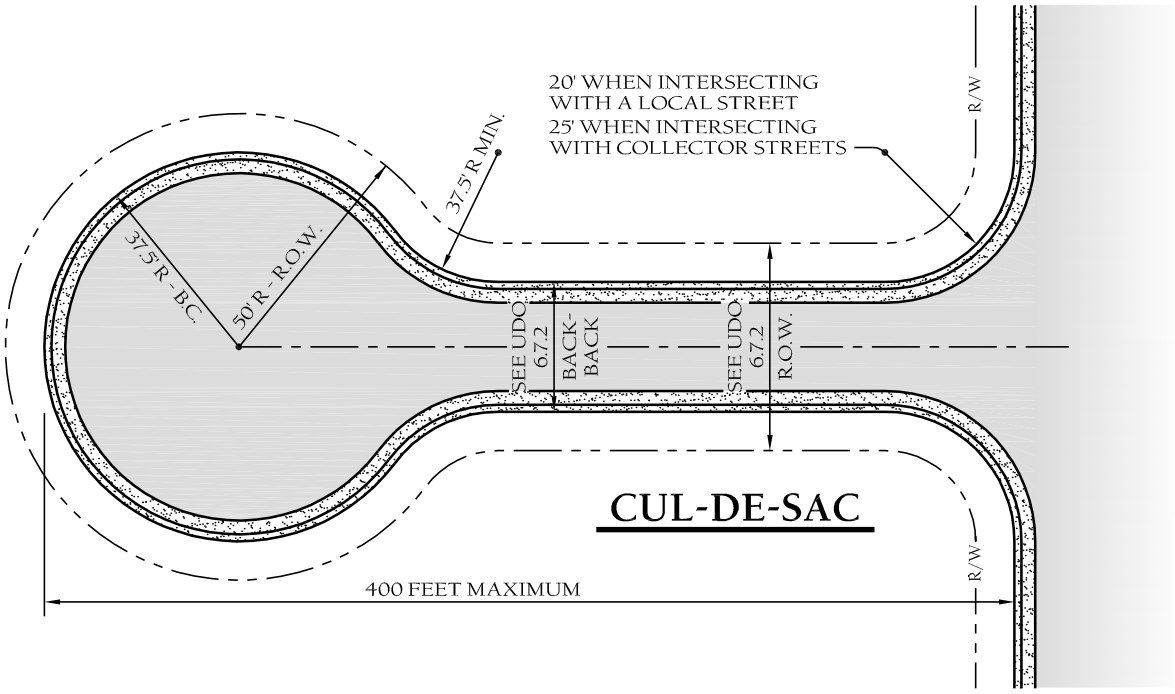

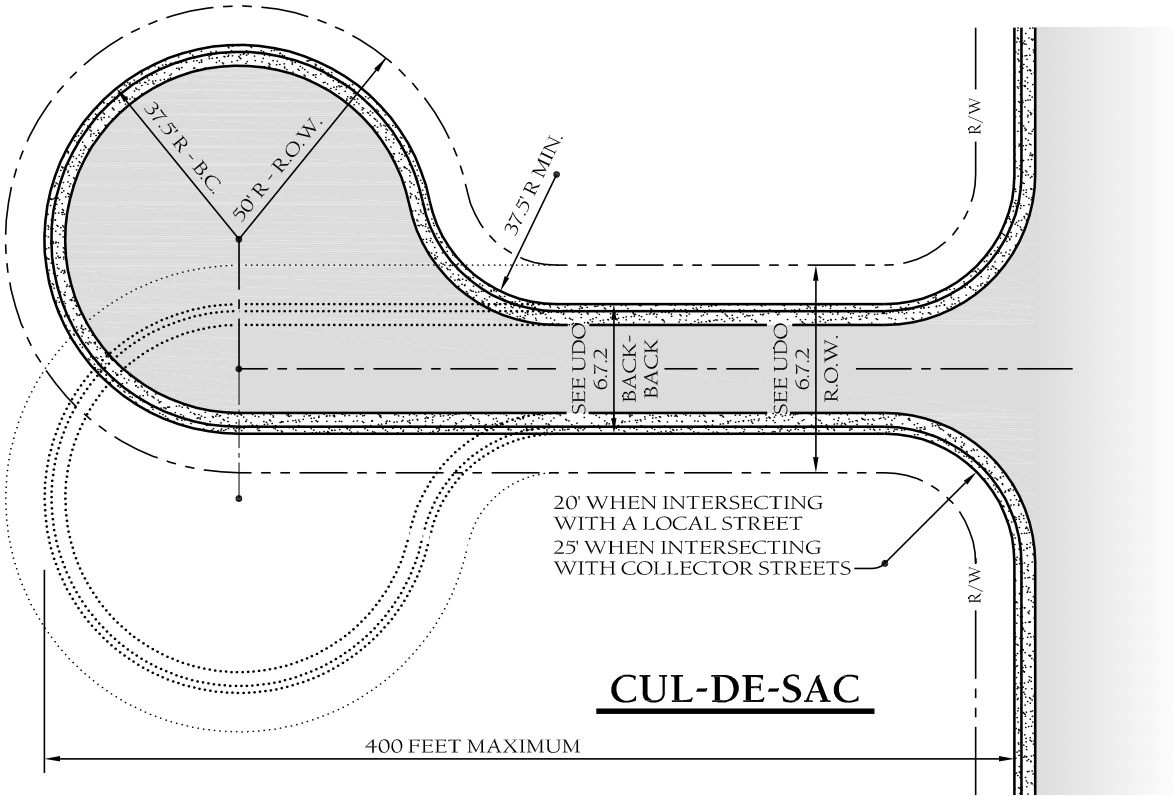

NOTES:

1. *See UDO 6.7.2 for pavement and right-of-way dimensions.*

TOWN of WAKE FOREST

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CUL-DE-SAC DIMENSIONS

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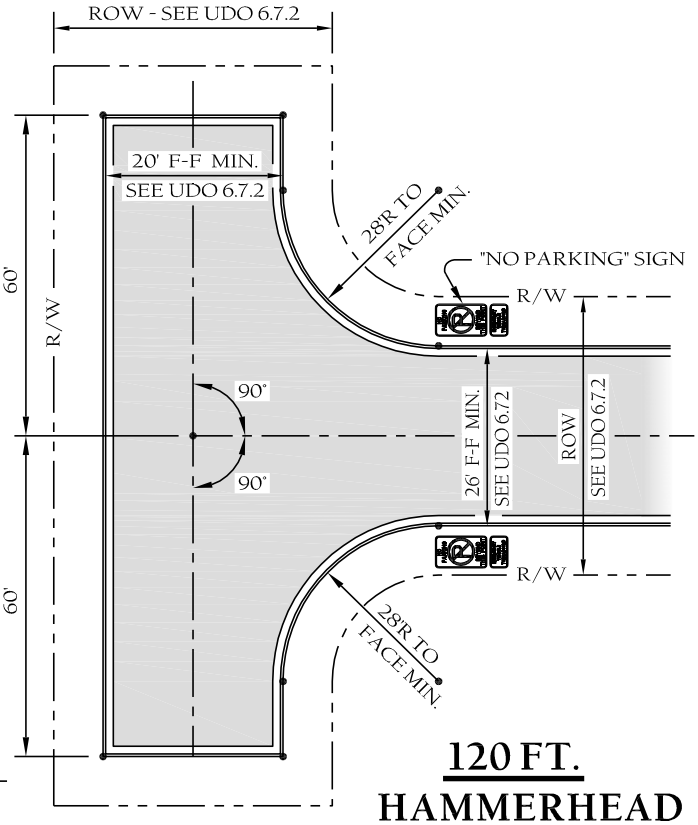
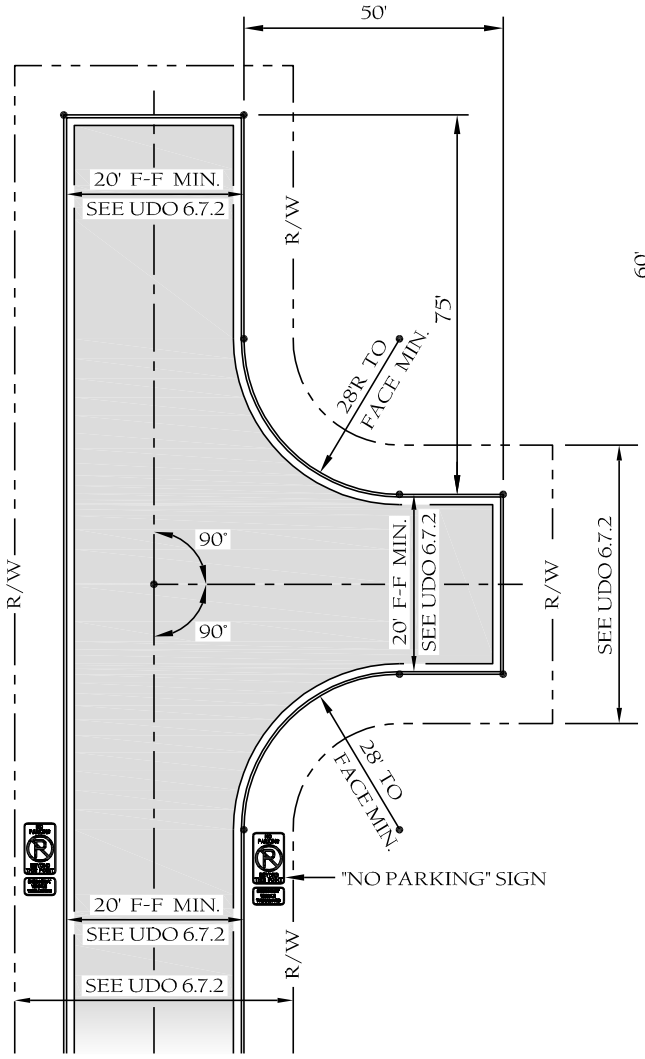
ROW = RIGHT OF WAY



120 FT. HAMMERHEAD



ALTERNATE TO 120 FT. HAMMERHEAD

NO PARKING SIGN

NOTES:

1. *See UDO 6.7.2 for pavement and right-of-way dimensions.*
2. *Ref: N.C. Fire Code Appendix B.*

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CUL-DE-SAC DIMENSIONS

Scale:	Detail #:
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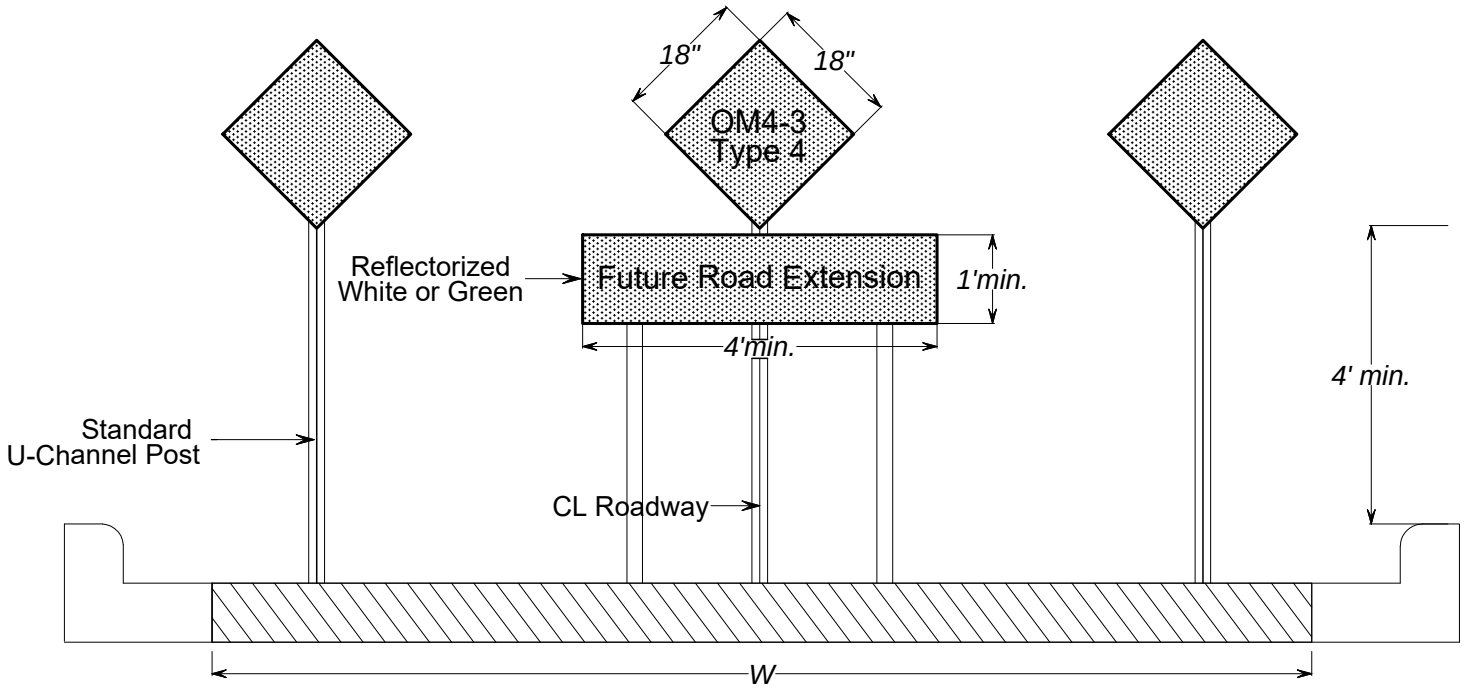

Notes:

1. OM4-3 signs should be evenly spaced between curb and gutter.
2. Spacing shall be adjusted for wider roadways. Additional signage may be required.
3. Advance warning sign W14-1 (Dead End) shall be placed after last intersection.
4. If subdivision has no additional exits, advance signage shall be placed at entrance(s).

TOWN of WAKE FOREST

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END OF ROAD SIGNAGE

Scale Not To Scale	Detail # 9.05
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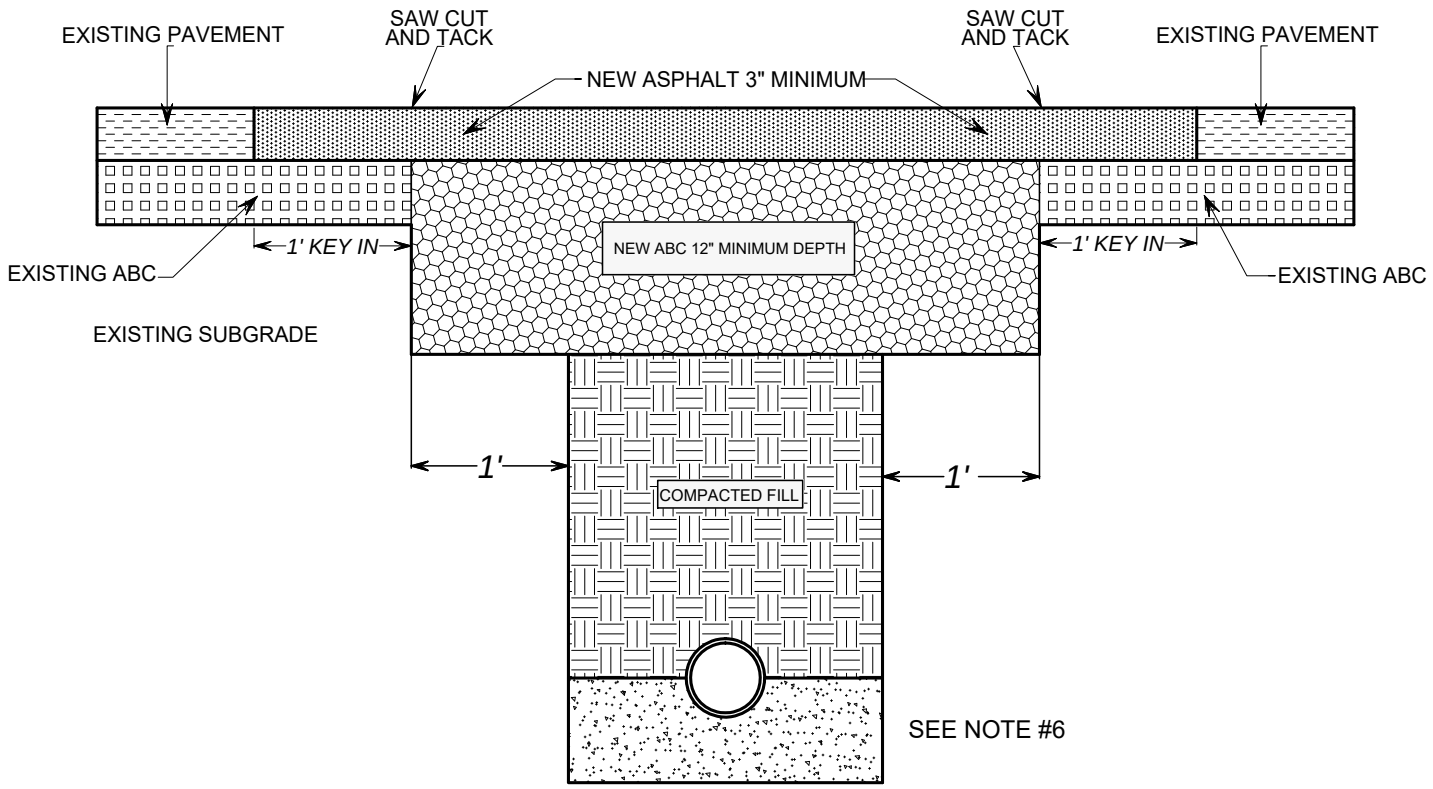

Notes:

1. Trench is to be backfilled in 6” lifts with suitable material and compacted to a density of at least 95% asdetermined by AASHTO test method T-99.
2. The final 1’ of fill shall consist of ABC material compacted to a density equal to 100% as determined by AASHTO test method T-80. Bituminous base or binder may be supplemented with the approval of the Transportation Engineer.
3. The entire existing depth of pavement shall be sawcut, clean of any debris, and tacked prior to paving.
4. The same depth of pavement material shall be reinstalled to match what exists. In no case shall the asphalt be less than 3” thick.
5. Patch shall be installed and compacted to provide a smooth and even transition.
6. For RCP 36” or greater, #57 washed stone shall be installed to the spring line prior to backfill.
7. All density tests may be required to be performed in the presence of a Town Construction Inspector.
8. For small, non-compactable holes, flowable fill may be required

TOWN of WAKE FOREST

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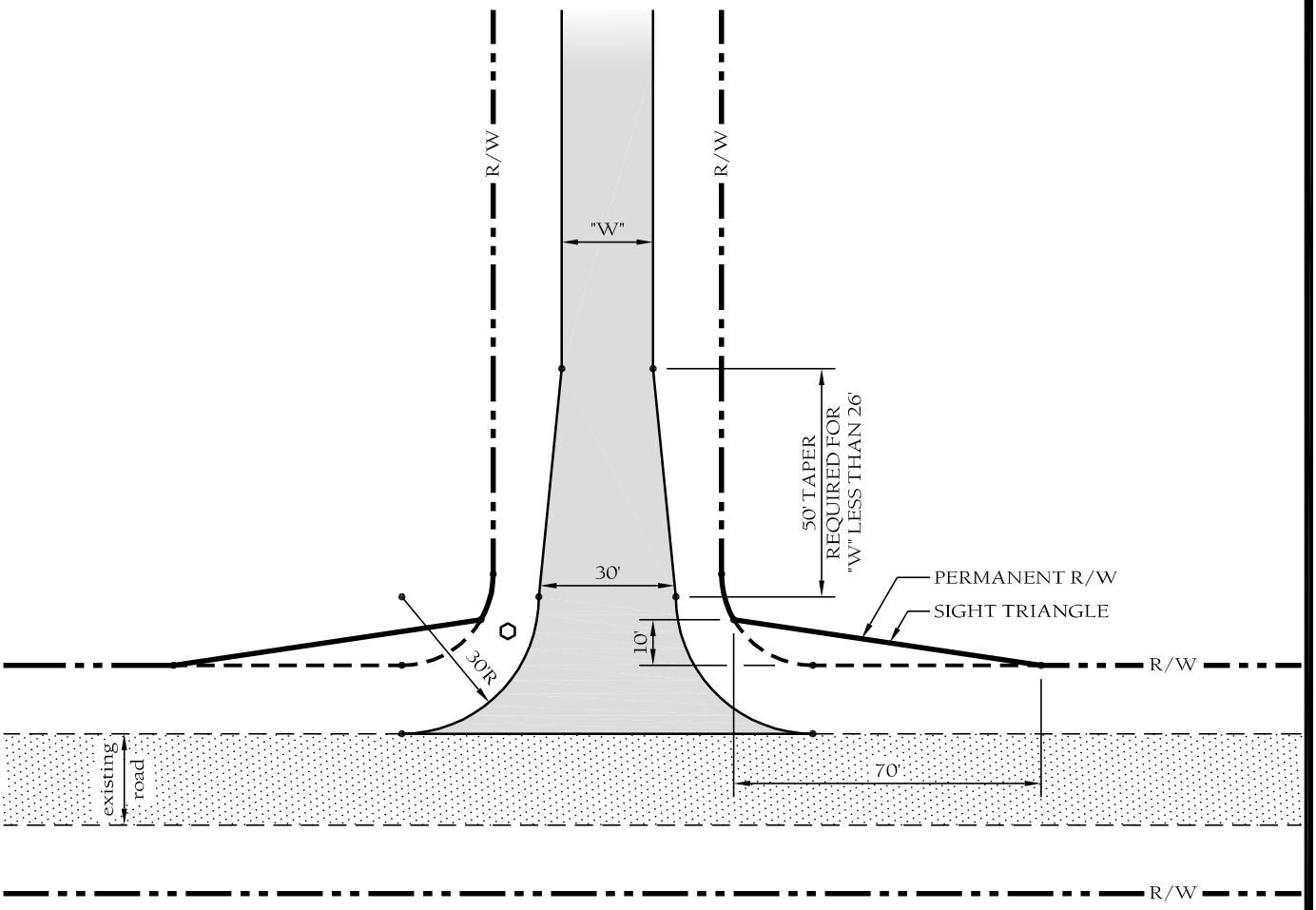
Full Depth Asphalt Repair Detail For Utility Cuts	Scale Not To Scale	Detail # 9.06
	Revision Date *Dec.* 2019	Sheet # 1 of 1



TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

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TIE-IN OF STREETS at DOT SHOULDER ROADS - STREETS

Scale:	Detail #:
Not To Scale	9.07
Revision Date:	Sheet #:
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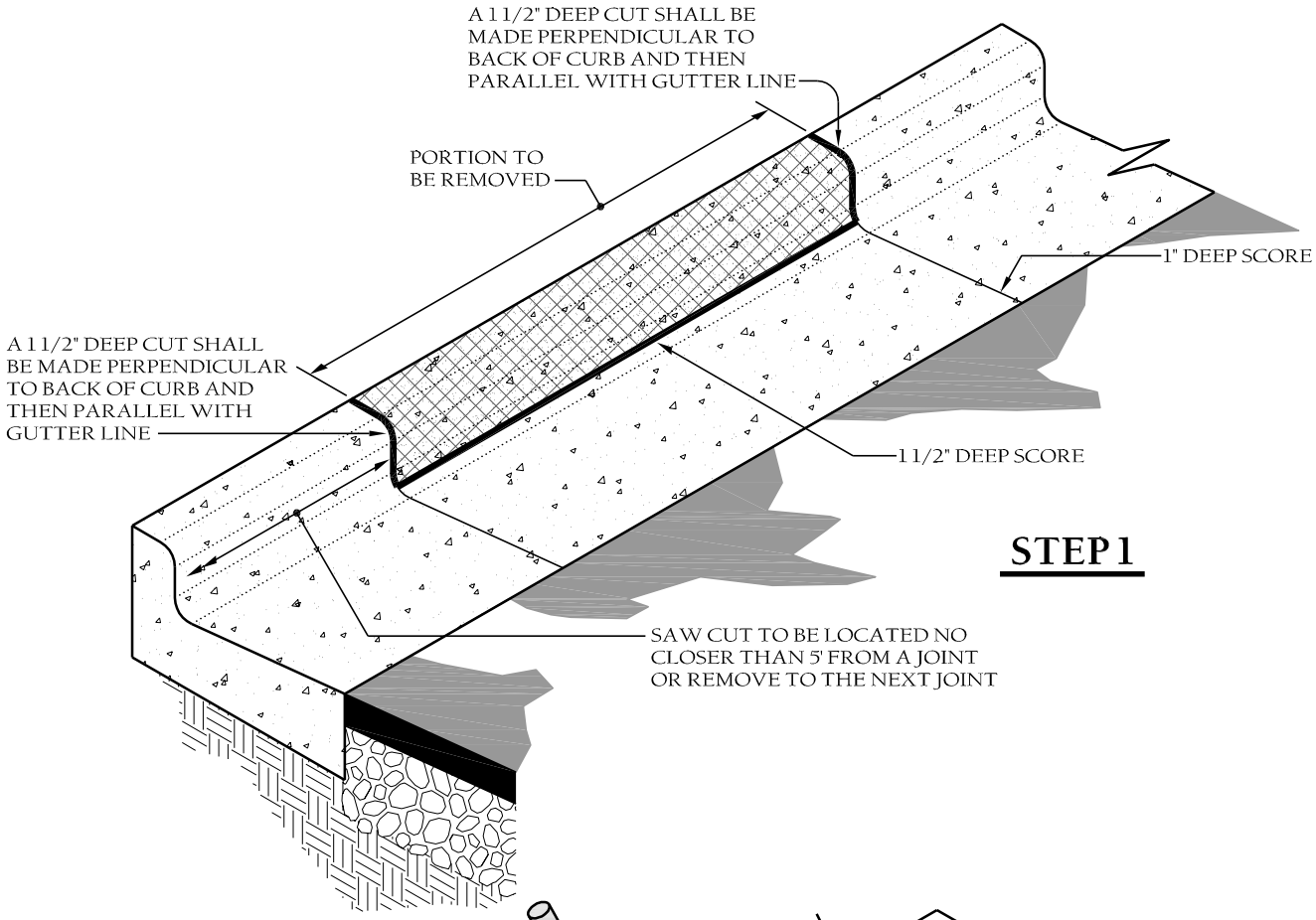
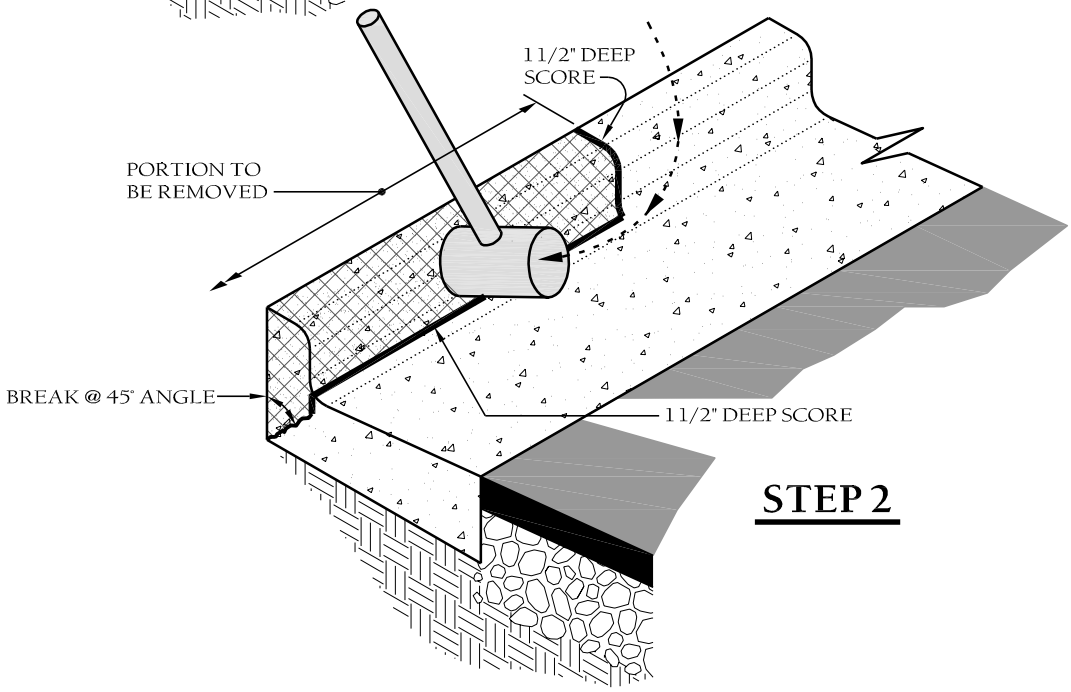


STEP 1



STEP 2

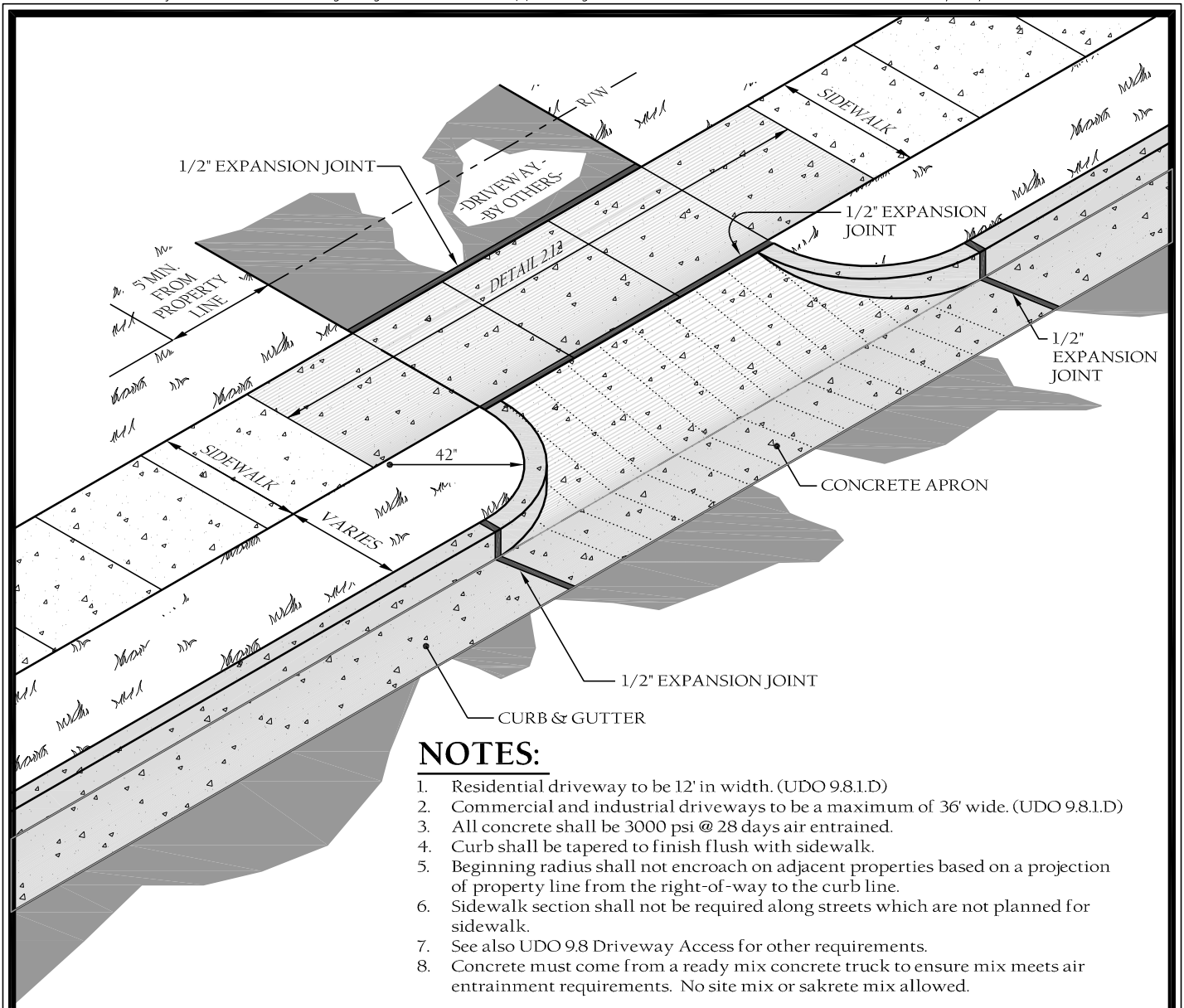
TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

TOWN of WAKE FOREST

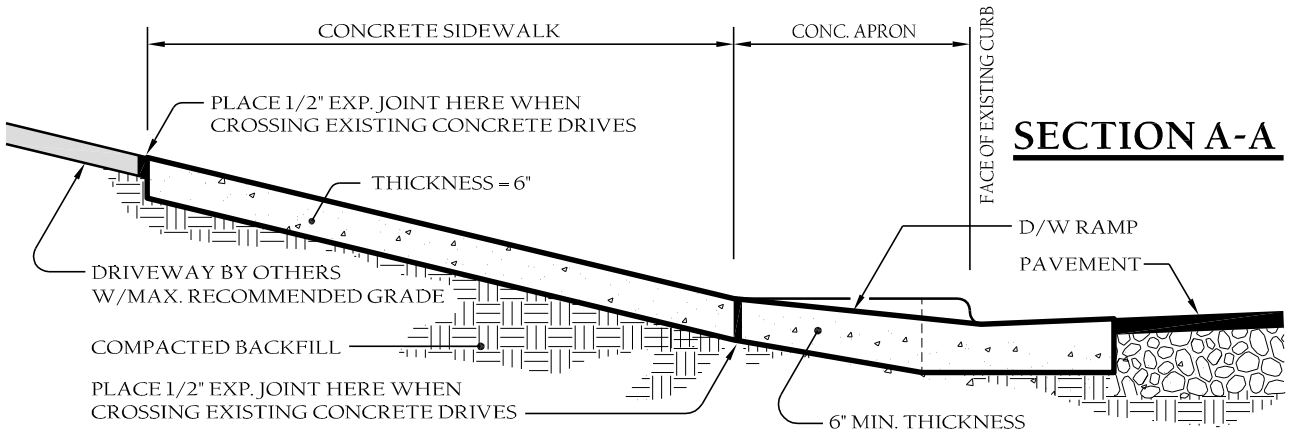
STREET CURB CUT FOR DRIVEWAYS ON C&G STREETS

Scale:	Detail #:
Not To Scale	9.08
Revision Date:	Sheet #:
Feb., 2015	1 of 2



NOTES:

1. Residential driveway to be 12' in width. (UDO 9.8.1.D)
2. Commercial and industrial driveways to be a maximum of 36' wide. (UDO 9.8.1.D)
3. All concrete shall be 3000 psi @ 28 days air entrained.
4. Curb shall be tapered to finish flush with sidewalk.
5. Beginning radius shall not encroach on adjacent properties based on a projection of property line from the right-of-way to the curb line.
6. Sidewalk section shall not be required along streets which are not planned for sidewalk.
7. See also UDO 9.8 Driveway Access for other requirements.
8. Concrete must come from a ready mix concrete truck to ensure mix meets air entrainment requirements. No site mix or sakrete mix allowed.



SECTION A-A

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

STREET CURB CUT FOR DRIVEWAYS ON C&G STREETS

Scale:	Detail #:
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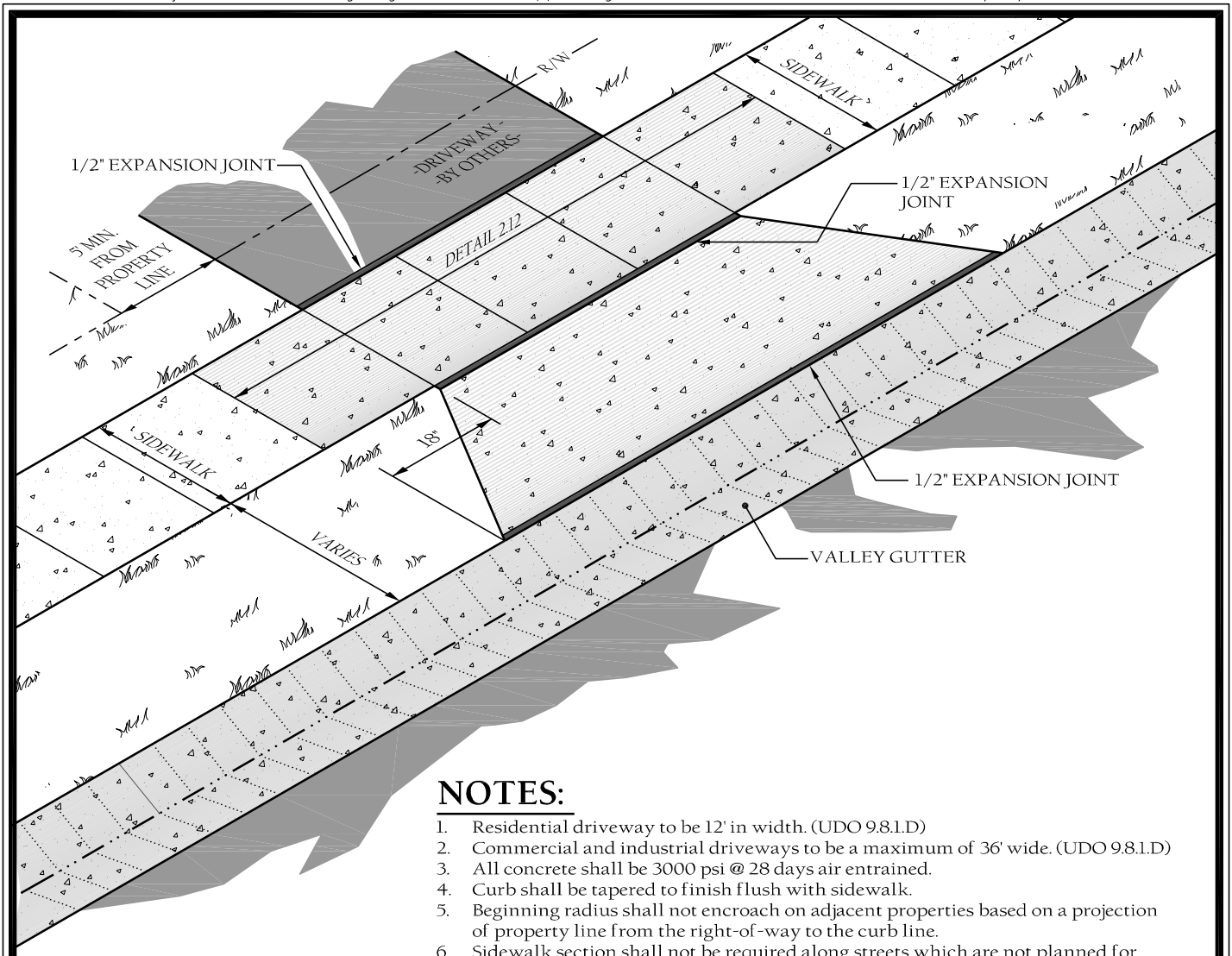
Feb., 2015	2 of 2



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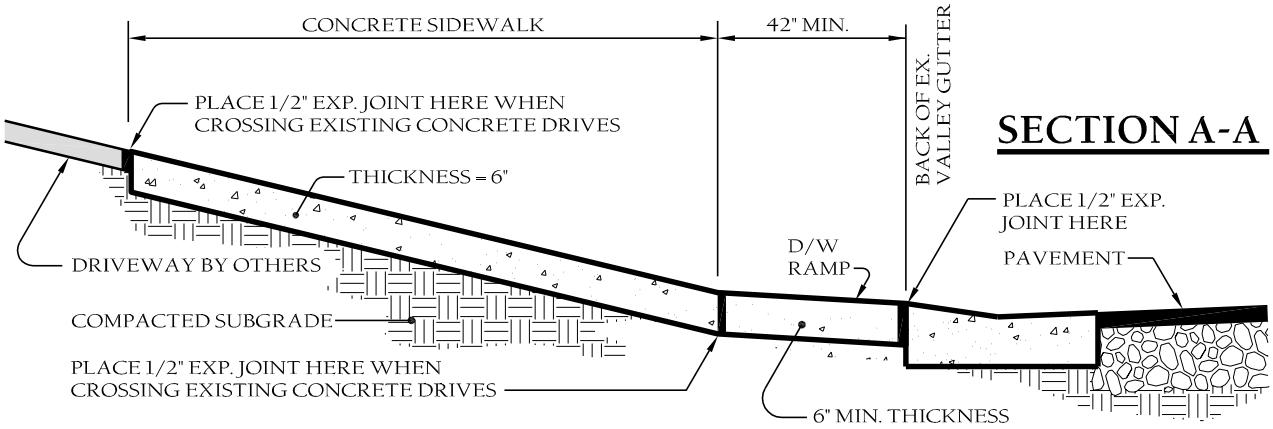
SECTION A-A



TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

FLARED DRIVEWAY ENTRANCE TO VALLEY GUTTER

Scale:	Detail #:
Not To Scale	9.08
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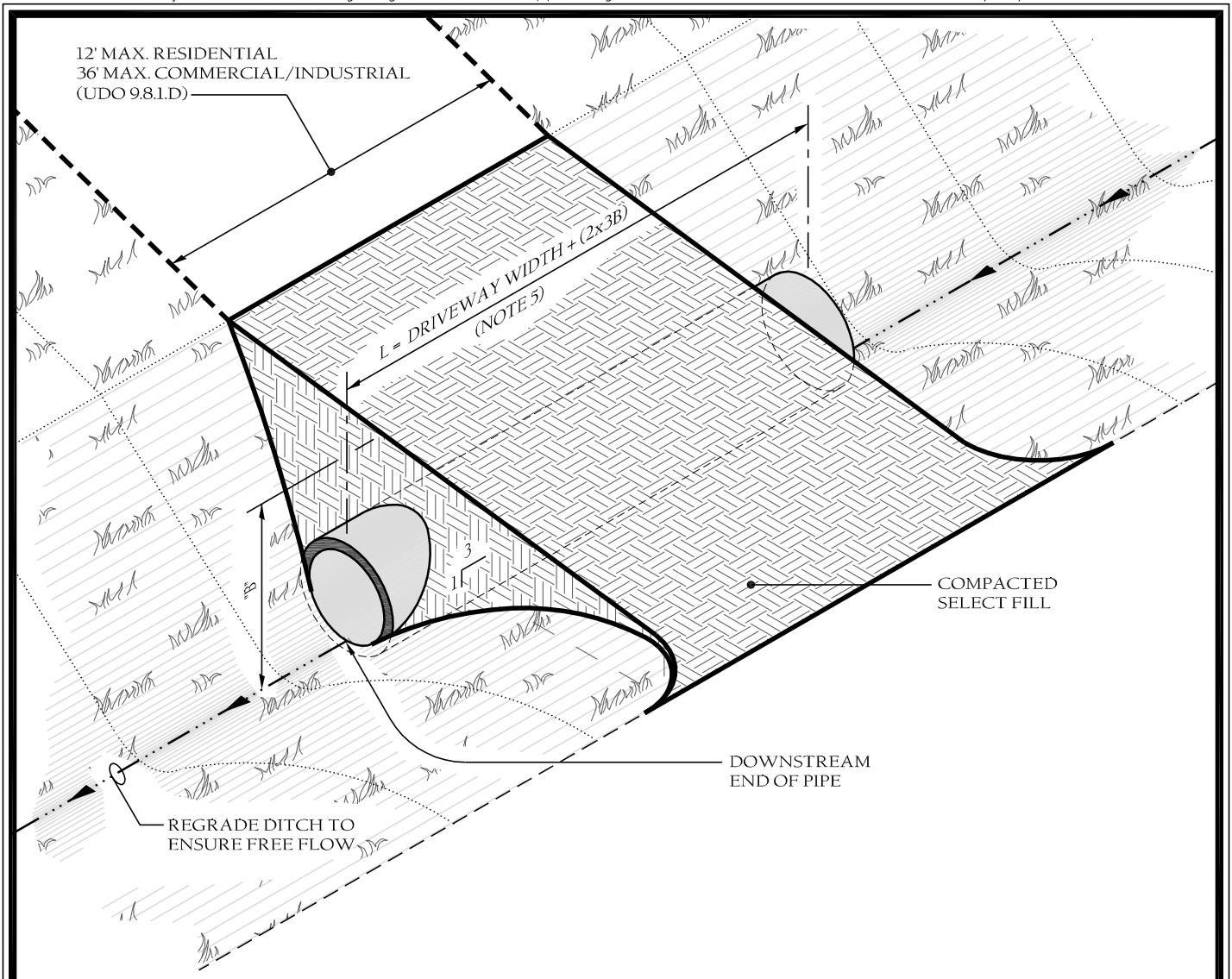

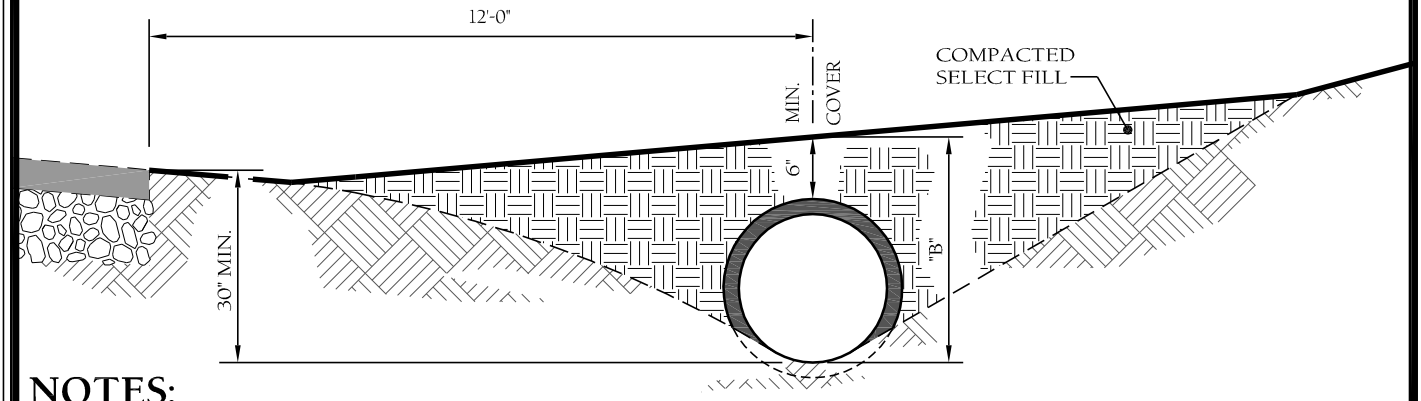

NOTES:

1. D/w pipe 18" and above to have flared end sections.
2. Minimum diameter pipe to be 15" class III "C" wall.
3. D/W pipe to be staked by N.C. licensed surveyor.
4. Driveway pipe shall be concrete pipe only.
5. "L" to be rounded up to next 4' increment.
6. Decorative headwalls may be allowed at discretion of Town's Engineer. An encroachment agreement will be required.

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

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INSTALLATION OF D/W PIPE IN STREET SECTION

Scale:	Detail #:
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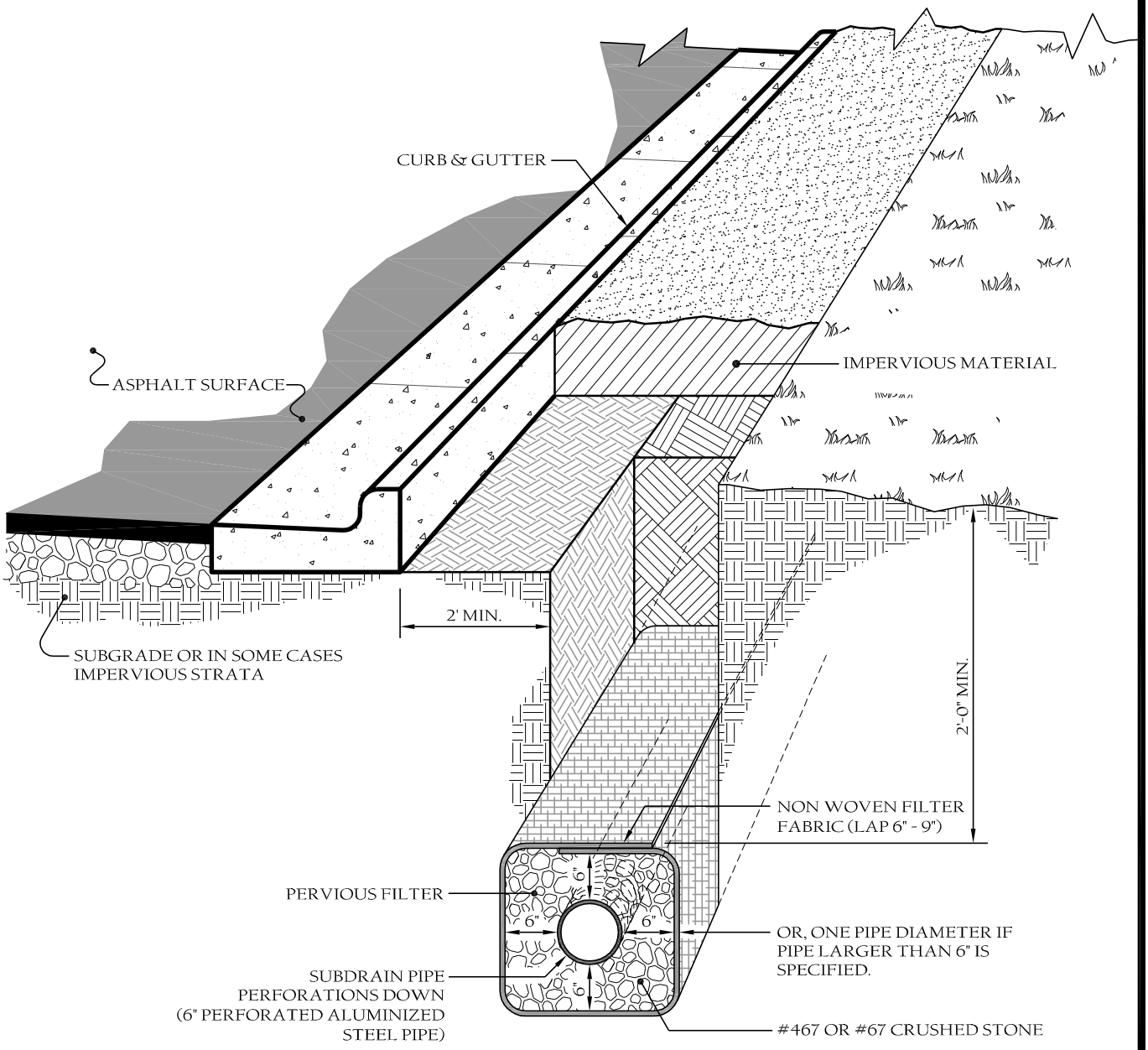
Revision Date:	Sheet #:
Feb., 2015	1 of 1



NOTES:

1. Subdrains shall tie or empty into catch basin only. No ties or connections will be allowed on a pipe culvert of any kind.

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

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STANDARD SUBDRAIN BEHIND CURB & GUTTER

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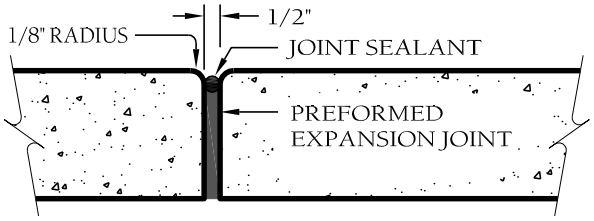
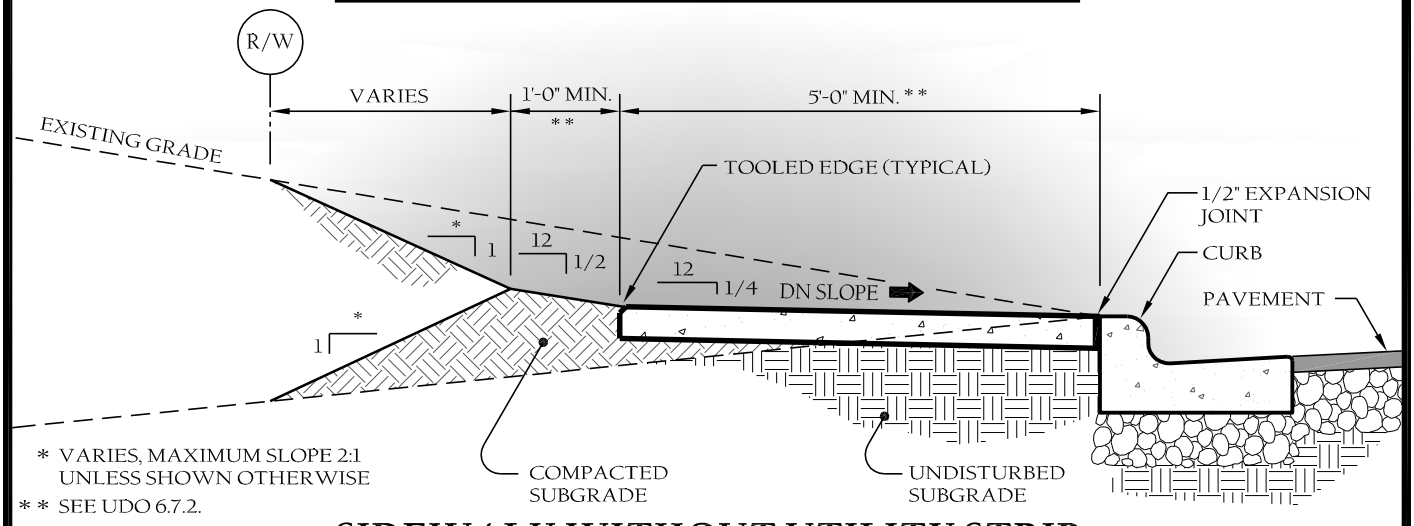
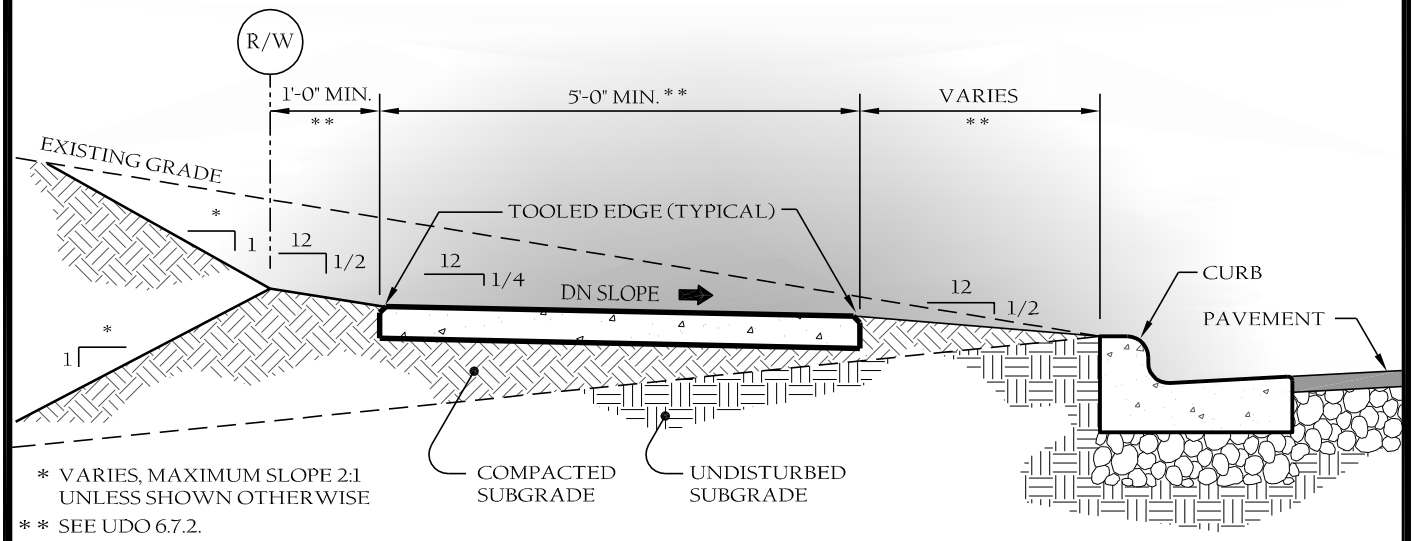


TYPICAL EXPANSION JOINT DETAIL



SIDEWALK WITHOUT UTILITY STRIP

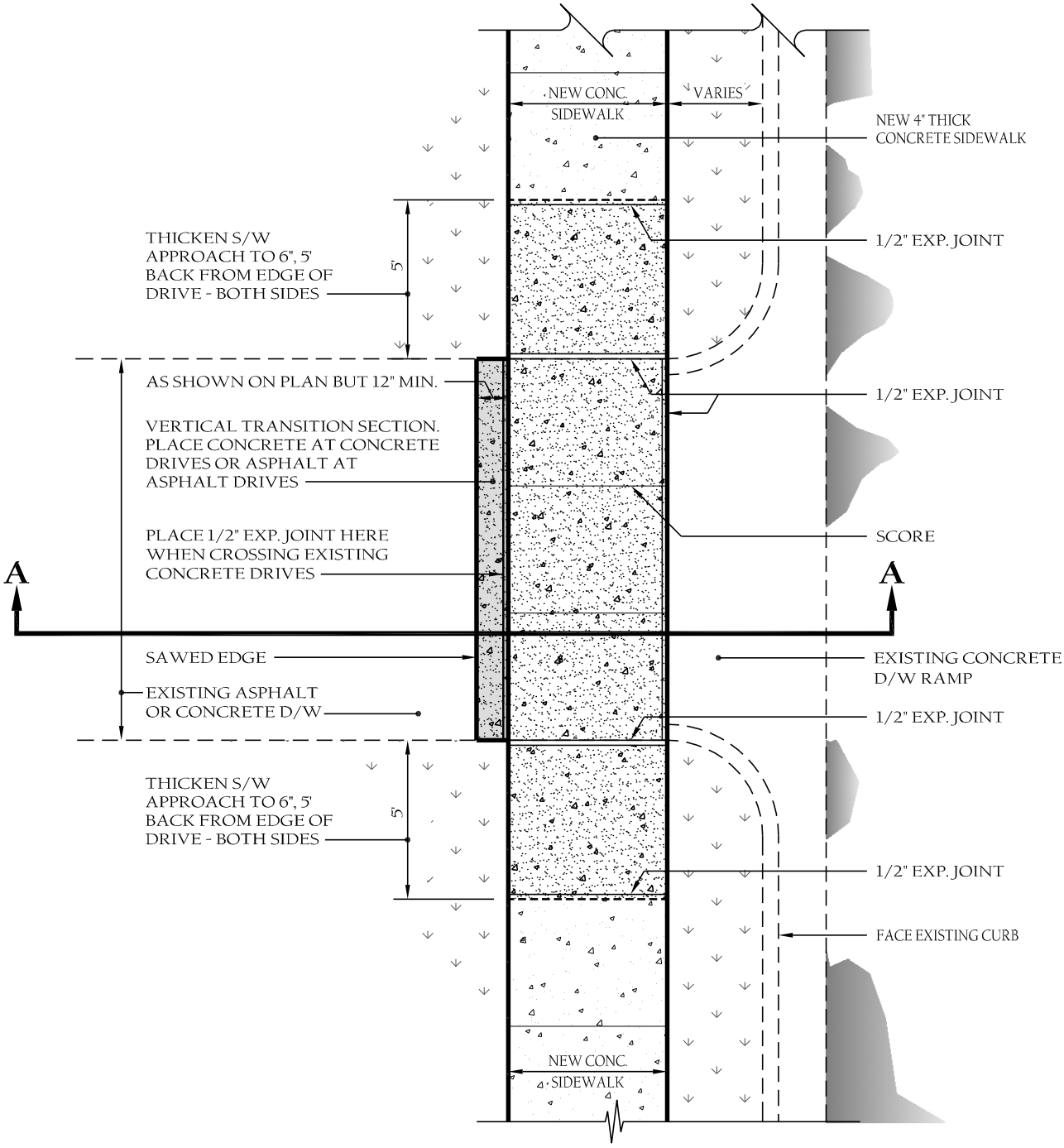


SIDEWALK WITH UTILITY STRIP

NOTES:

1. Provide 3/4" deep tooled score at 5'-0" O.C.
2. Expansion joints to be placed 30'-0" O.C. longitudinally, adjacent to curbs, and when butting existing structures, concrete, or buildings.
3. Concrete to be 3,000 P.S.I. at 28 days, air-entrained.
4. Subgrade should not contain organic matter or plastic clays. When found, refer to specs or contact engineer for directions.
5. Areas of fill are to be compacted to 95% standard proctor using NCDOT Class III borrow or better. Remove topsoil before placing borrow.
8. Concrete must come from a ready mix concrete truck to ensure mix meets air entrainment requirements. No site mix or sakrete mix allowed.
9. See Specification 02400, paragraph 2.1.3 & 2.1.4 for expansion joint & joint sealer specs.

TOWN of WAKE FOREST	**TOWN of WAKE FOREST, NC** **Manual of Specifications, Standards and Design**		
	TYP SIDEWALK in CUT or FILL SECTIONS	Scale: Not To Scale	Detail #: 9.11
		Revision Date: Feb., 2015	Sheet #: 1 of 1



NOTES:

1. Concrete must come from a ready mix concrete truck to ensure mix meets air entrainment requirements. No site mix or sakrete mix allowed.

TOWN of WAKE FOREST

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SIDEWALK DETAIL X-ING EX. DRIVEWAYS

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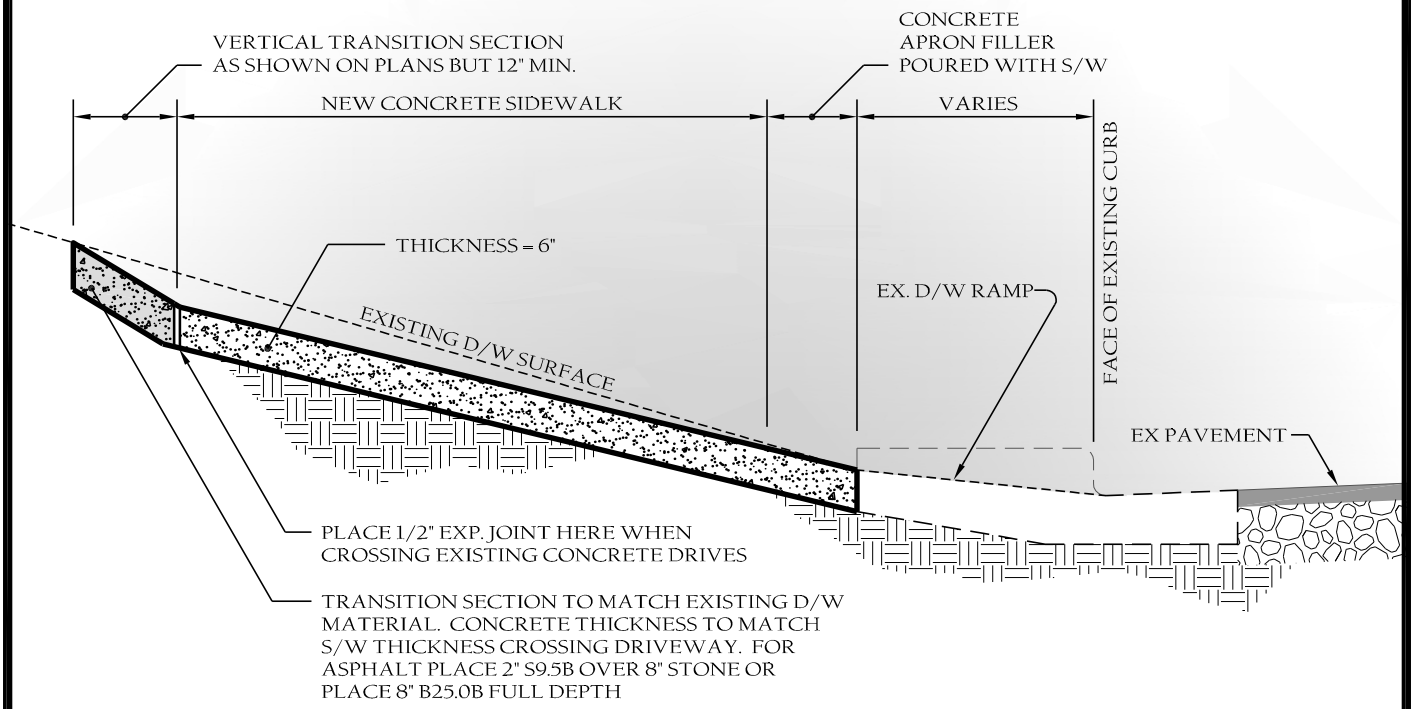

SECTION A-A

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

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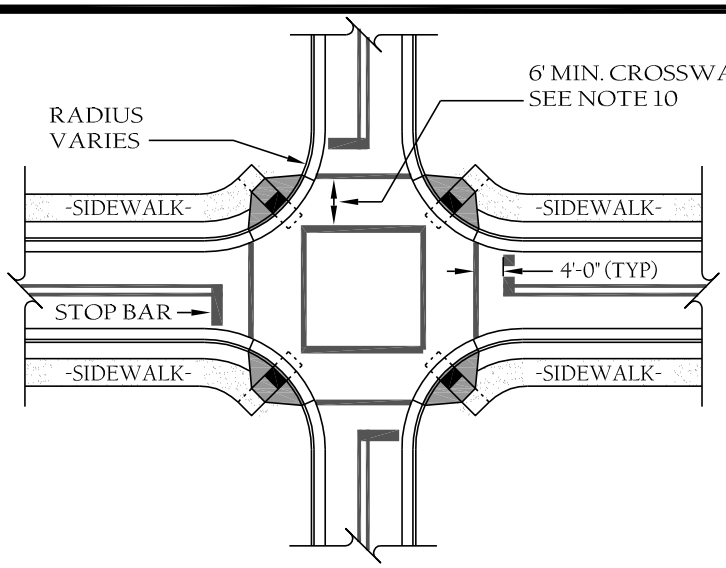
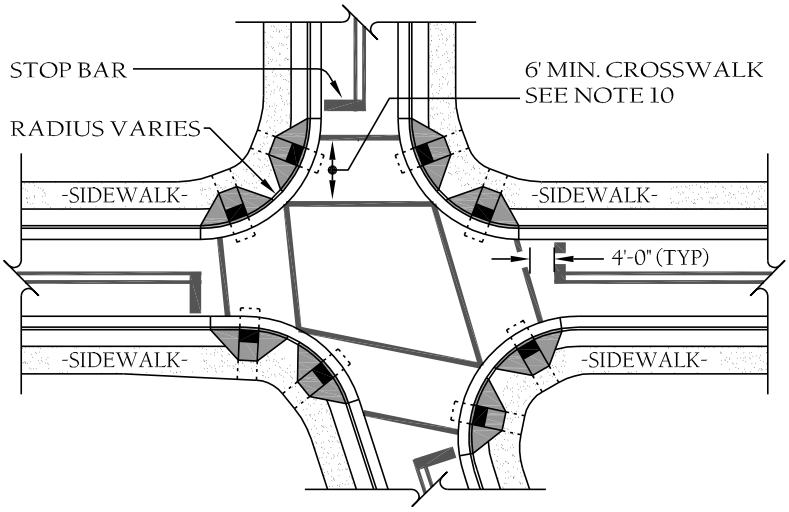
SIDEWALK DETAIL X-ING EX. DRIVEWAYS

Scale:	Detail #:
Not To Scale	9.12
Revision Date:	Sheet #:
Feb., 2015	2 of 2



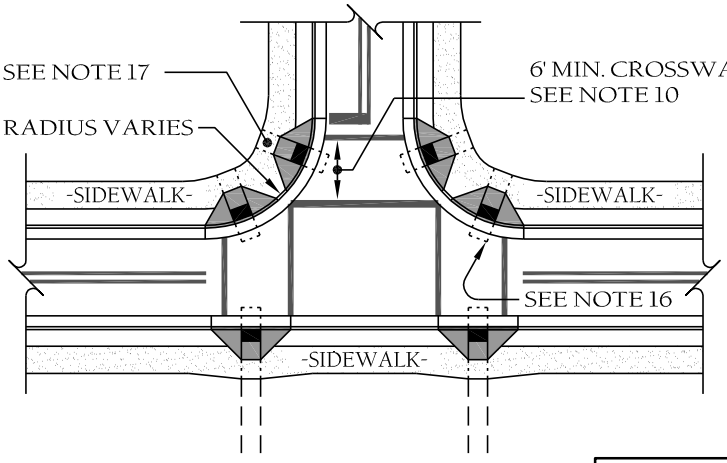
FOR CROSSING INTERSECTIONS

DETAIL SHOWING TYPICAL LOCATION OF SINGLE CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS



FOR CROSSING INTERSECTIONS

DETAIL SHOWING TYPICAL LOCATION OF DUAL CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS



FOR TEE INTERSECTIONS

DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS

PROPOSED CURB RAMP

-SIDEWALK- *PROPOSED OR FUTURE SIDEWALK*

TOWN of WAKE FOREST

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STANDARD CURB RAMP PLACEMENT DETAIL

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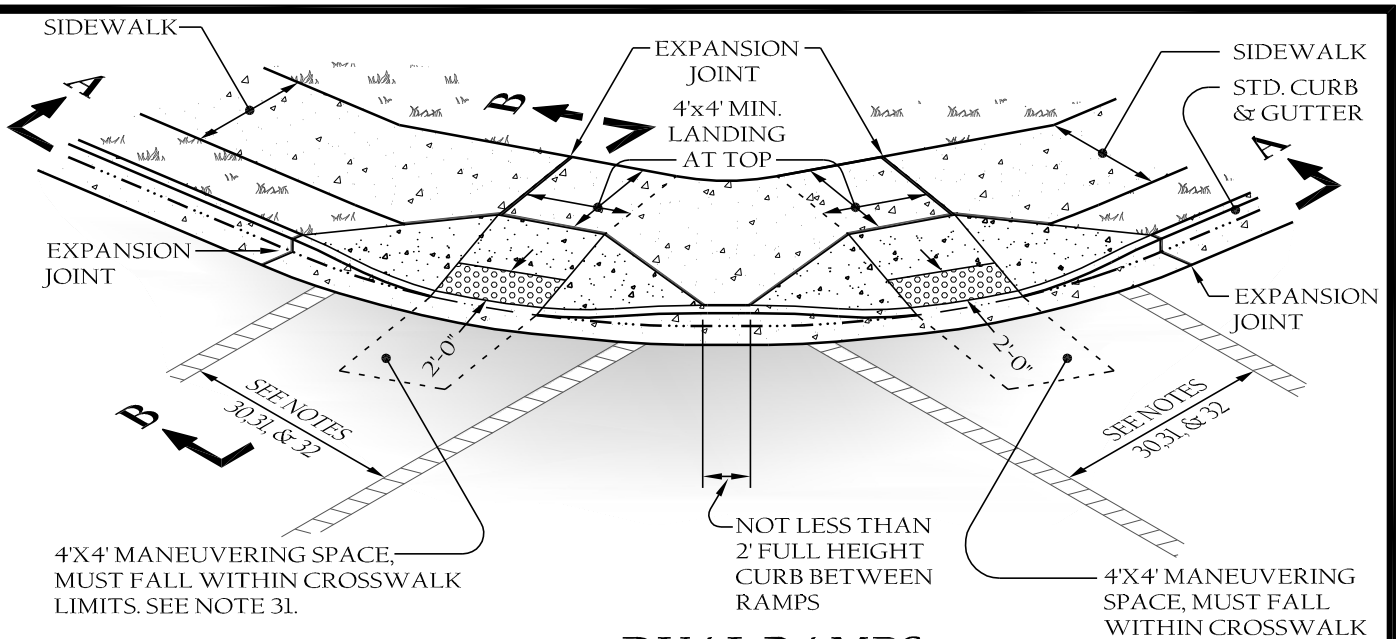
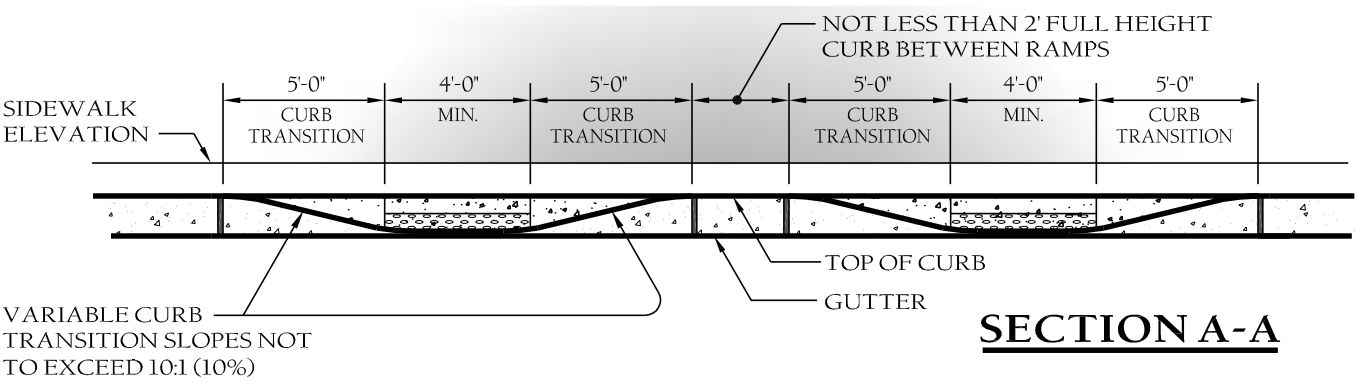


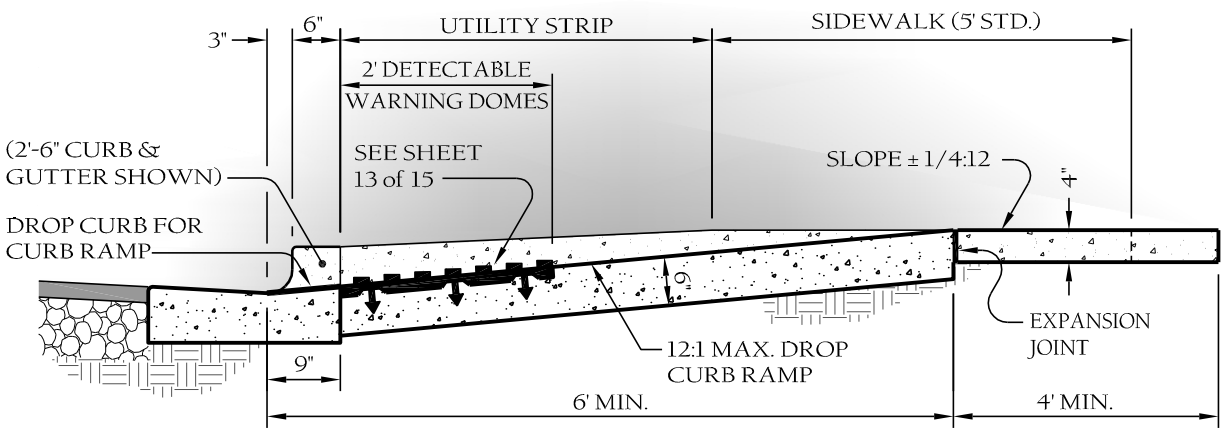
DUAL RAMPS

ANY RADII

NOTE: A PORTION OF ONE OR BOTH RAMPS MAY EXTEND OUTSIDE THE RETURNS



SECTION A-A



SECTION B-B

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

STANDARD CURB RAMP DETAILS

Scale:	Detail #:
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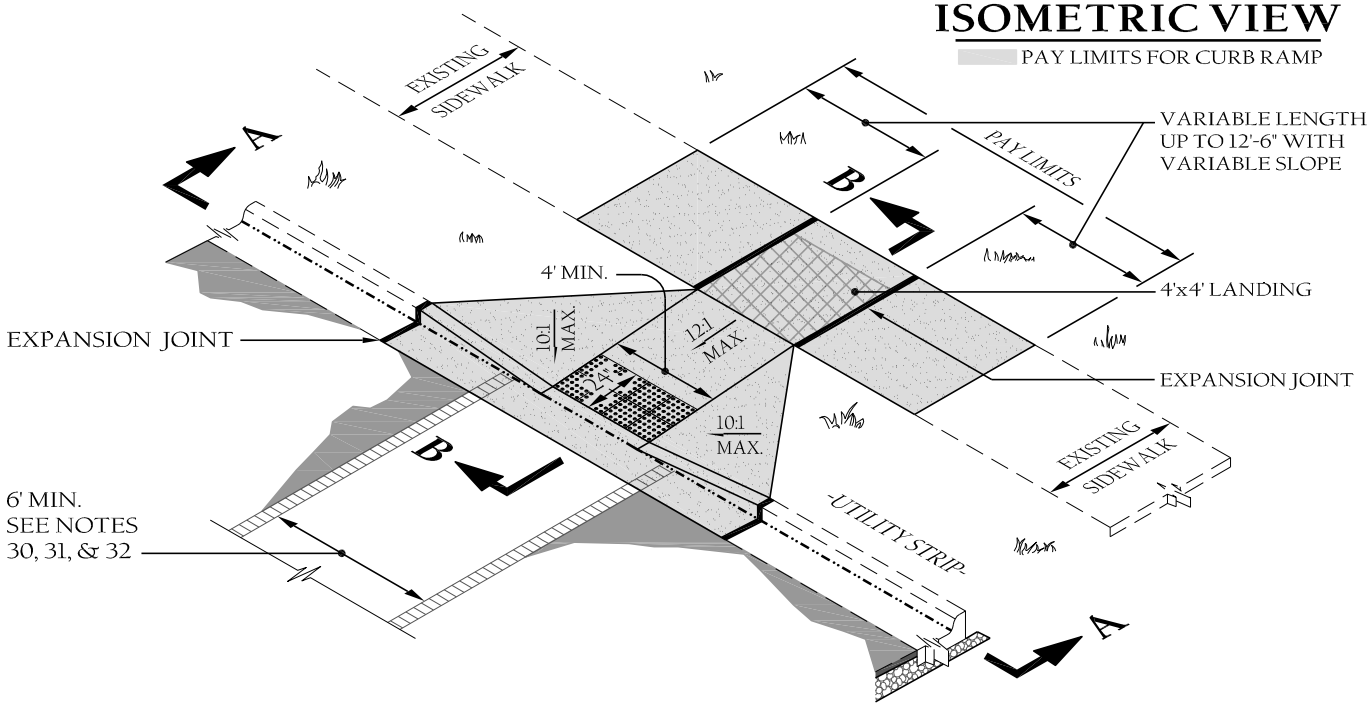
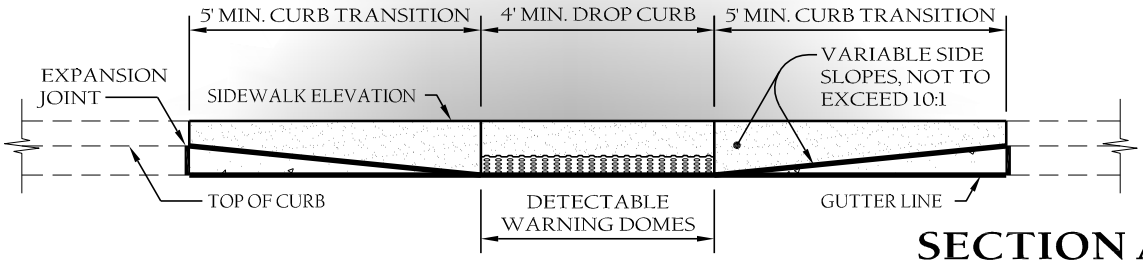
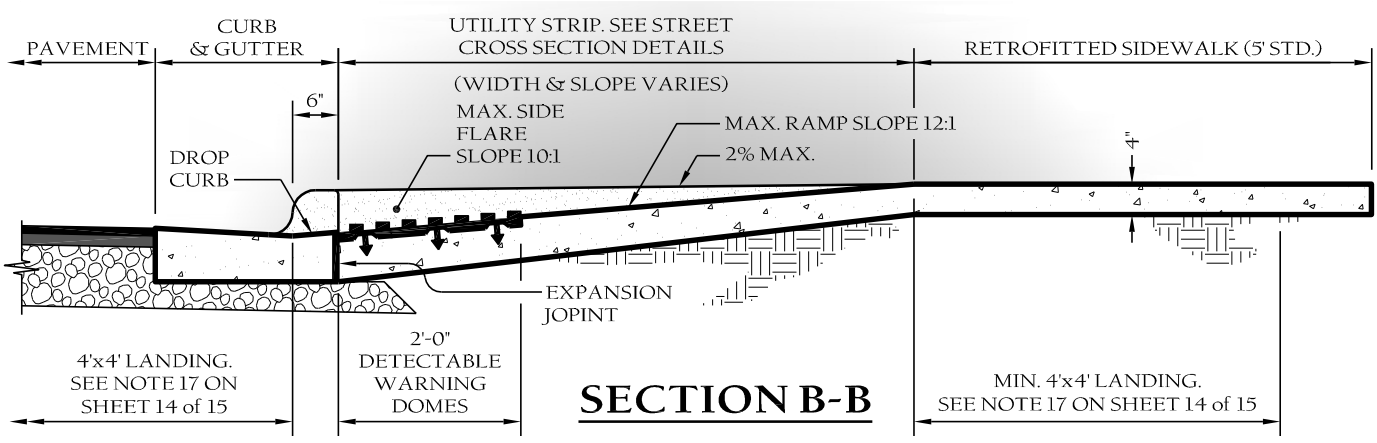
ISOMETRIC VIEW

PAY LIMITS FOR CURB RAMP





SECTION A-A



SECTION B-B

NOTES:

1. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

SINGLE CURB RAMP WITH EXISTING CURB & GUTTER

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Revision Date:	Sheet #:
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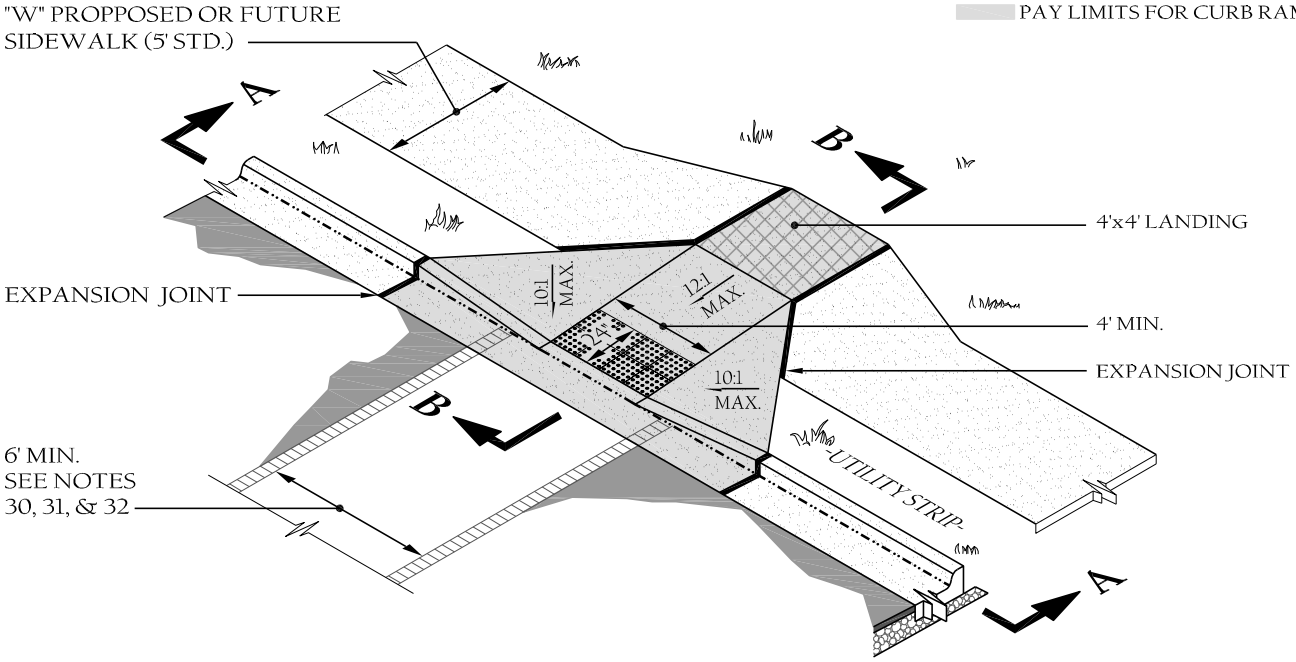
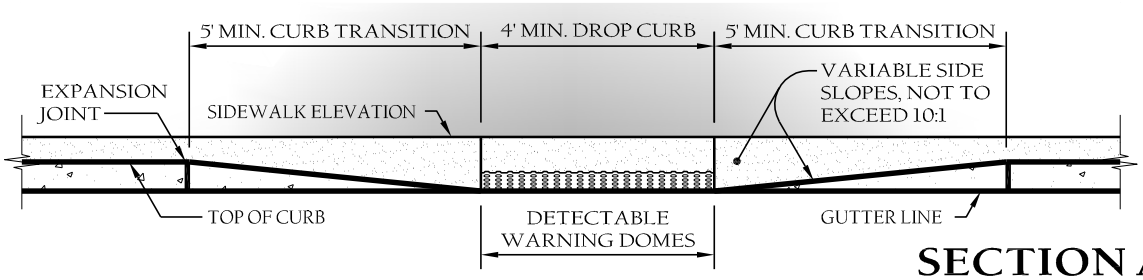
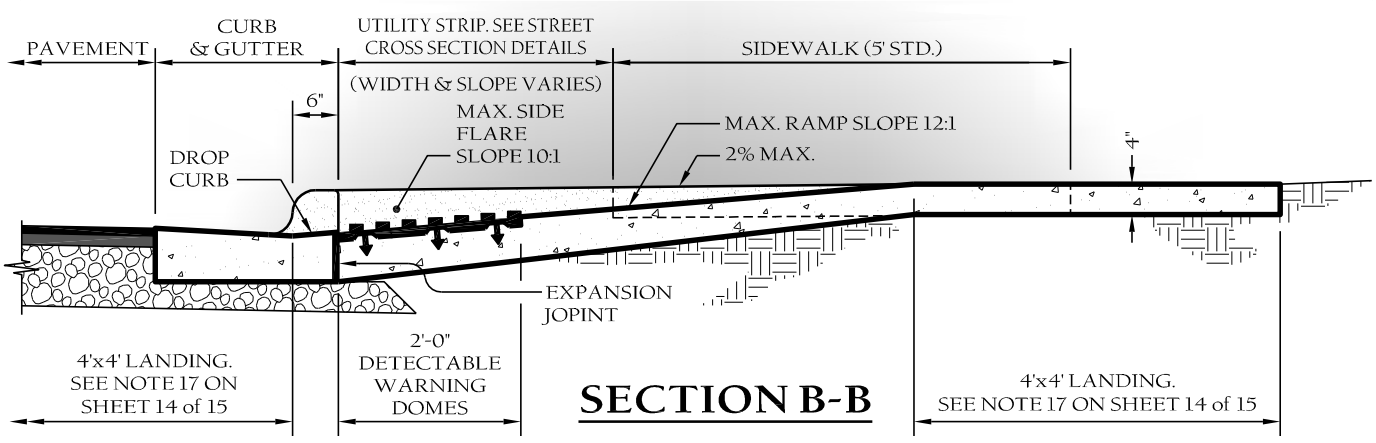
ISOMETRIC VIEW

PAY LIMITS FOR CURB RAMP





SECTION A-A



SECTION B-B

NOTES:

1. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.

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SINGLE CURB RAMP WITH PROPOSED CURB & GUTTER

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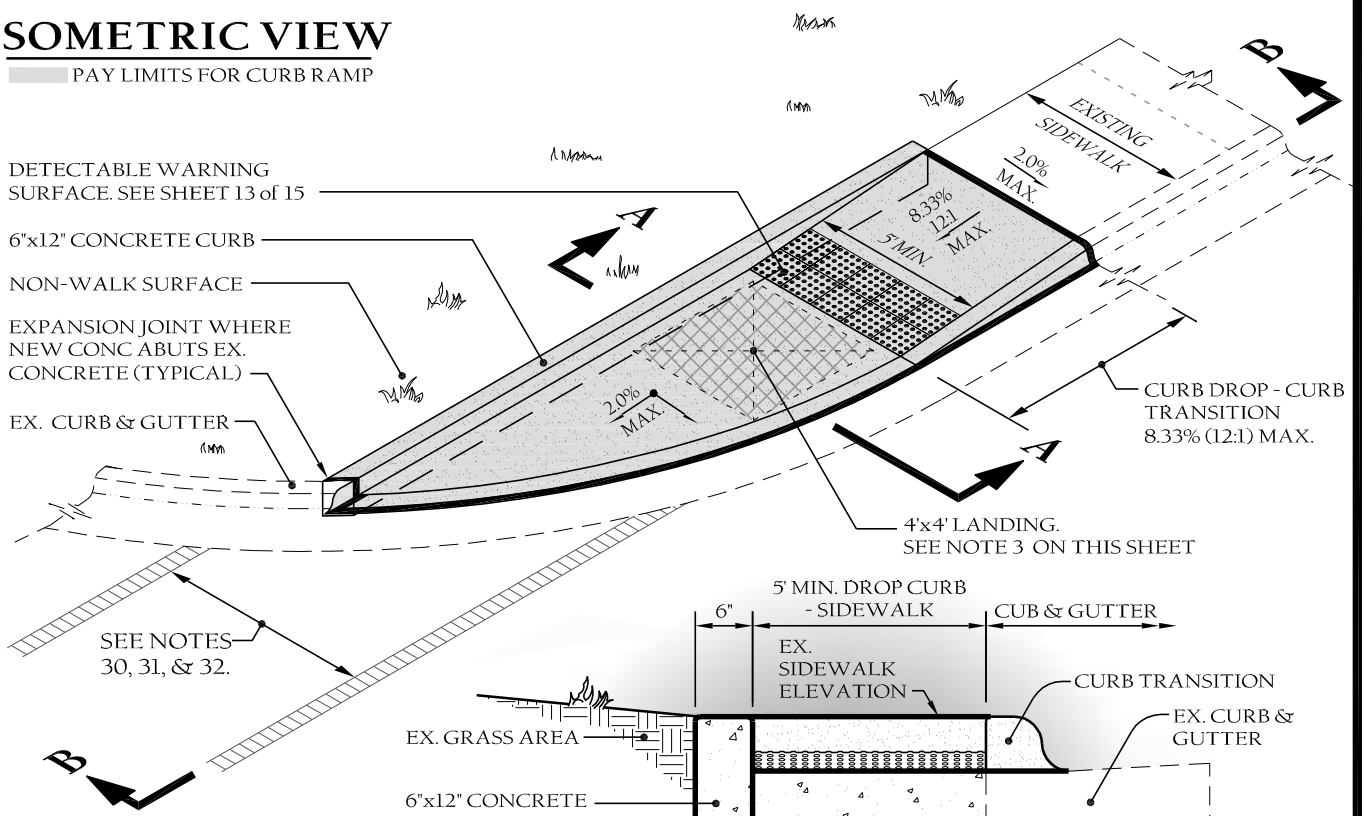
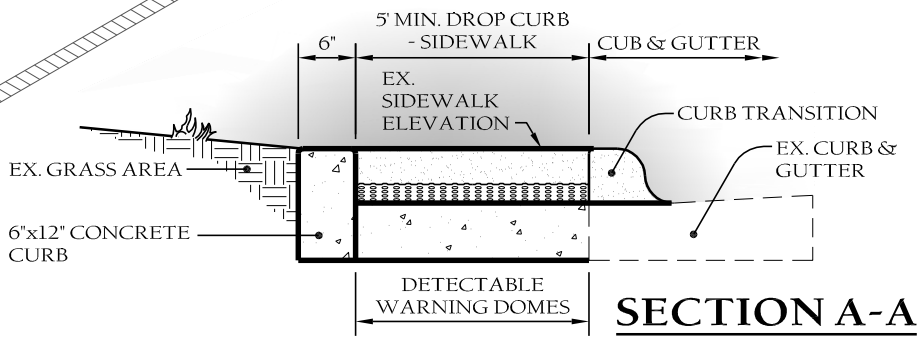
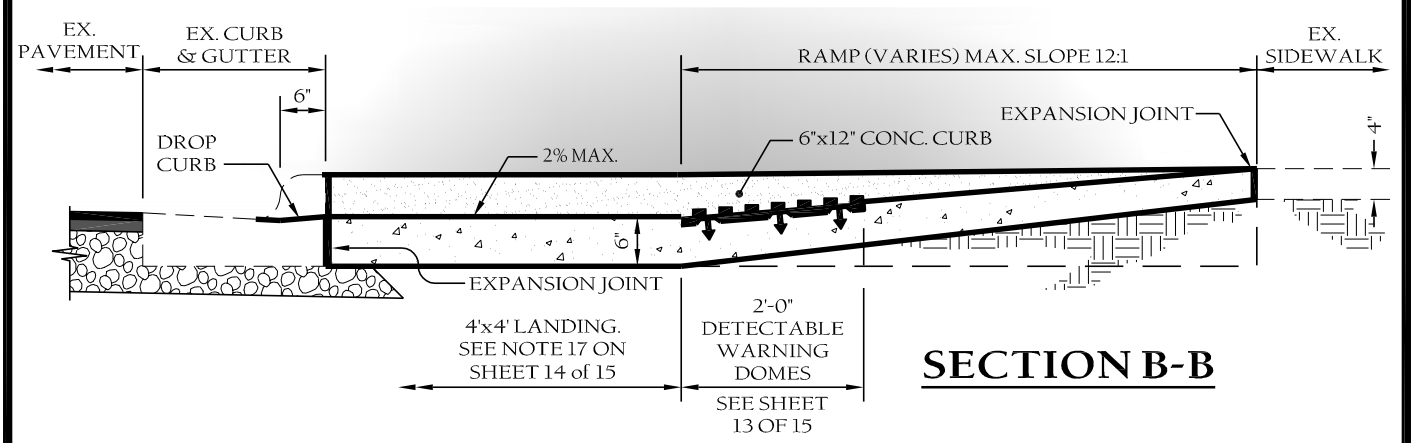
ISOMETRIC VIEW

PAY LIMITS FOR CURB RAMP





SECTION A-A



SECTION B-B

NOTES:

1. Maximum curb ramp slope 8.33% (12:1)
2. Maximum cross slope 2.00%
3. Curb ramps require a (4'-0") minimum landing with a maximum cross slope and longitudinal slope of 2.00% where pedestrians perform turning maneuvers. Slope to drain to curb.
4. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.
5. Refer to sheet 14 & 15 of 15 for all ramp notes. Adopted from NCDOT Alternate Curb Ramp Details.

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CURB RAMPS - DIRECTIONAL TYPE 1

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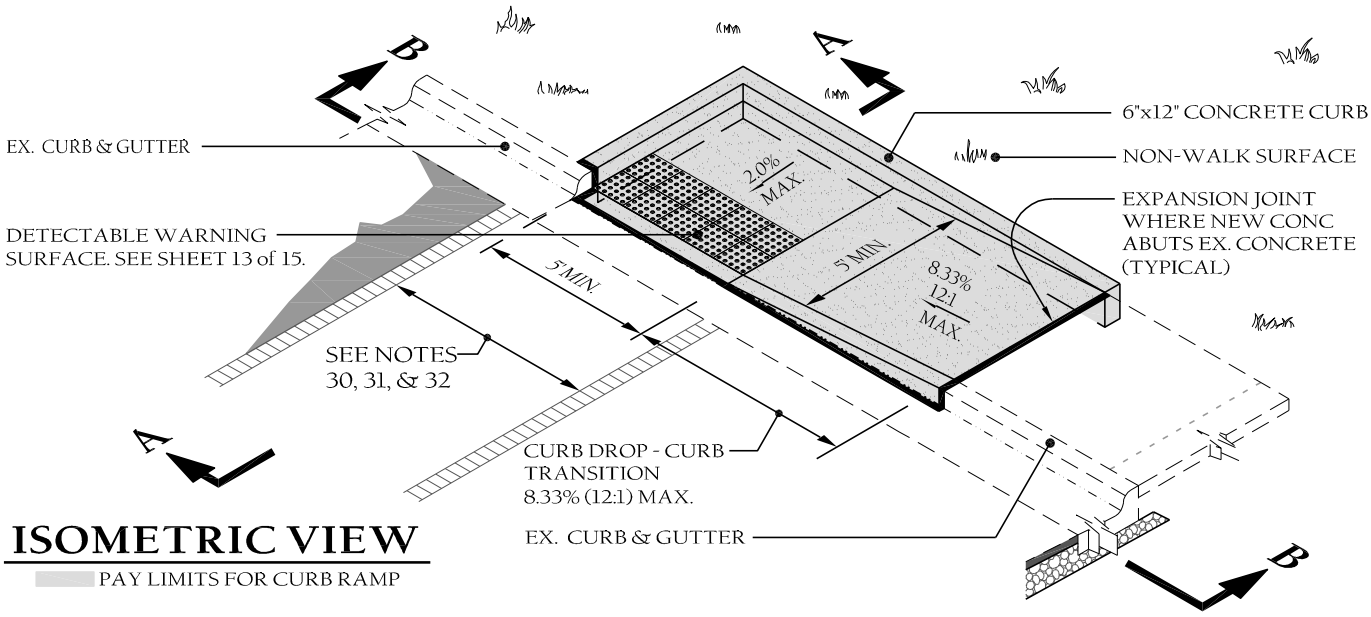
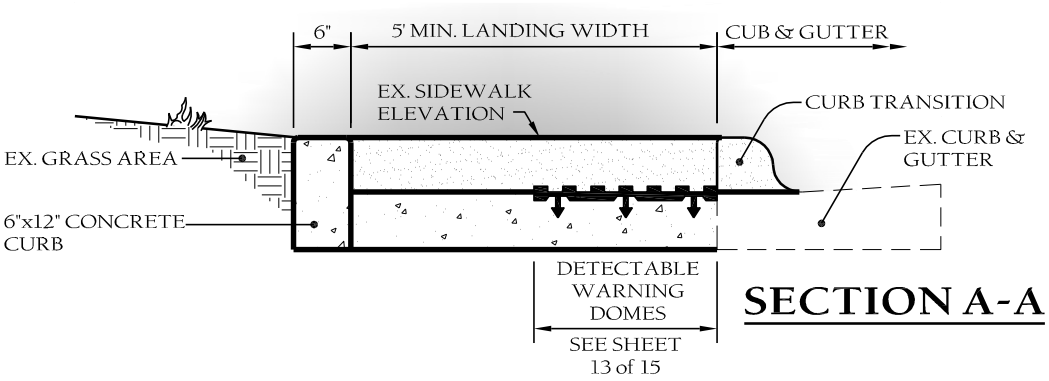
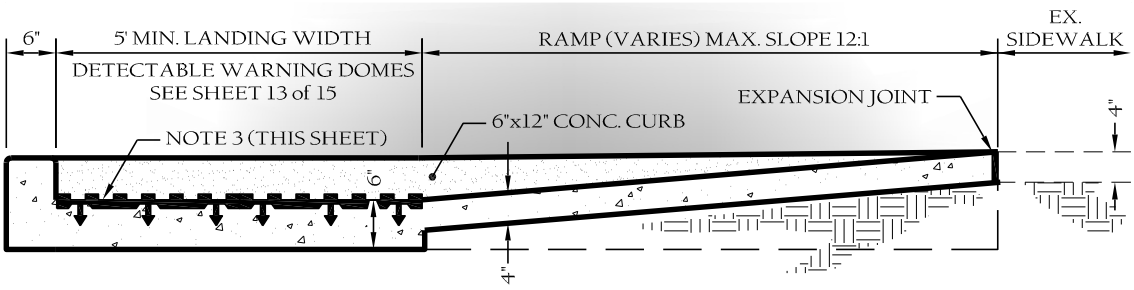


ISOMETRIC VIEW

PAY LIMITS FOR CURB RAMP



SECTION A-A



SECTION B-B

NOTES:

1. Maximum curb ramp slope 8.33% (12:1)
2. Maximum cross slope 2.00%
3. Curb ramps require a (4'-0") minimum landing with a maximum cross slope and longitudinal slope of 2.00% where pedestrians perform turning maneuvers. Slope to drain to curb.
4. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.
5. Refer to sheet 14 & 15 of 15 for all ramp notes. Adopted from NCDOT Alternate Curb Ramp Details.

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CURB RAMPS - DIRECTIONAL TYPE 1A

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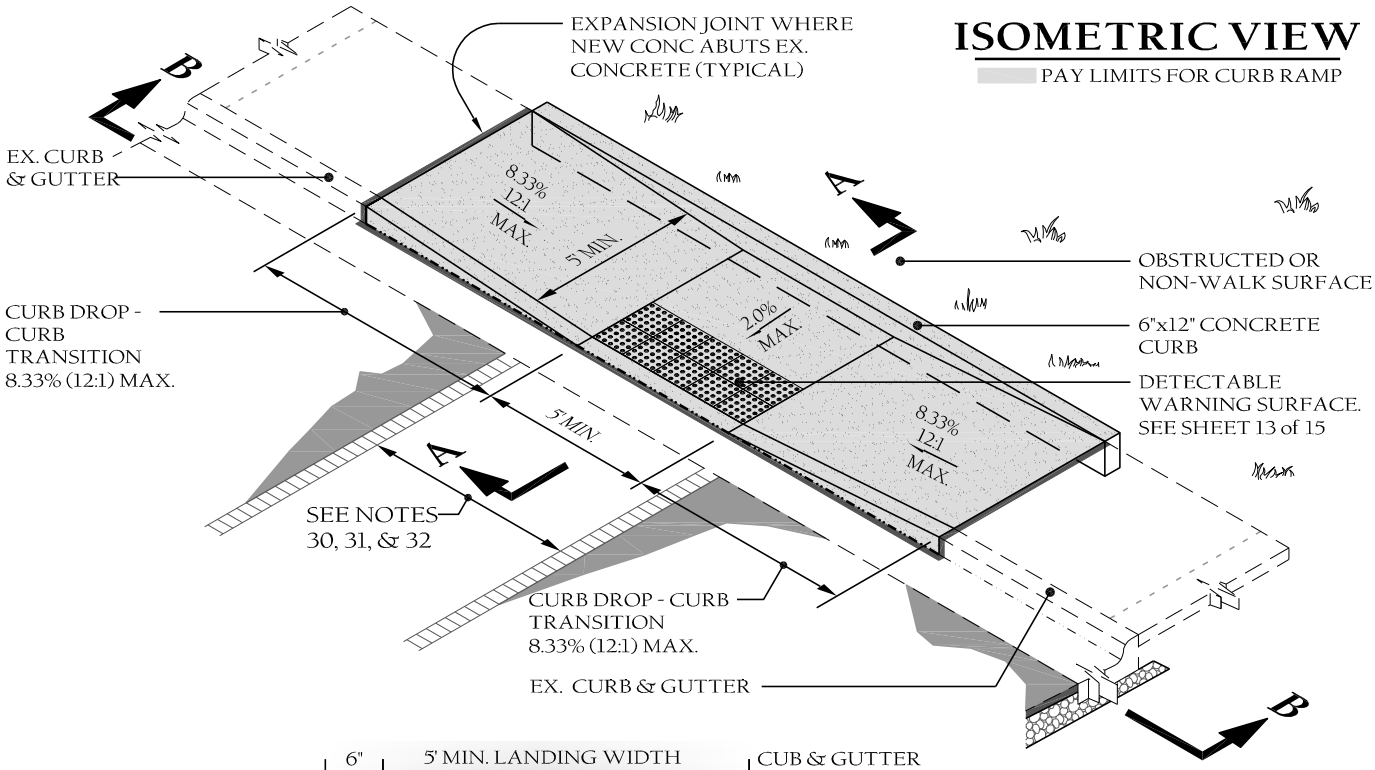
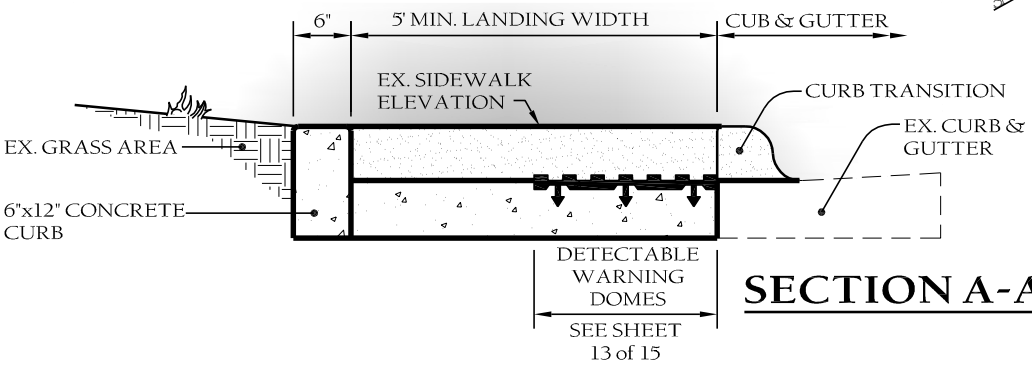
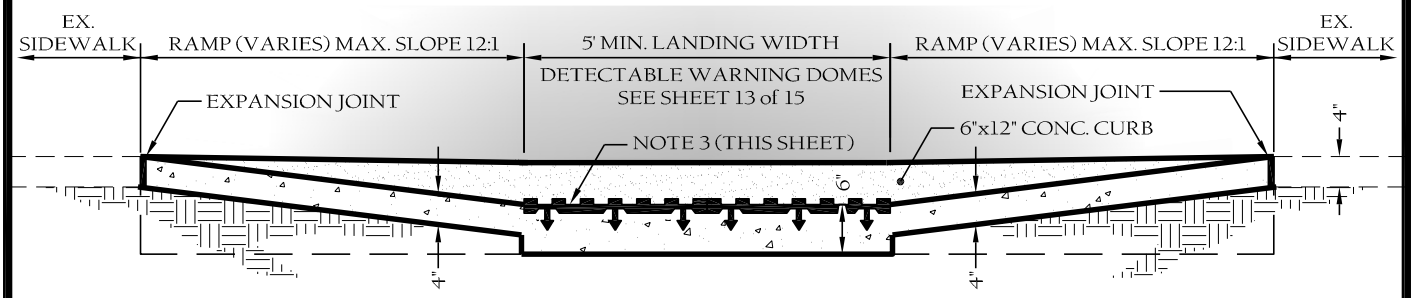
ISOMETRIC VIEW

PAY LIMITS FOR CURB RAMP





SECTION A-A



SECTION B-B

NOTES:

1. Maximum curb ramp slope 8.33% (12:1)
2. Maximum cross slope 2.00%
3. Curb ramps require a (4'-0") minimum landing with a maximum cross slope and longitudinal slope of 2.00% where pedestrians perform turning maneuvers. Slope to drain to curb.
4. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.
5. Refer to sheet 14 & 15 of 15 for all ramp notes. Adopted from NCDOT Alternate Curb Ramp Details.

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CURB RAMPS - DIRECTIONAL TYPE 2

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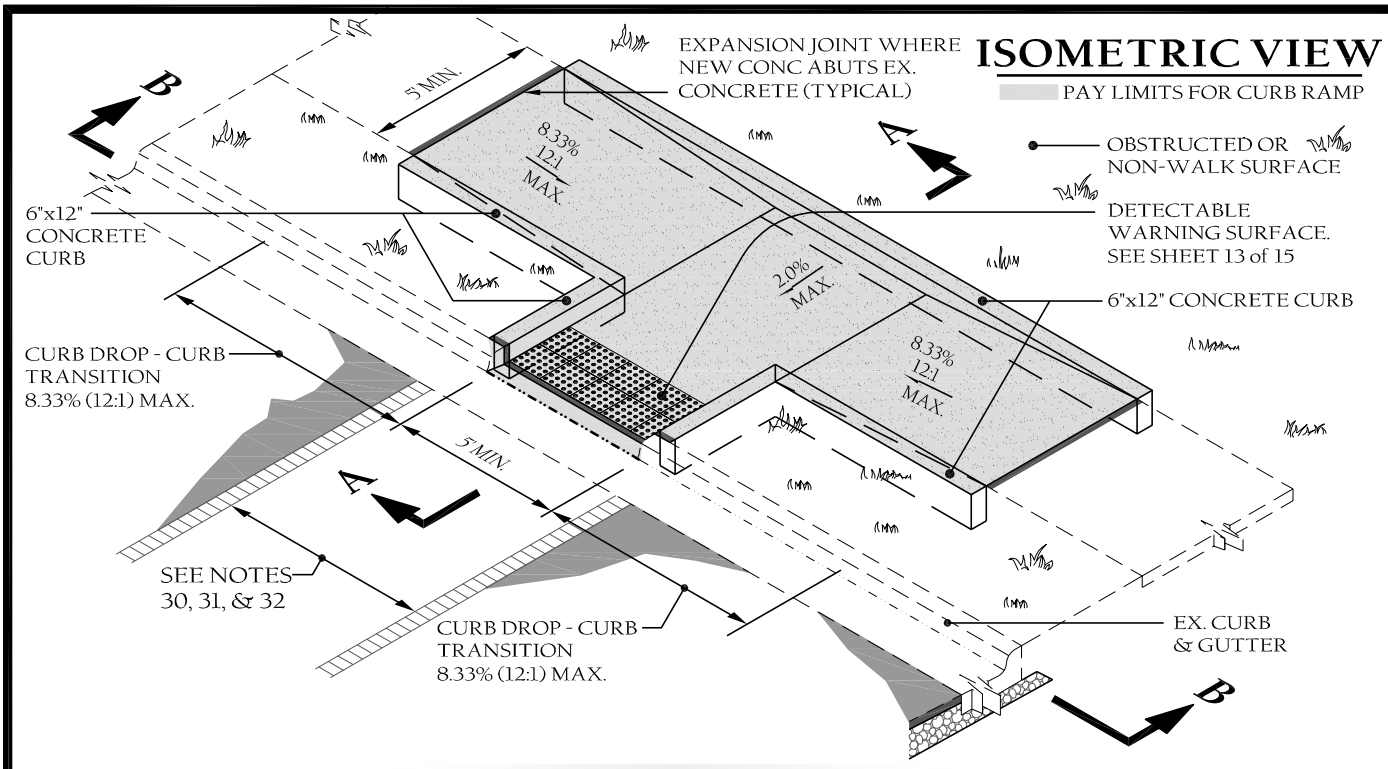
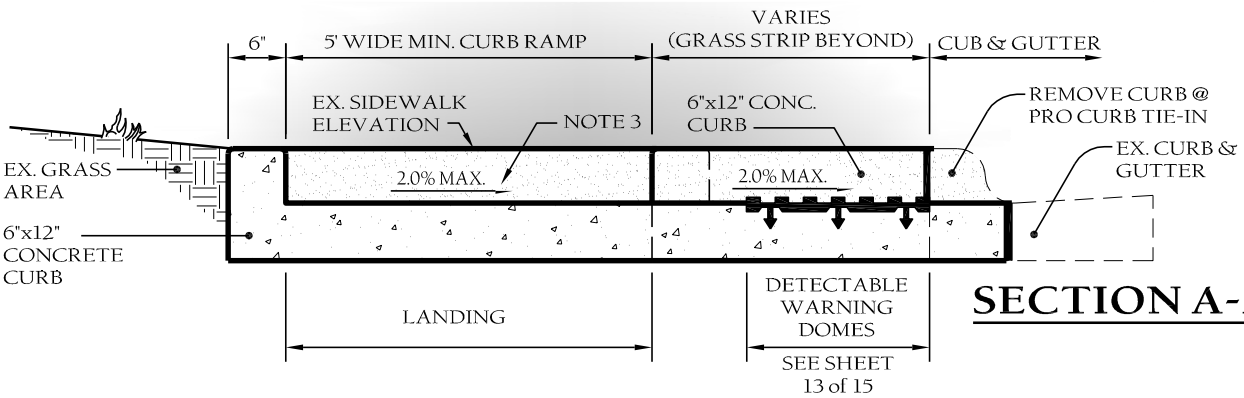
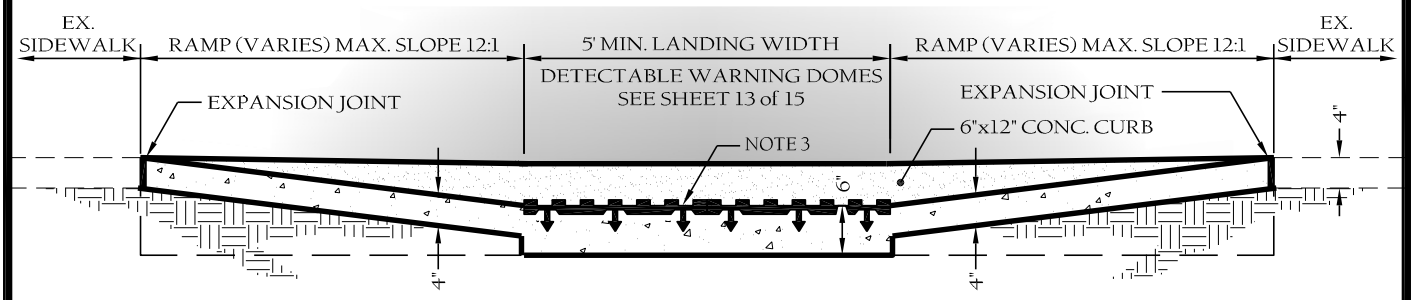




SECTION A-A



SECTION B-B

NOTES:

1. Maximum curb ramp slope 8.33% (12:1)
2. Maximum cross slope 2.00%
3. Curb ramps require a (4'-0") minimum landing with a maximum cross slope and longitudinal slope of 2.00% where pedestrians perform turning maneuvers. Slope to drain to curb.
4. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.
5. Refer to sheet 14 & 15 of 15 for all ramp notes. Adopted from NCDOT Alternate Curb Ramp Details.

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CURB RAMPS - DIRECTIONAL TYPE 3

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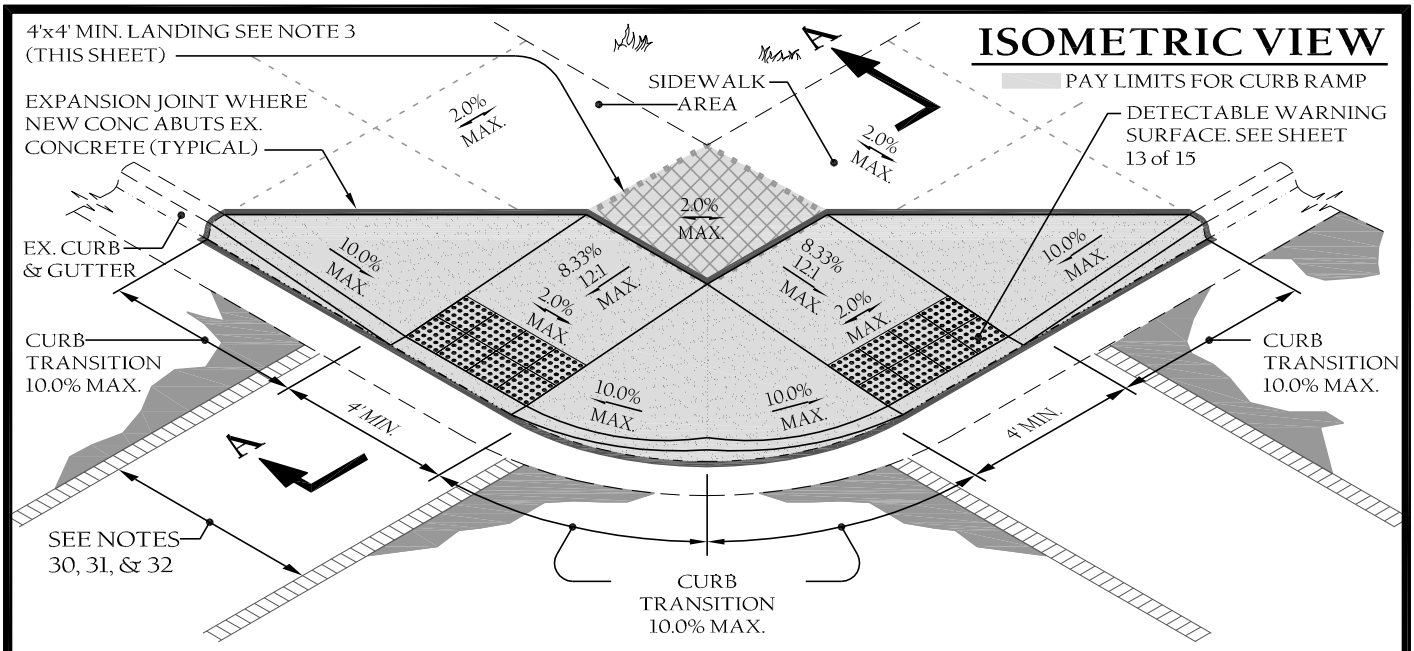
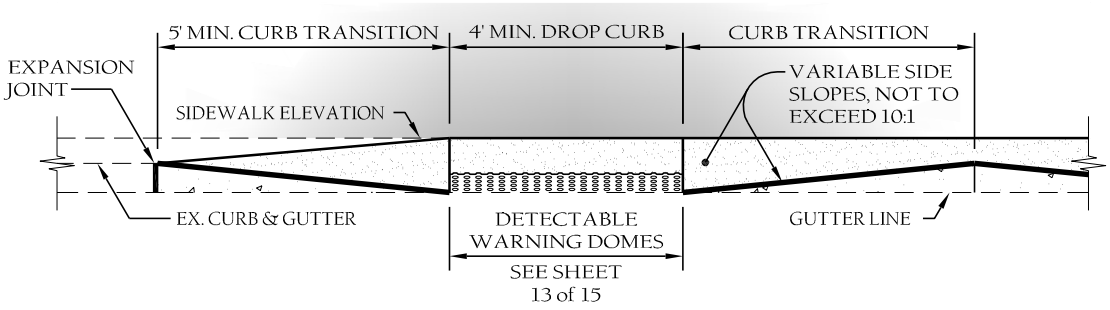
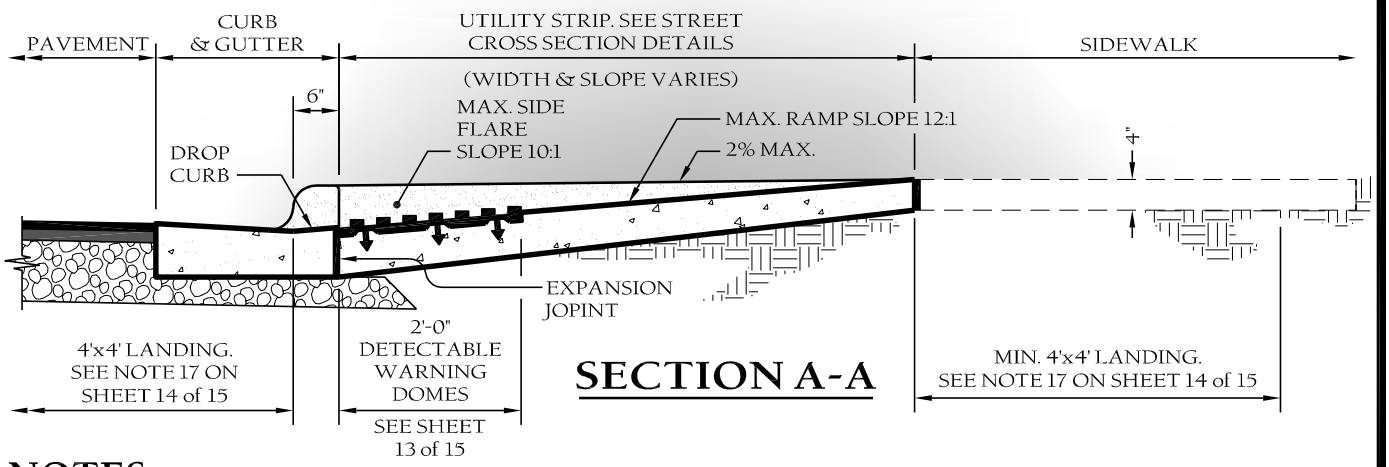
ISOMETRIC VIEW





PARTIAL CURB ELEVATION



SECTION A-A

NOTES:

1. Maximum curb ramp slope 8.33% (12:1)
2. Maximum cross slope 2.00%
3. Curb ramps require a (4'-0") minimum landing with a maximum cross slope and longitudinal slope of 2.00% where pedestrians perform turning maneuvers. Slope to drain to curb.
4. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.
5. Refer to sheet 14 & 15 of 15 for all ramp notes. Adopted from NCDOT Alternate Curb Ramp Details.

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CURB RAMPS - SHARED LANDING TYPE 4

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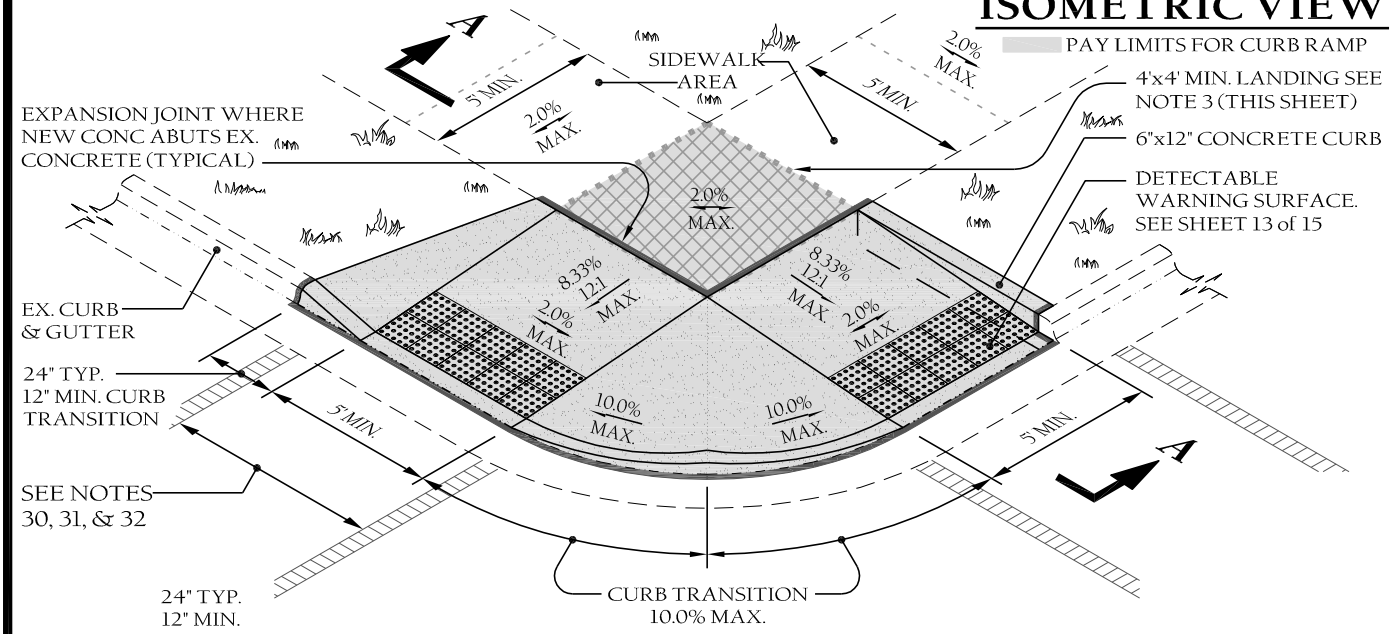
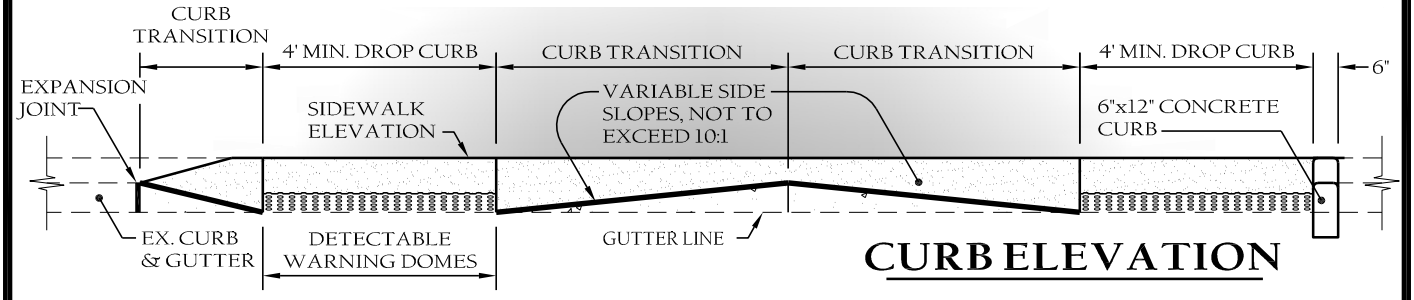
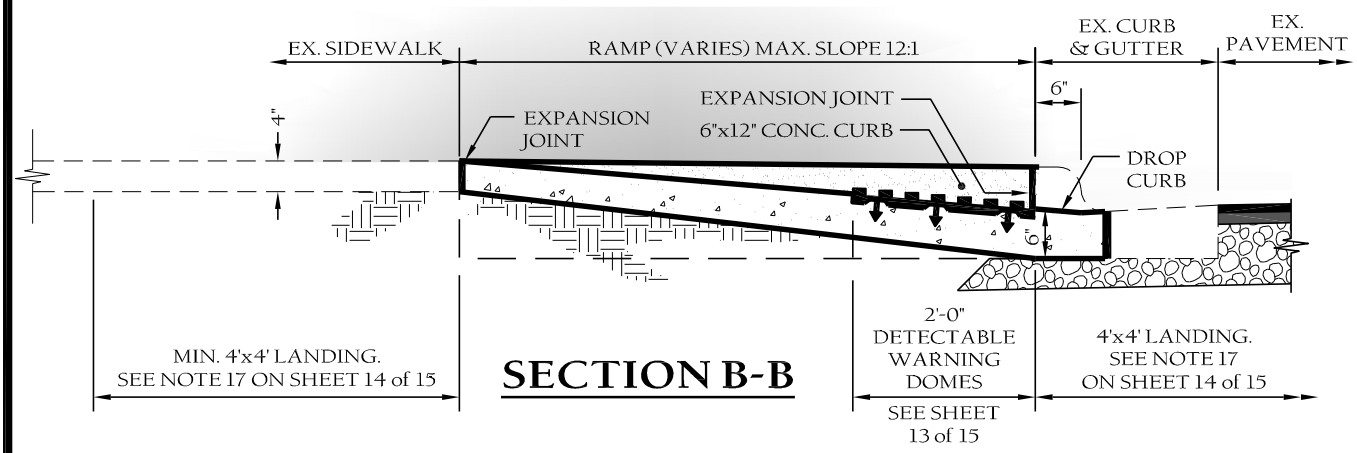
ISOMETRIC VIEW





CURB ELEVATION



SECTION B-B

NOTES:

1. Maximum curb ramp slope 8.33% (12:1)
2. Maximum cross slope 2.00%
3. Curb ramps require a (4'-0") minimum landing with a maximum cross slope and longitudinal slope of 2.00% where pedestrians perform turning maneuvers. Slope to drain to curb.
4. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.
5. Refer to sheet 14 & 15 of 15 for all ramp notes. Adopted from NCDOT Alternate Curb Ramp Details.

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CURB RAMPS - SHARED LANDING TYPE 4A

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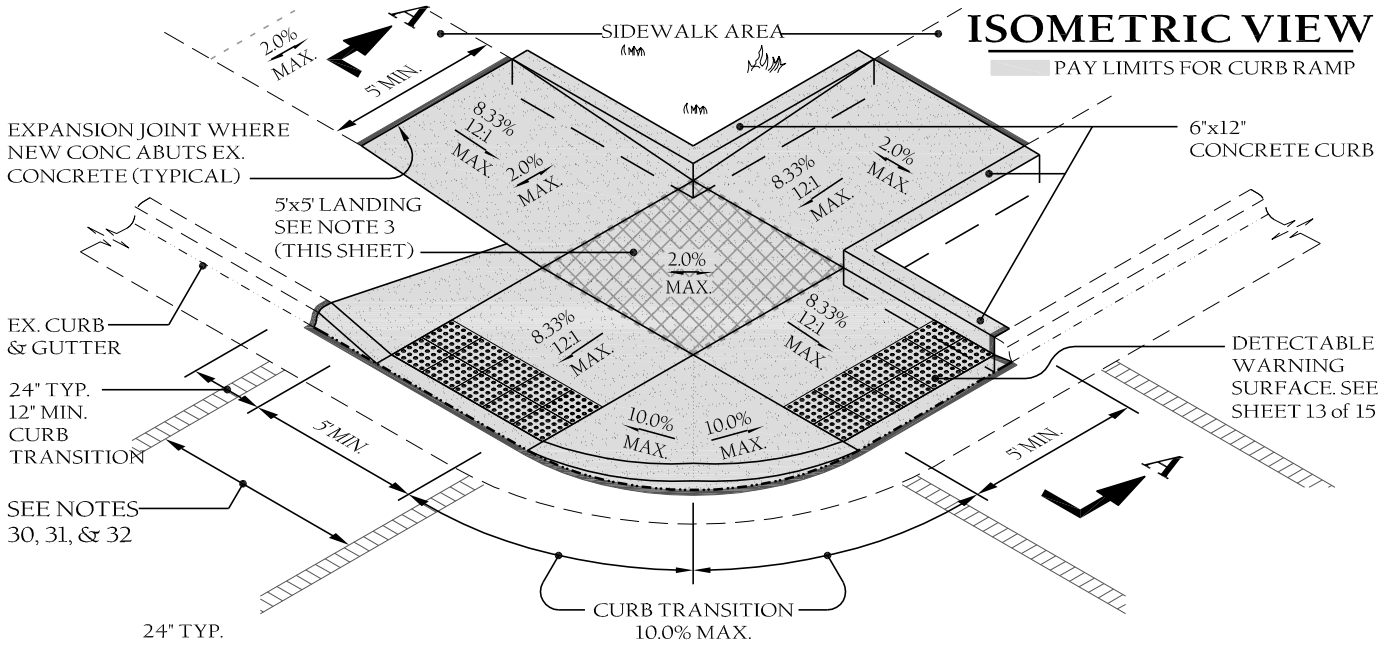
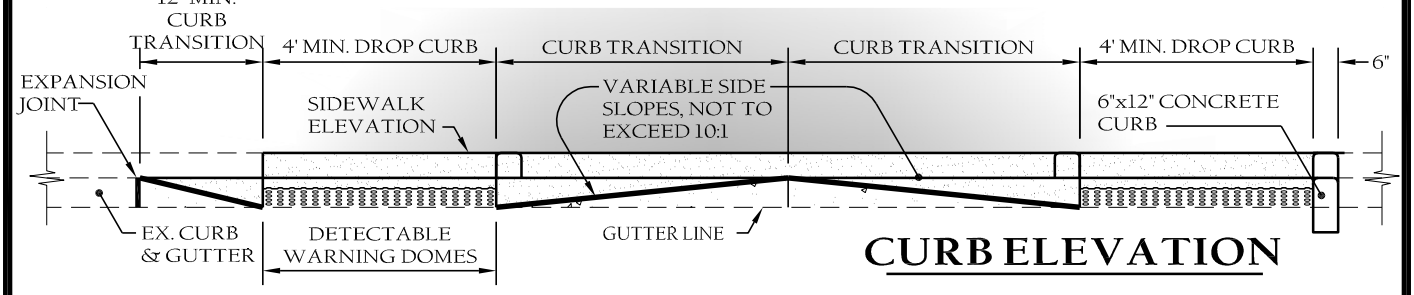
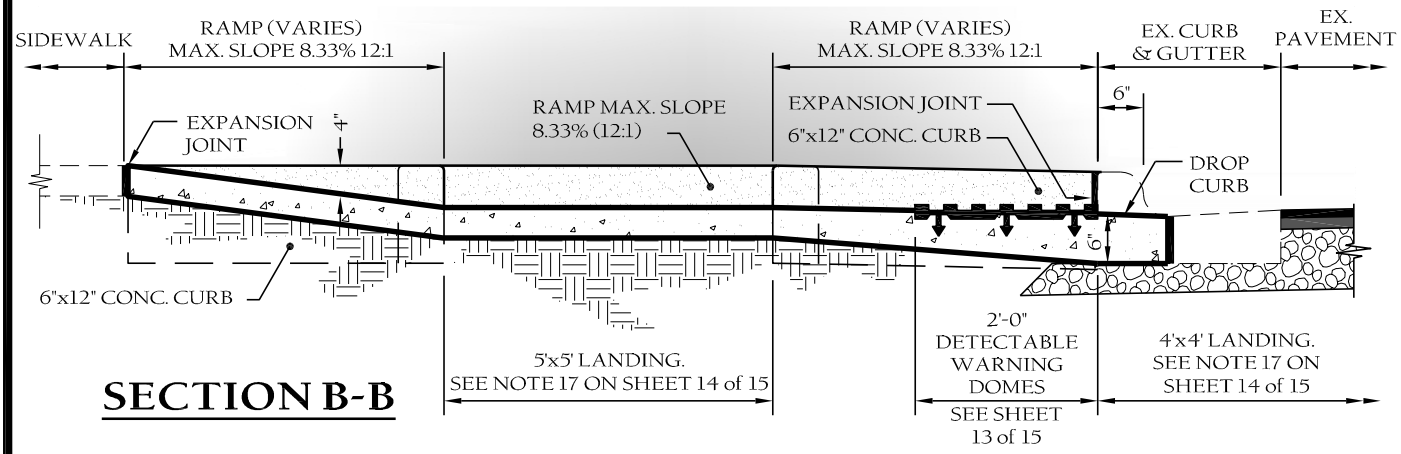




CURB ELEVATION



SECTION B-B

NOTES:

1. Maximum curb ramp slope 8.33% (12:1)
2. Maximum cross slope 2.00%
3. Curb ramps require a (4'-0") minimum landing with a maximum cross slope and longitudinal slope of 2.00% where pedestrians perform turning maneuvers. Slope to drain to curb.
4. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.
5. Refer to sheet 14 & 15 of 15 for all ramp notes. Adopted from NCDOT Alternate Curb Ramp Details.

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CURB RAMPS - SHARED LANDING TYPE 5

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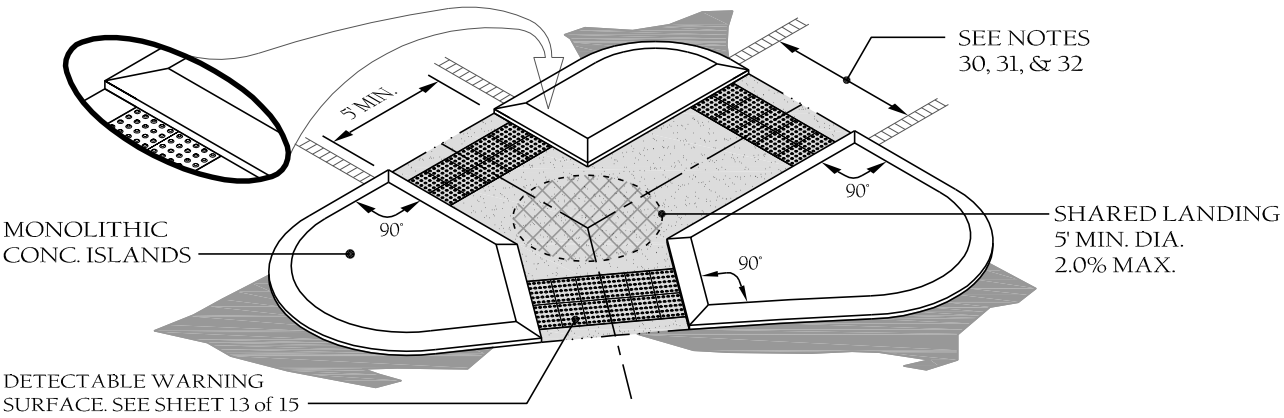
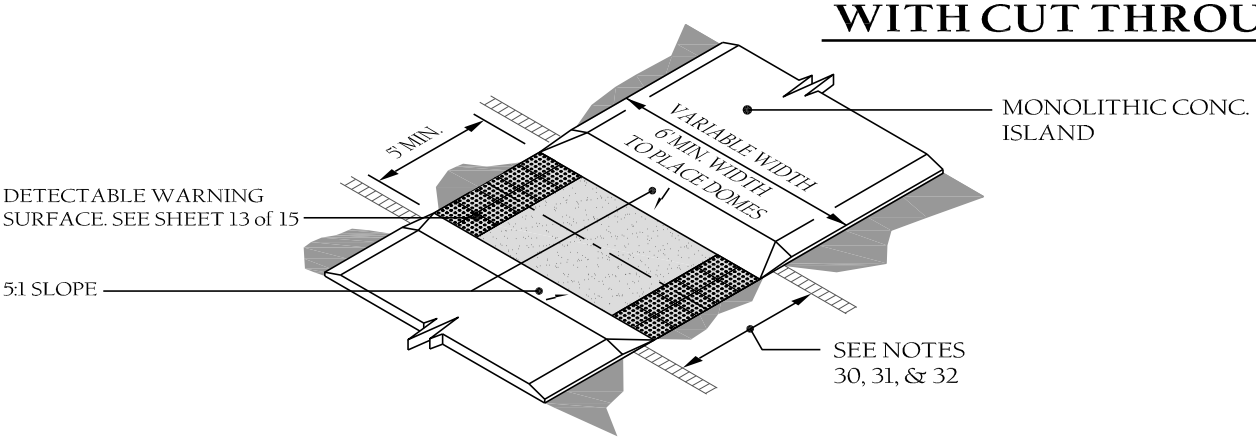
PAY LIMITS FOR CURB RAMP

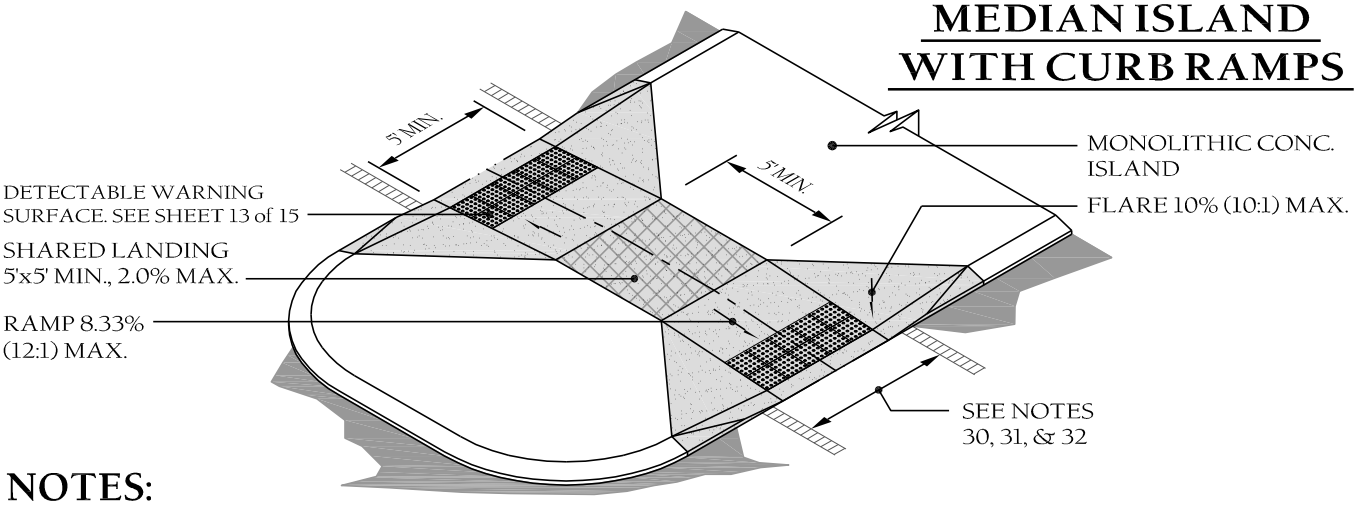
TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CURB RAMPS



NOTES:

1. Maximum curb ramp slope 8.33% (12:1)
2. Maximum cross slope 2.00%
3. Detectable warning domes will cover 2'-0" length and full width of the ramp floor as shown on sheet 13 of 15.
4. See NCDOT Roadway Std. Drawing 852.01 for concrete island dimensions.

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CURB RAMPS MEDIAN ISLANDS

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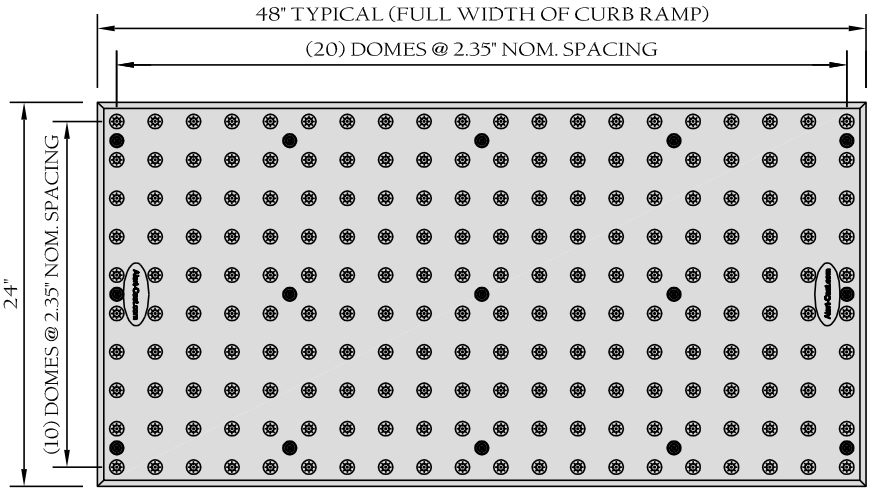
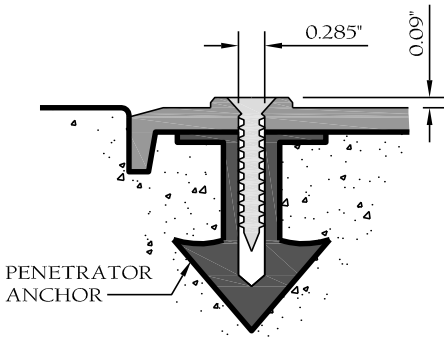
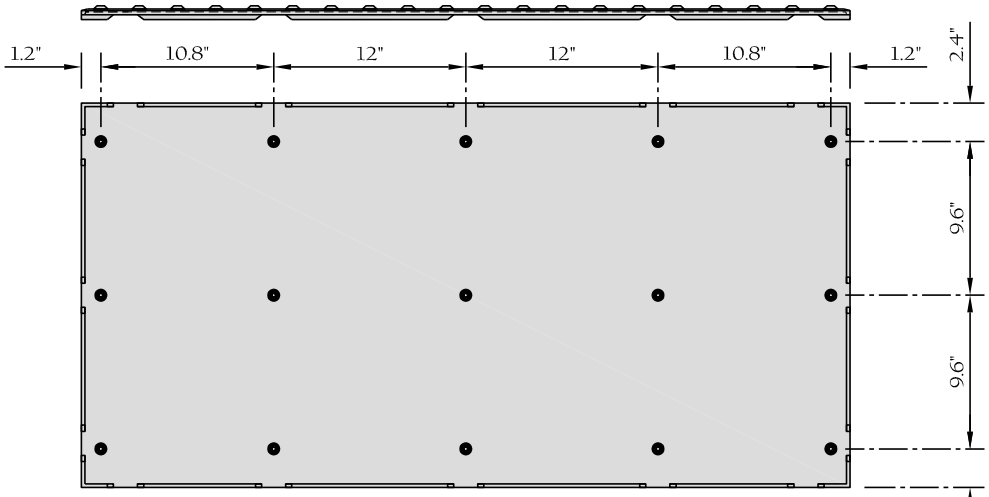
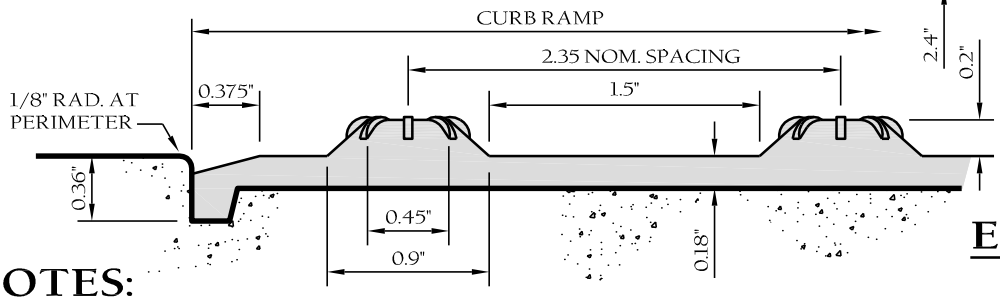




PENETRATOR SECTION





END SECTION

NOTES:

1. Detectable warning System. Cast in place with Penetrator anchors. See pre-approved products list.
2. Other sizes available to meet site specific requirements. Verify with Town.
3. Truncated domes in a detectable warning surface shall have a base diameter of 0.9 inch minimum to 1.4 inches maximum, a top diameter of 50% of the base diameter minimum to 65% of the base diameter maximum, and a height of 0.2 inches.
4. Truncated domes in a detectable warning surface shall have a center-to-center spacing of 1.6 inches minimum and 2.4 inches maximum, and a base-to-base spacing of 0.65 inches minimum, measured between the most adjacent domes on square grid.
5. Detectable warning surfaces shall extend 24 inches minimum in the direction of travel and the full width of the curb ramp, landing, or blended transition. The edge nearest the curb line shall be a minimum of 6 inches and a maximum of 8 inches from curb (ICC/ANSI A117.1 Fig C406.13.2). See notes 21 & 22.
6. See note 23, sheet 5.
7. Any NCDOT street must conform to DOT standard/ADA Curb Ramp detail 848.05 sheet 1-4.

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STANDARD DETECTABLE WARNING SYSTEM

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STANDARD NOTES:

1. North Carolina General Statute 136-44.14 requires that all street curbs being constructed or reconstructed for maintenance procedures, traffic operations, repairs, correction of utilities or altered for any reason after September 1, 1973 shall provide curb ramps for the physically disabled at all intersections where both curb and gutter and sidewalks are provided and at other points of pedestrian flow.
   In addition, section 228 of the 1973 Federal Aid Highway Safety Act requires provision of curb ramps on any curb construction after July 1, 1976 whether a sidewalk is proposed initially or is planned for a future date.
   The Americans with Disability Act (ADA) of 1990 extends to individuals with disabilities. Comprehensive civil rights protections similar to those provided to persons on the basis of race, sex, national origin and religion under the Civil Rights Act of 1964. These curb ramps have been designed to comply with the current ADA standards (2010 ADA Standards for Accessible Design, dated September 15, 2010 & effective March 15, 2012).
2. Curb ramps are required when streets are altered for resurfacing (spanning one intersection to another and includes overlay of additional material to the road surface with or without milling), reconstructed, rehabilitated or widened. Maintenance activities on streets, such as crack filling sealing, pavement markings, surface sealing and pavement patching, are not alterations. However, if there is no block-to-block resurfacing but resurfacing is occurring at a crosswalk itself, partial resurfacing (curb-to-curb resurfacing of a crosswalk) requires the provision of curb ramps at that crosswalk.
   Curb ramps are not required in the absence of a pedestrian walkway with a prepared surface nor are curb ramps required in the absence of curb, elevation or other barrier between the street and the walkway. [USDOJ July 8, 2013]
3. Curb ramps are required at all curb returns.
4. Detectable warning domes are required for curb ramps.
5. Single curb ramp at the center of the return are not permitted.
6. Dimensions assume 90° centerline intersection of streets.
7. Construct the ramp surface to be stable, firm and slip resistant. Located and construct the curb ramp type as shown in these details.
8. Curb ramps shall be constructed perpendicular to the roadway travel lane.
9. Coordinate the curb ramp and pedestrian crosswalk markings so a 4'x4' clear space at the base of the curb ramp will fall within the pedestrian crosswalk lines.
10. Set back distance from inside corner of an intersection crosswalk marking to nearest edge of travel lane is 4 feet minimum.
11. Terminate parking a minimum of 20 feet back of a pedestrian crosswalk.
12. Construct a curb ramps a minimum of 4 feet wide. Width may exceed 48".
13. Construct the running slope of the ramp at a maximum of 8.33% (1 : 12).
14. Allowable cross slope on sidewalks and ramps to be a maximum of 2%.
15. Construct the side flare slope to a maximum of 10% measured along the curb line.;
16. Construct the counter-slope of the gutter or street at the base of the curb ramp at a maximum of 5% and maintain a smooth transition.
17. Construct landings for sidewalk at a minimum of 4'x4' with a maximum slope of 2% in any direction. Construct landings for median islands a minimum of 5'x5' with a maximum slope of 2% in any direction.
18. To use a median island as a pedestrian refuge area, median islands will be a minimum of 6 feet wide. Construct median islands to provide passage over or through the island.
19. Small channelization islands that cannot provide a 5'x5' landing at the top of a curb ramp, will be cut through level with the surface of the street.
20. Curb ramps with returned side curbs may be used only where pedestrians would not normally walk across the ramp such as where there the adjacent surface is plantings, other non-walking surface, or the side approach is substantially obstructed.
21. The typical 2'x4' truncated dome pad shall be placed with the short dimension perpendicular to the curb. See curb ramp typical details. Truncated dome pads shall abutt the back of the curb (ICC/ANSI A117.1 Fig C406.13.2).
22. Curved truncated dome pads are permitted when ramp width is greater than 4 feet.
23. Color contrast required only when detectable warning plates are employed. (ADA Standards for Accessible Design, section 705, Latest Edition). Recommended Min. light reflectance contrast is 70% (American National Standard ICC/ANSI A117.1 - Standard & Commentary Section 705.3, Latest Edition). Painted surface will not be acceptable. (See note 4).
24. Place a 1/2-inch expansion joint where the concrete curb ramp joins/abuts the curb.
25. Curb ramps through median islands, single ramps at dual crosswalks or limited right-of-way situations will be handled by special details. Consult with the Town Engineer.
26. When construction is on a NCDOT Right-of-Way, construction shall conform to the latest edition of the NCDOT Roadway Standard drawings.
27. Construction of curb ramps shall conform to the latest edition of the ICC/ANSI A117, Chapter 4 Accessible Routes.

STANDARD NOTES (continued):

28. Curb ramps shall be provided at locations as shown on these plans or as directed by the engineer. Curb ramps shall be located as indicated in these details; however, the location may be adjusted as directed by the engineer where existing light poles, fire hydrants, drop inlets, etc. Affect placement. At these locations, not less than 2 feet of full height curb shall be placed between adjacent ramps.
29. Use air entrained 3000 psi concrete with a sidewalk finish in order to obtain a rough non-skid type surface.
30. Crosswalk widths and configuration vary but must conform to traffic design standards.
31. Place the inside pedestrian crosswalk lines no closer in the intersection then would be established by bisecting the intersection radii, with an allowance of a 4'x4' maneuvering space (2003 ICC/ANSI a117 Commentary. Fig. C406.6 & 406.10) in the vehicular travel way when one ramp is installed.
32. Place all pavement markings in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) published by the Federal Highway Administration and the North Carolina Supplement to the MUTCD.
33. For asphalt greenways transition greenway to concrete to enable truncated dome placement.
34. Concrete must come from a ready mix concrete truck to ensure mix meets air entrainment requirements. No site mix or sakrete mix allowed.

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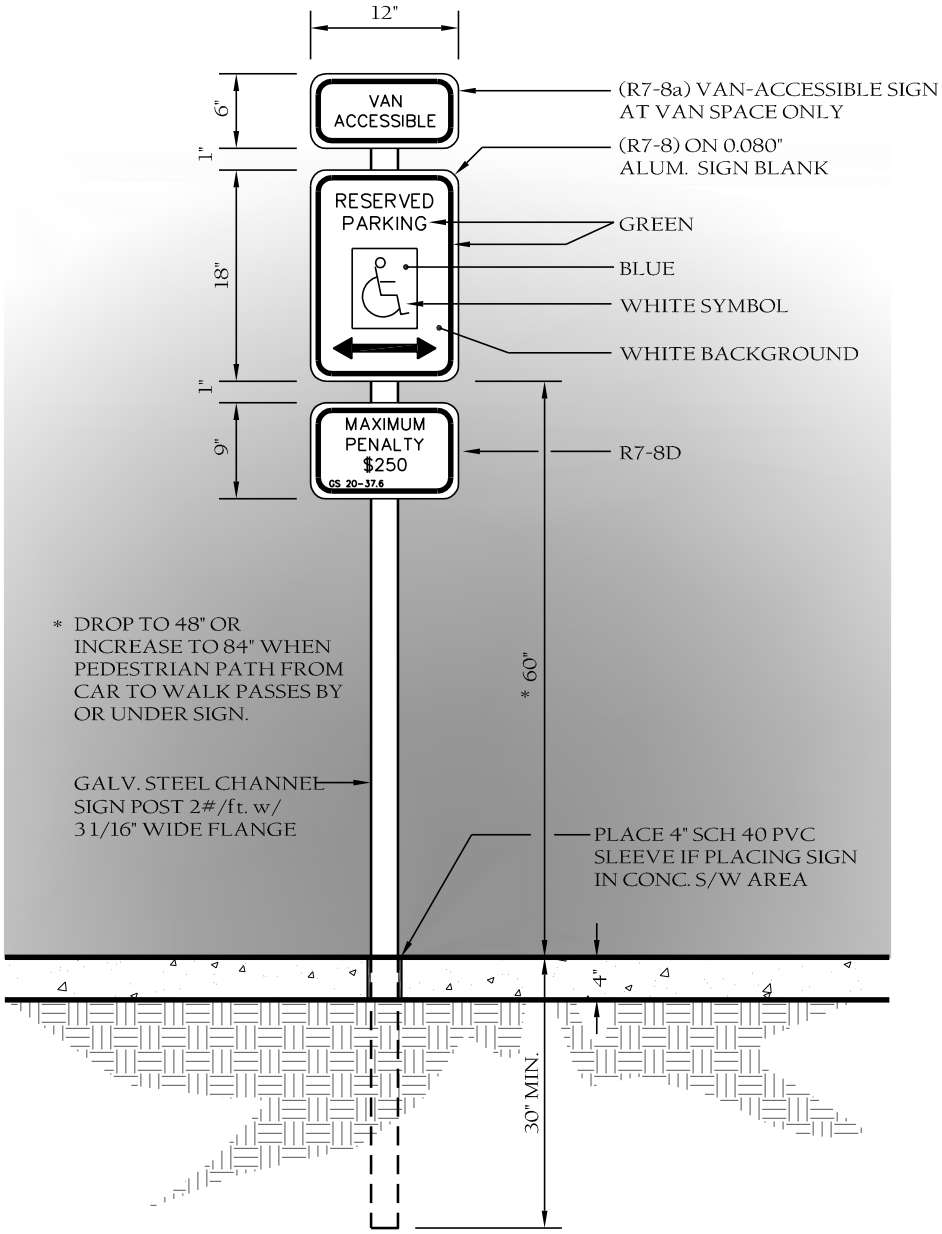
RESERVED
FUTURE DETAIL

Scale: Not To Scale	Detail #: 9.14
Revision Date: Feb., 2015	Sheet #: 1 of 1



TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

R7-8 HANDICAP SIGN DETAIL

Scale:	Detail #:
Not To Scale	9.15
Revision Date:	Sheet #:
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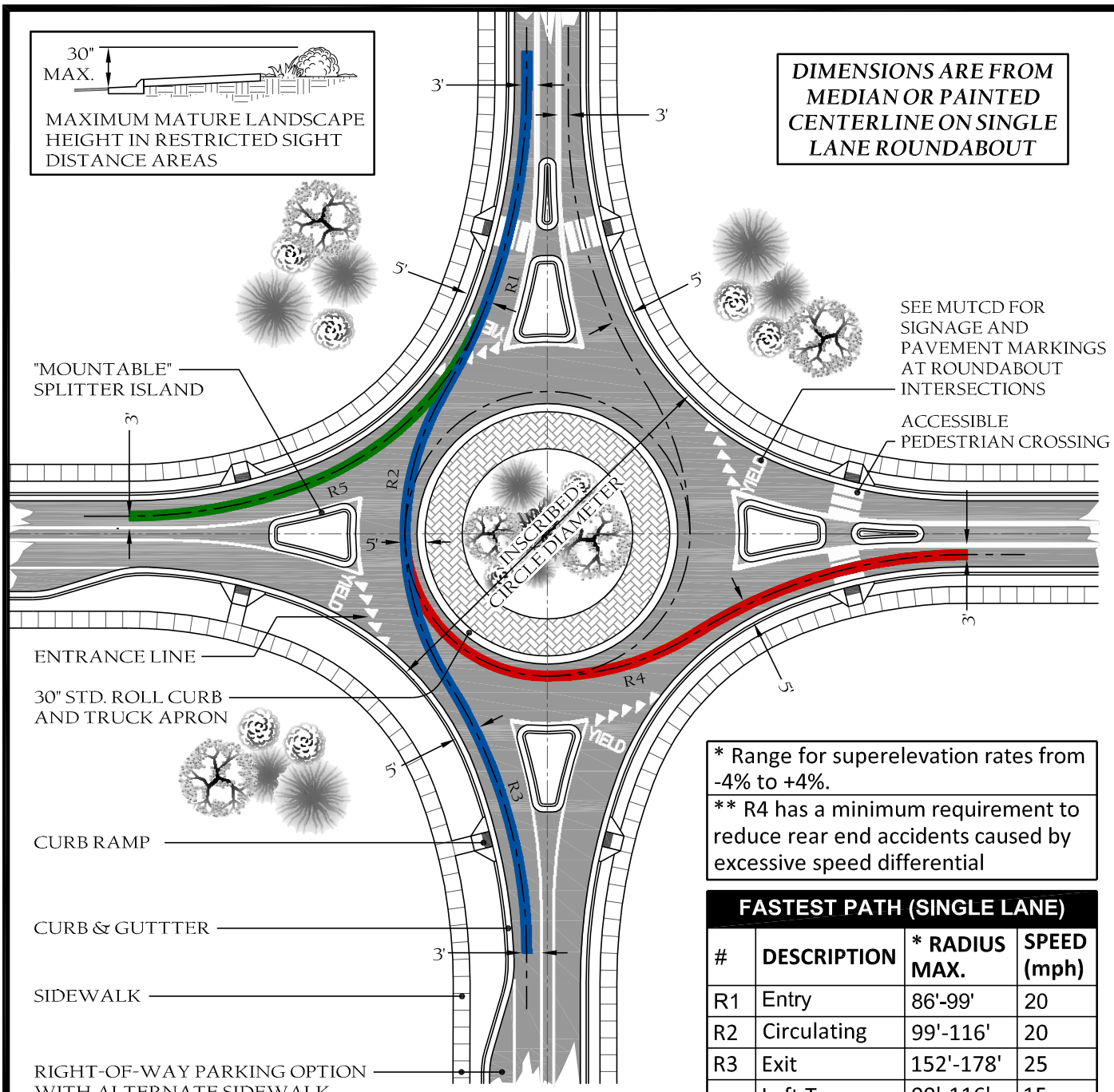
MAXIMUM MATURE LANDSCAPE HEIGHT IN RESTRICTED SIGHT DISTANCE AREAS

DIMENSIONS ARE FROM MEDIAN OR PAINTED CENTERLINE ON SINGLE LANE ROUNDABOUT



* Range for superelevation rates from -4% to +4%.

** R4 has a minimum requirement to reduce rear end accidents caused by excessive speed differential

FASTEST PATH (SINGLE LANE)

#	DESCRIPTION	* RADIUS MAX.	SPEED (mph)
R1	Entry	86'-99'	20
R2	Circulating	99'-116'	20
R3	Exit	152'-178'	25
R4	Left Turn	99'-116'	15
	Minimum **	18'-20'	10
R5	Right Turn	152'-178'	20

NOTES:

1. *Decision Sight Distance (DSD) and Stopping Sight Distance (SSD) must be checked for horizontal and vertical alignment. DSD & SSD are measured along vehicle path.*
2. *SSD for pedestrians measured to point 6' behind curb.*
3. *Refer to the FHWA Technical Summary on Roundabouts for considerations in the design section & implementation of Roundabouts (FHWA-SA-10-006, latest revision).*

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ROUNDABOUT STANDARD DETAIL

Scale:	Detail #:
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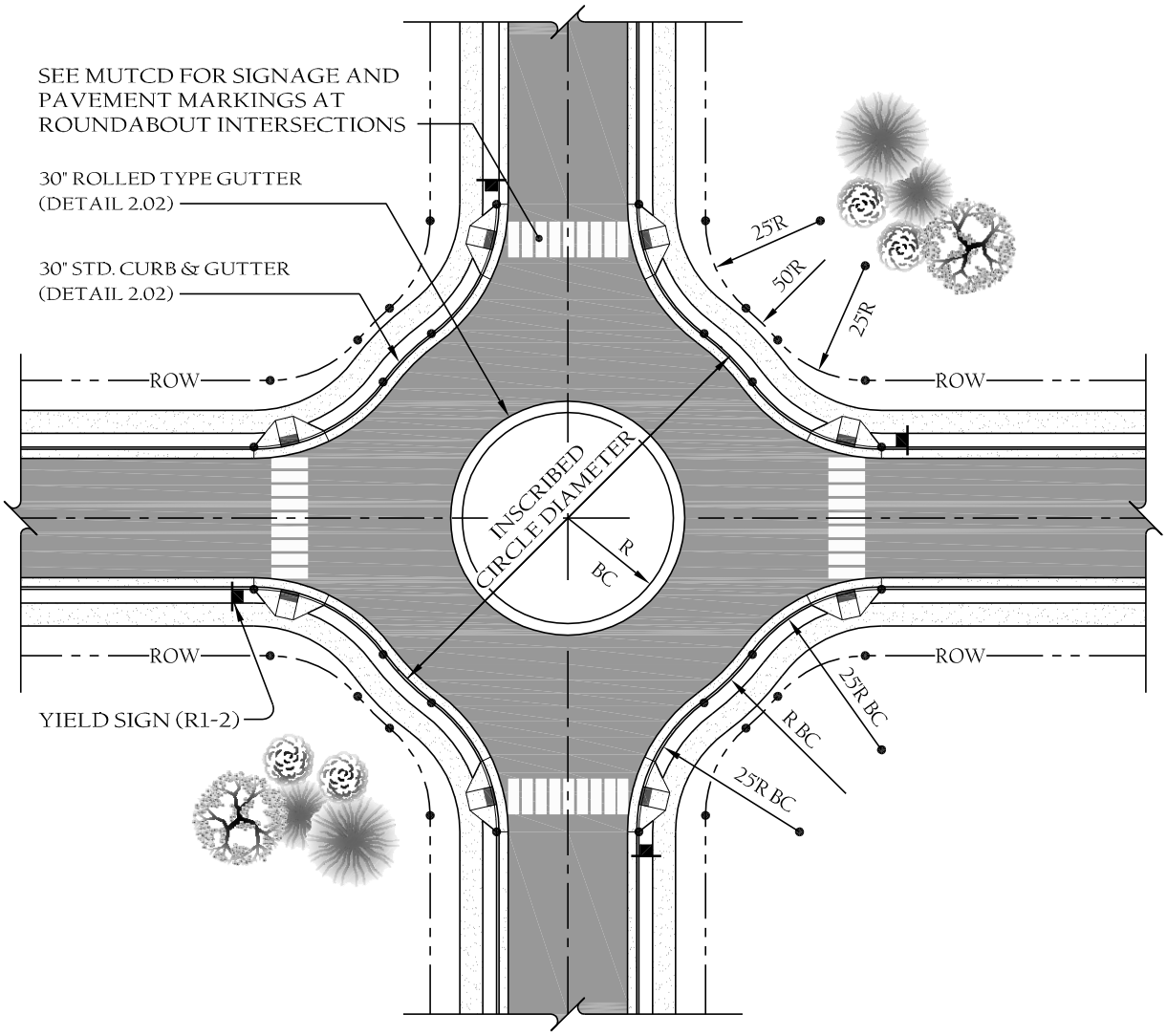

NOTES:

1. *Decision Sight Distance (DSD) and Stopping Sight Distance (SSD) must be checked for horizontal and vertical alignment. DSD & SSD are measured along vehicle path.*
2. *SSD for pedestrians measured to point 6' behind curb.*
3. *Refer to the FHWA Technical Summary on Roundabouts for considerations in the design section & implementation of Neighborhood Traffic Circles (FHWA-SA-10-006, latest revision).*
4. *Dimensions shown are minimum and to be verified with a traffic design. Coordinate design with Town Engineer.*
5. *R1-2 is a MUTCD sign designations (Manual on Uniform Traffic Control Devices.)*

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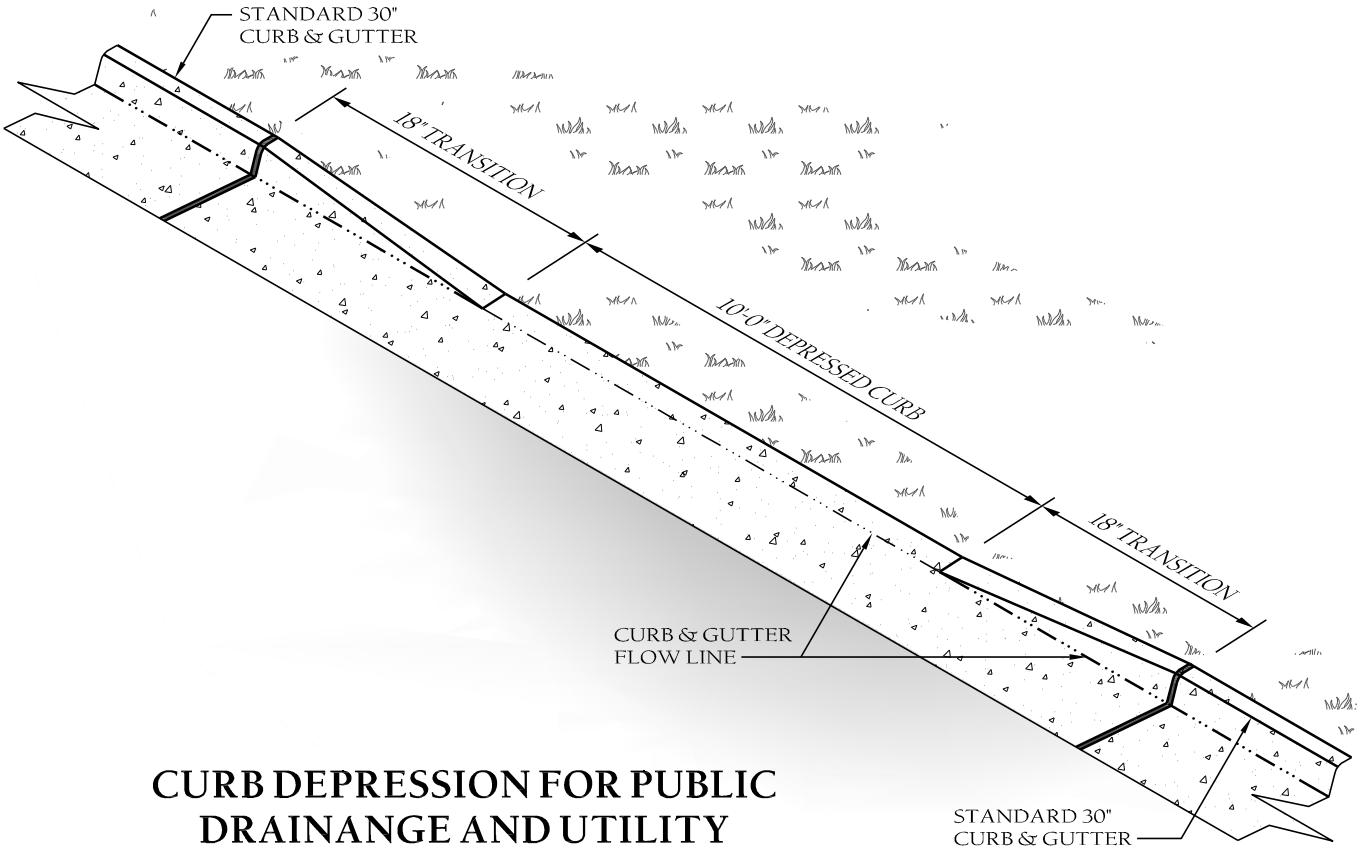
	ROUNDABOUT STANDARD DETAIL	Scale: Not To Scale	Detail #: 9.16
		Revision Date: Feb., 2015	Sheet #: 2 of 2



CURB DEPRESSION FOR PUBLIC DRAINANGE AND UTILITY EASEMENT ACCESS

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10' CURB DEPRESSION

Scale:	Detail #:
Not To Scale	9.18
Revision Date:	Sheet #:
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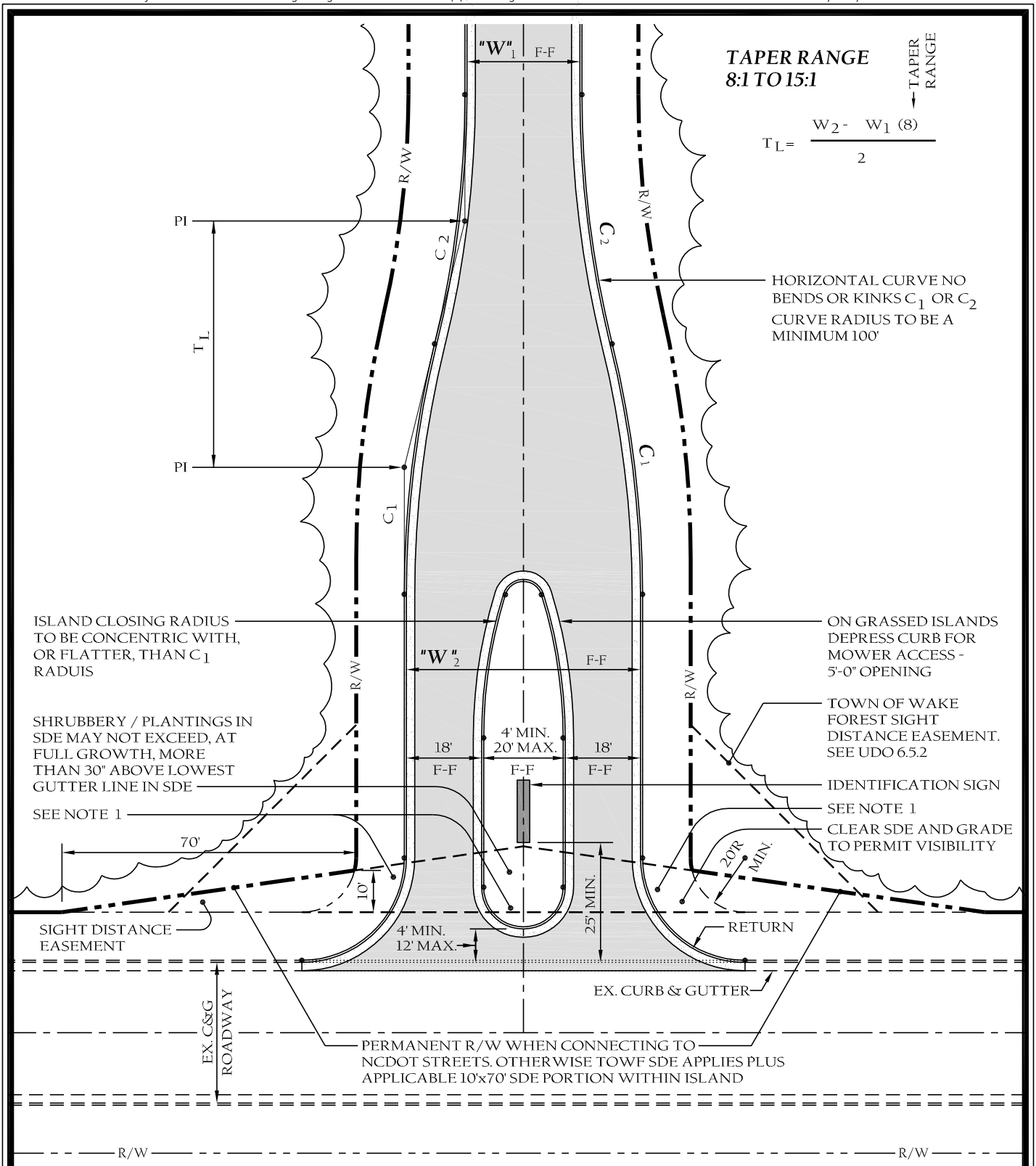

NOTES:

1. Refer to curb ramp details for requirements where sidewalks ar required

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ISLAND ENTRANCE TO EXISTING CURB & GUTTER

Scale:	Detail #:
Not To Scale	9.19
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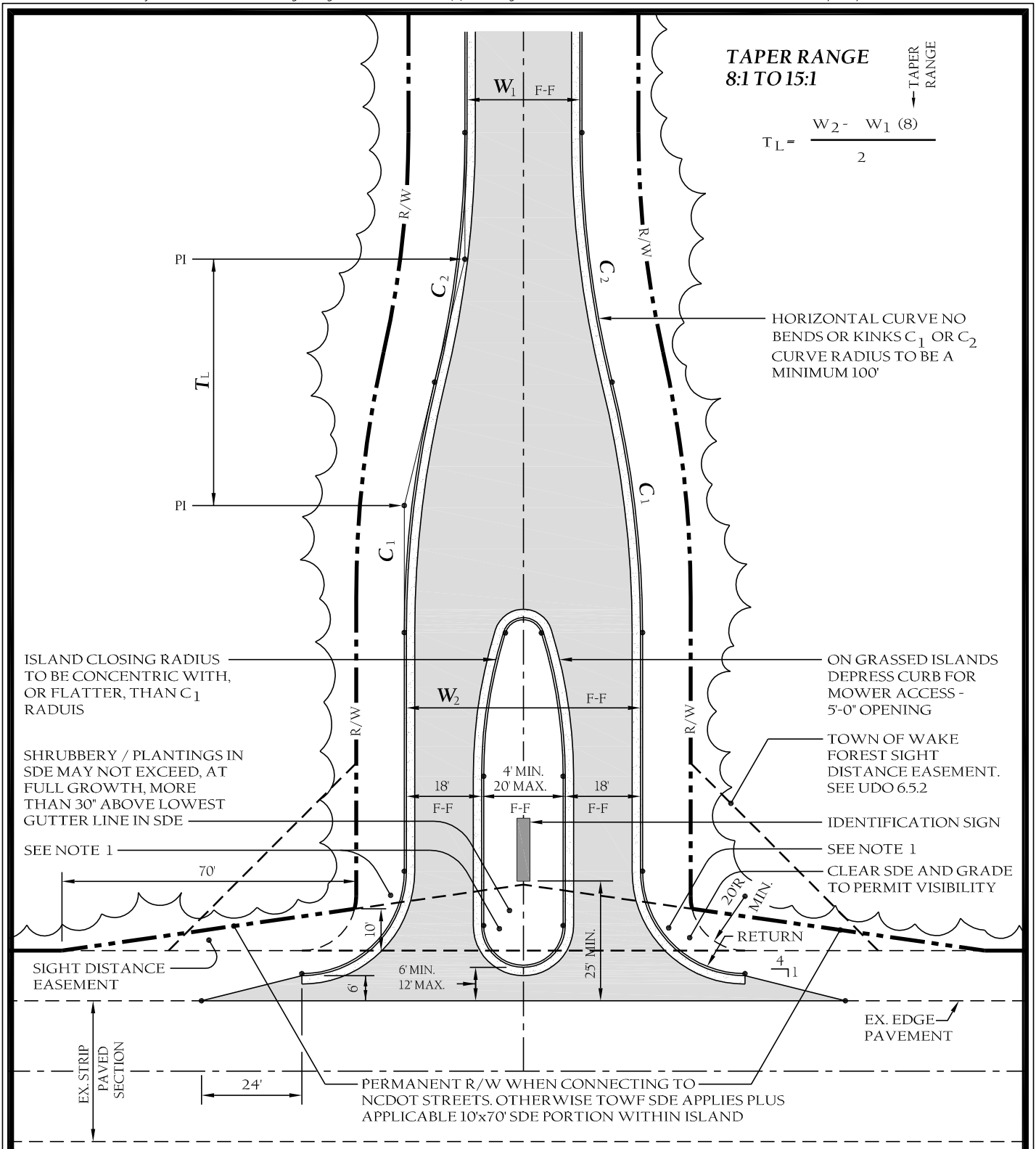

NOTES:

1. Refer to curb ramp details for requirements where sidewalks ar required

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ISLAND ENTRANCE TO EXISTING STRIP PAVED

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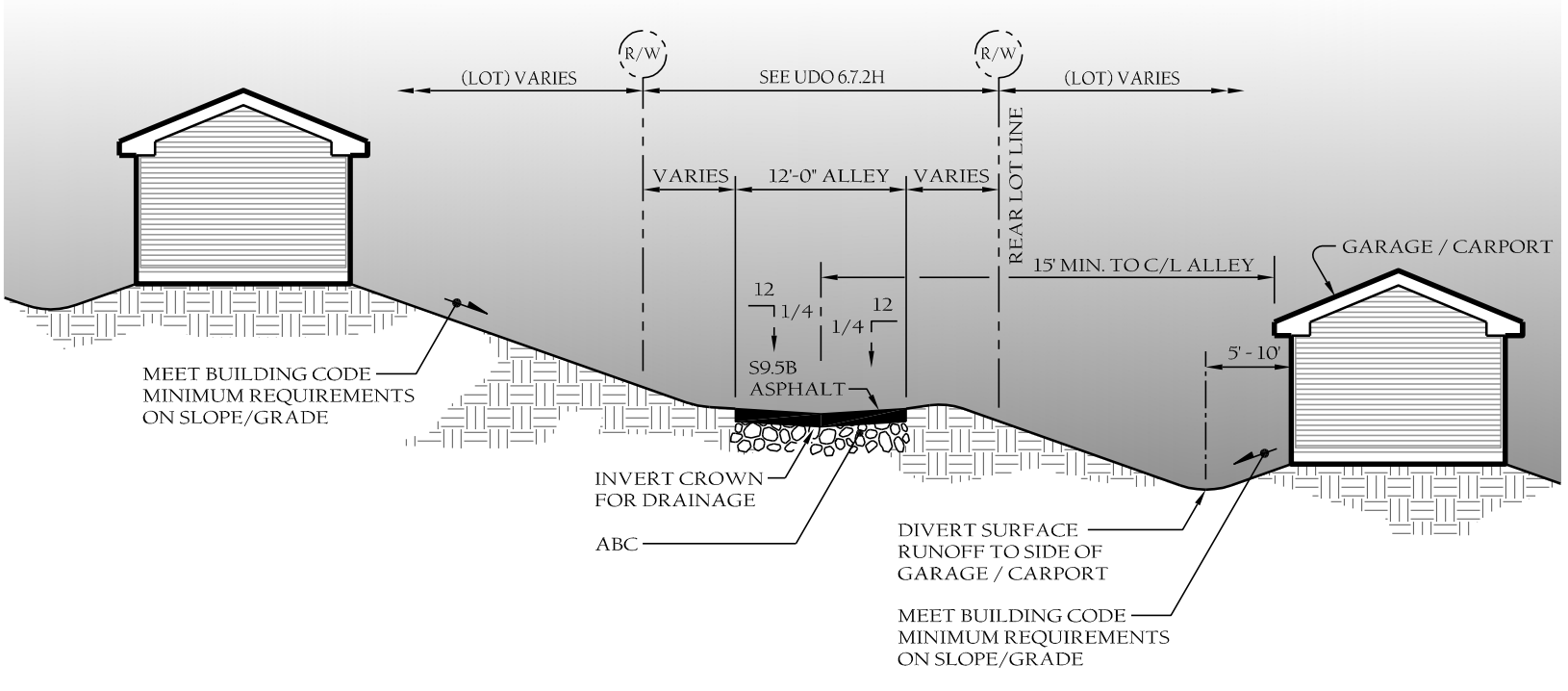
Details Provided by APPIAN Consulting Engineers – www.appianengineers.com



NOTES:

When so required or proposed by the subdivider, alleys shall conform to the following:

1. Property line radius at intersections.....20 ft.
2. Minimum radius to centerline when deflection angle of more than 10 degrees occurs.....35 ft..
3. Pavement radius at intersecting street.....20 ft.
4. See UDO 6.7.2 for other requirements.

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TYPICAL SERVICE ALLEY DETAIL

Scale: Not To Scale

Detail #: 9.20

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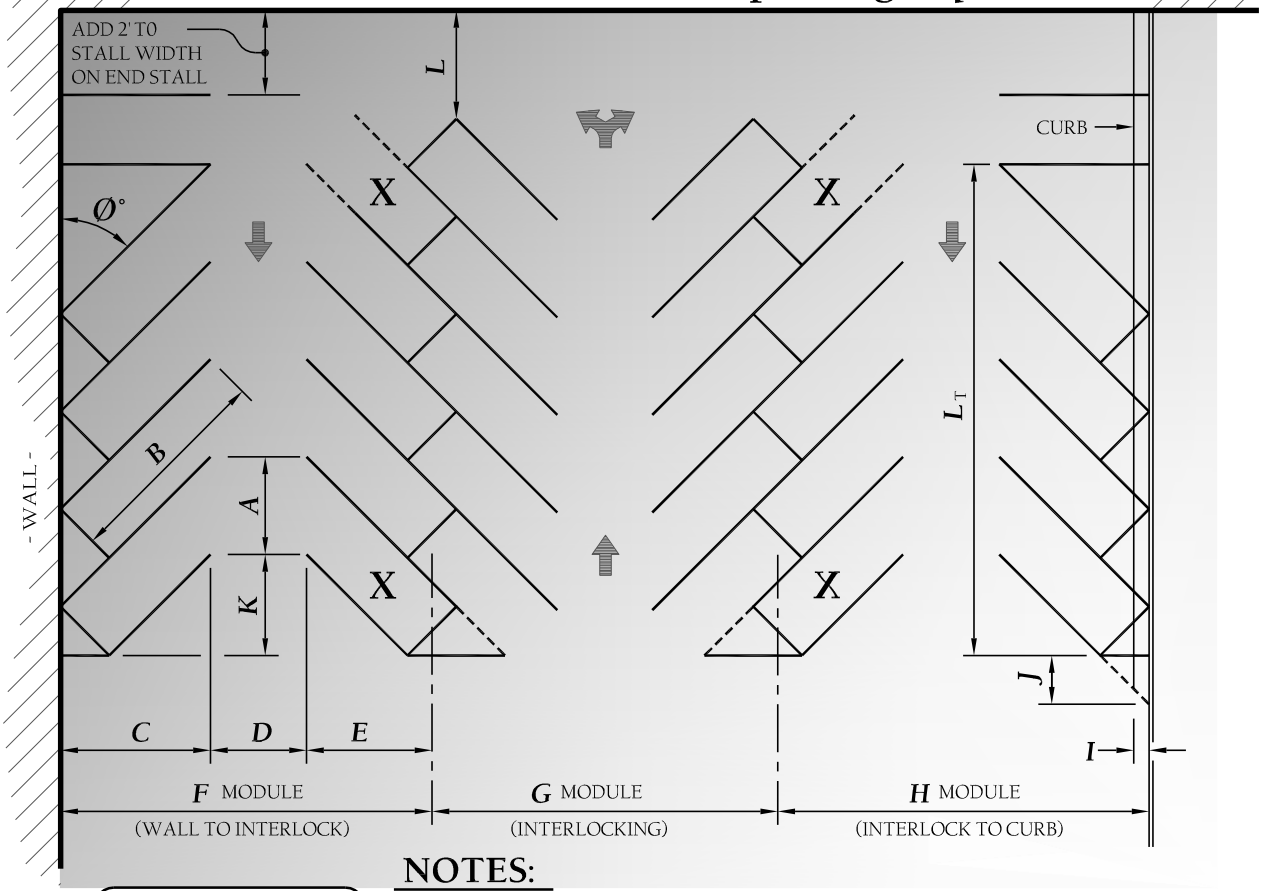
Note: See UDO 9.4 & 9.5 for other parking requirements.



L_T = TOTAL LENGTH AVAILABLE

$\frac{L_T - K}{A}$ = # SPACES PER ROW

NOTES:

X = *STALL NOT ACCESSIBLE IN CERTAIN LAYOUTS*

90° MUST HAVE 2 WAY ISLES

STALL LAYOUT ELEMENTS. SOURCE:
BASED ON PARKING PRINCIPLES, SPECIAL REPORT NO. 125, HIGHWAY RESEARCH BOARD, WASHINGTON, D.C., 1971, P99.

PARKING LAYOUT DIMENSIONS at VARIOUS ANGLES

(DIMENSION IN FEET)

Dimension	On Diagram	STANDARD CARS (9'x18.5' STALLS) ANGLE Ø°				COMPACT CARS (8'x16' STALLS) ANGLE Ø°			
		45°	60°	75°	90°	45°	60°	75°	90°
Stall width, parallel to aisle	A	12.7	10.4	9.3	9.0	11.3	9.2	8.3	8
Stall length of line	B	27.5	23.7	20.9	18.5	24.0	20.6	18.1	16
Stall depth to wall	C	19.5	20.5	20.0	18.5	17.0	17.9	17.5	16
Aisle width between stall lines	D	12.0	16.0	23.0	26.0	12.0	16.0	20.0	22
Stall depth, interlock	E	16.5	18.5	19.0	18.5	14.2	15.9	16.5	16
Module, wall to interlock	F	48.0	55.0	62.0	63.0	43.2	49.8	54.0	54
Module, interlocking	G	45.0	53.0	61.0	63.0	39.3	47.3	53.0	52
Module, interlock to curb face	H	46.0	52.5	59.5	60.5	40.7	48.0	52.0	50
Bumper overhang (typical)	I	2.0	2.3	2.5	2.5	1.5	1.8	2.0	2
Offset	J	6.4	2.6	0.6	0.0	5.7	2.3	0.6	0
Setback	K	13.1	9.3	4.8	0.0	11.3	8.0	4.1	0
Cross aisle, one-way	L	14.0	14.0	14.0	14.0	13.0	13.0	13.0	13
Cross aisle, two-way	-	24.0	24.0	24.0	24.0	20.0	20.0	20.0	20

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PARKING STALL LAYOUT

Scale: Not To Scale

Detail #: 9.21

Revision Date: Feb., 2015

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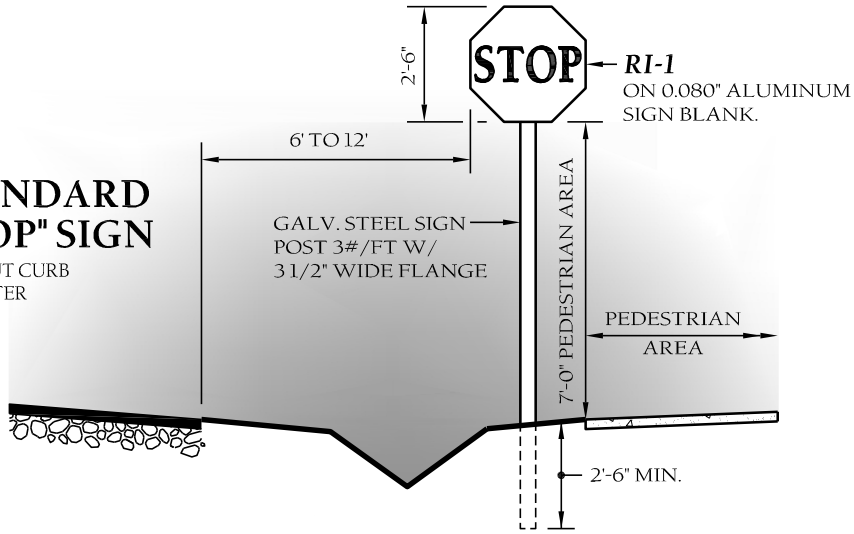
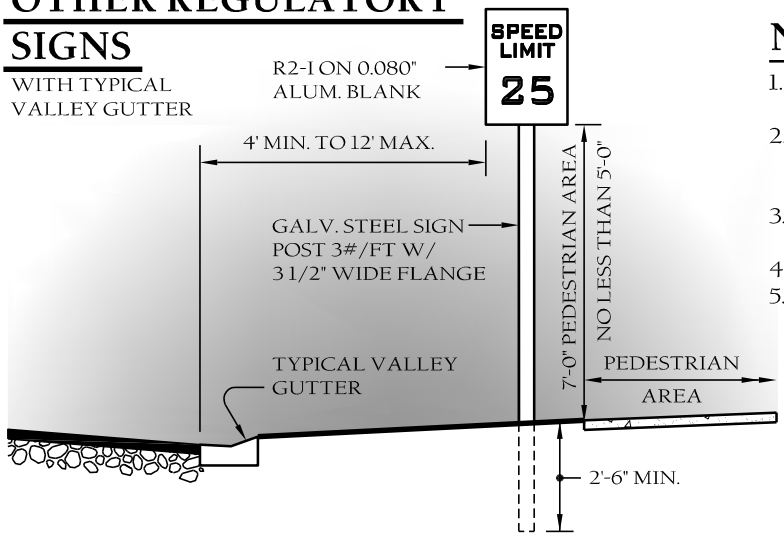
STANDARD "STOP" SIGN

WITHOUT CURB
OR GUTTER



OTHER REGULATORY SIGNS

WITH TYPICAL
VALLEY GUTTER

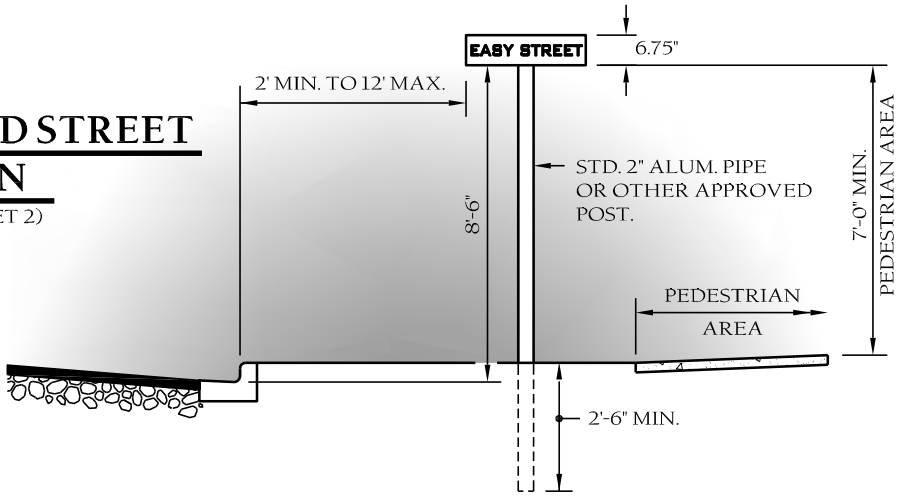


NOTES:

1. Street name signs shall be a minimum of extruded aluminum blades. See sheet 2.
2. All reflective signs shall be made of engineering grade or high intensity grade reflective sheeting or approved equivalent.
3. All signs placed in right-of-way will be approved by town's engineer.
4. Erect street signs plumb.
5. Developer shall be responsible for furnishing & erecting all street name & regulatory signs.

STANDARD STREET NAME SIGN

(SEE NOTES & SHEET 2)
WITH CONCRETE
CURB & GUTTER



TOWN of WAKE FOREST

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STANDARD SIGN INSTALLATION DETAIL

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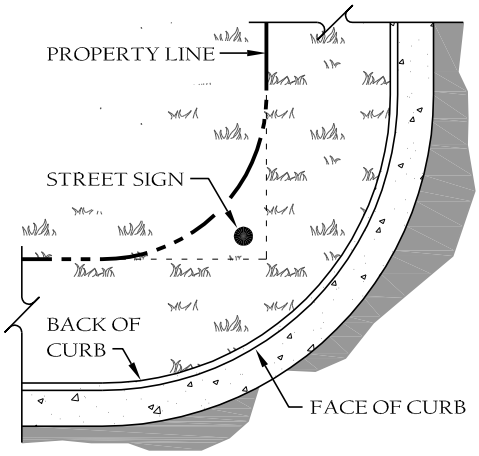
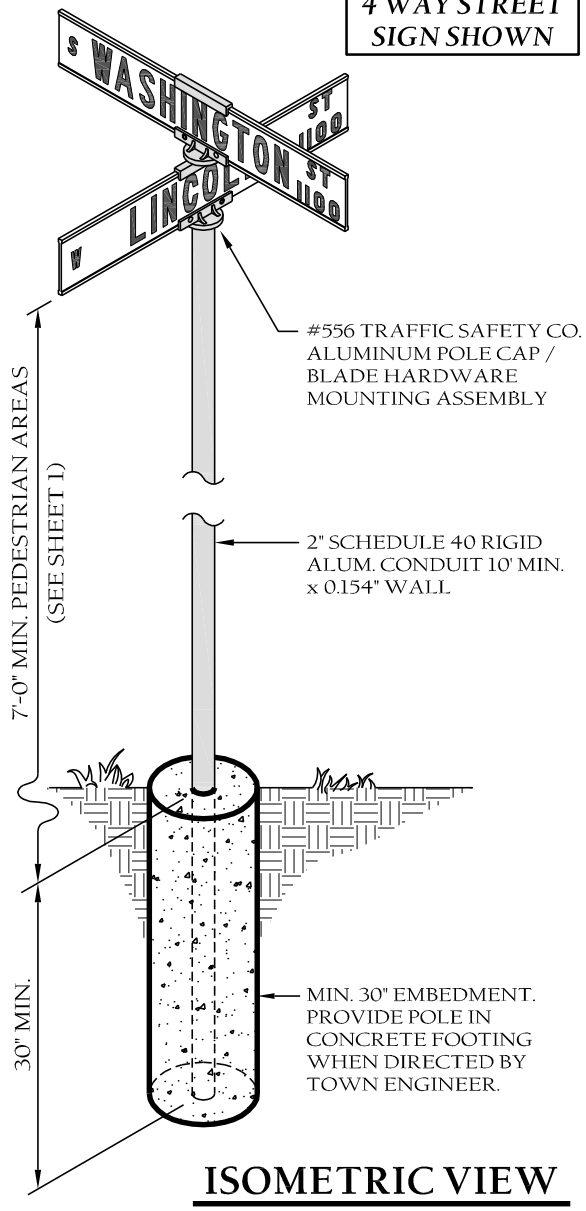
4 WAY STREET SIGN SHOWN



PLAN VIEW



ISOMETRIC VIEW

NOTES:

1. 4" letters to be series "C" (FHWA)
2. 2" letters to be series "C" (FHWA)
   All letters and background materials to be "Scotchlite" or an approved equal and meet I.T.E. Specifications on reflectivity.
3. Sign appearance shall be green background with white letters.
4. Fabricate sign as follows: Base sheeting shall be 3-M 3930 Hi-Intensity Prismatic (or equal). Overlay letter mask using 3-M 1177-C translucent EC green film. (Note: 3-M DG3 material acceptable alternative)
5. Aluminum sign blank materials to be 0.080" thick with extruded aluminum blades.

RECOMMENDED INSTALLATION

1. Street name sign to be one-foot from property line if said lines were extended.
2. Sign blades not to extend past back of curb into road.
3. Sign location to be placed on low side of block numbering.
4. Any exceptions shall be approved by the Town Engineer.
5. Developer responsible for installation of all street signs.

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RESIDENTIAL STREET NAME SIGNS 6 3/4" SIGN HEIGHT

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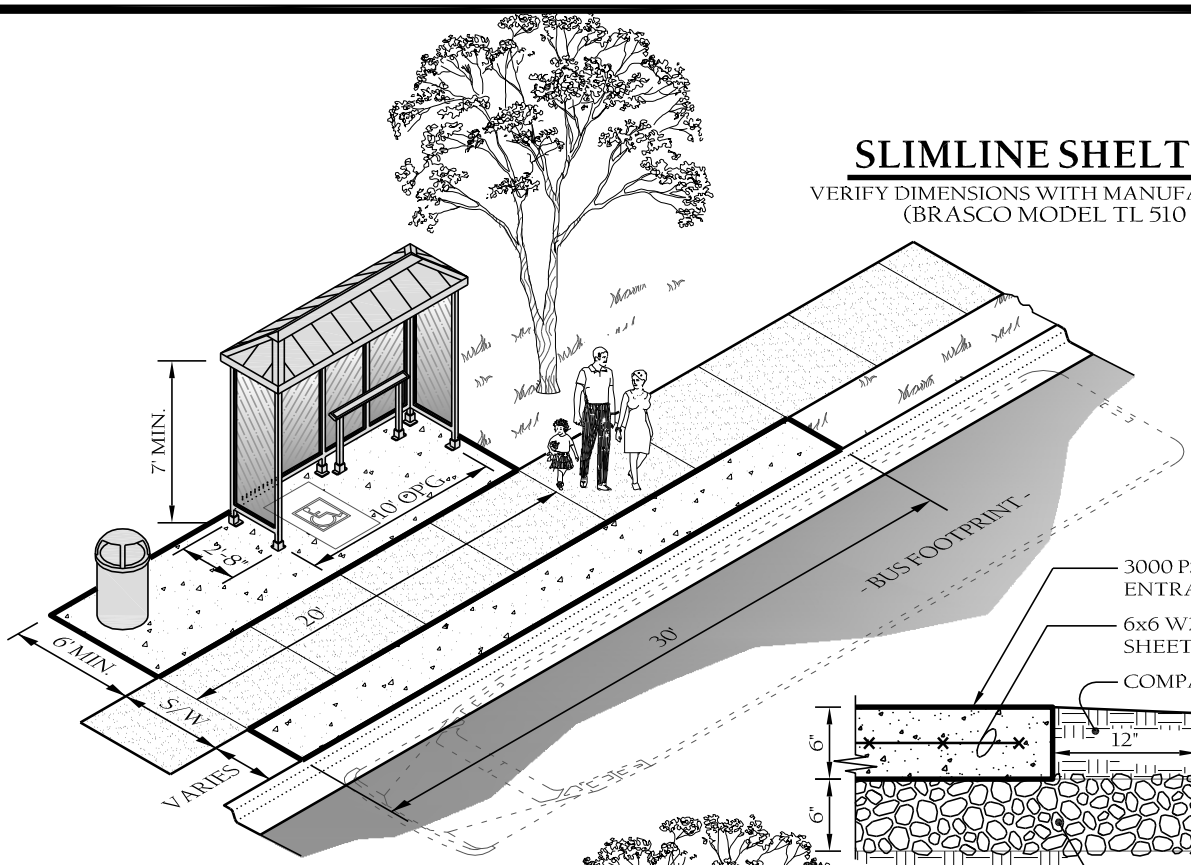
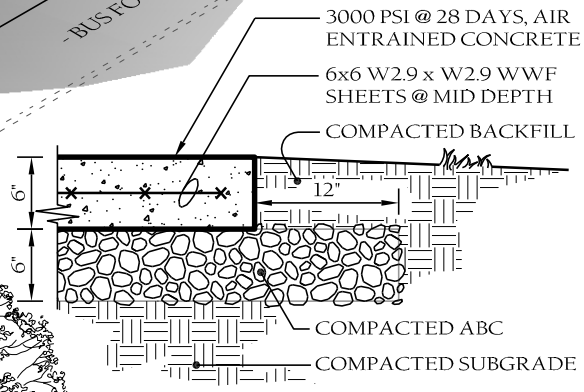
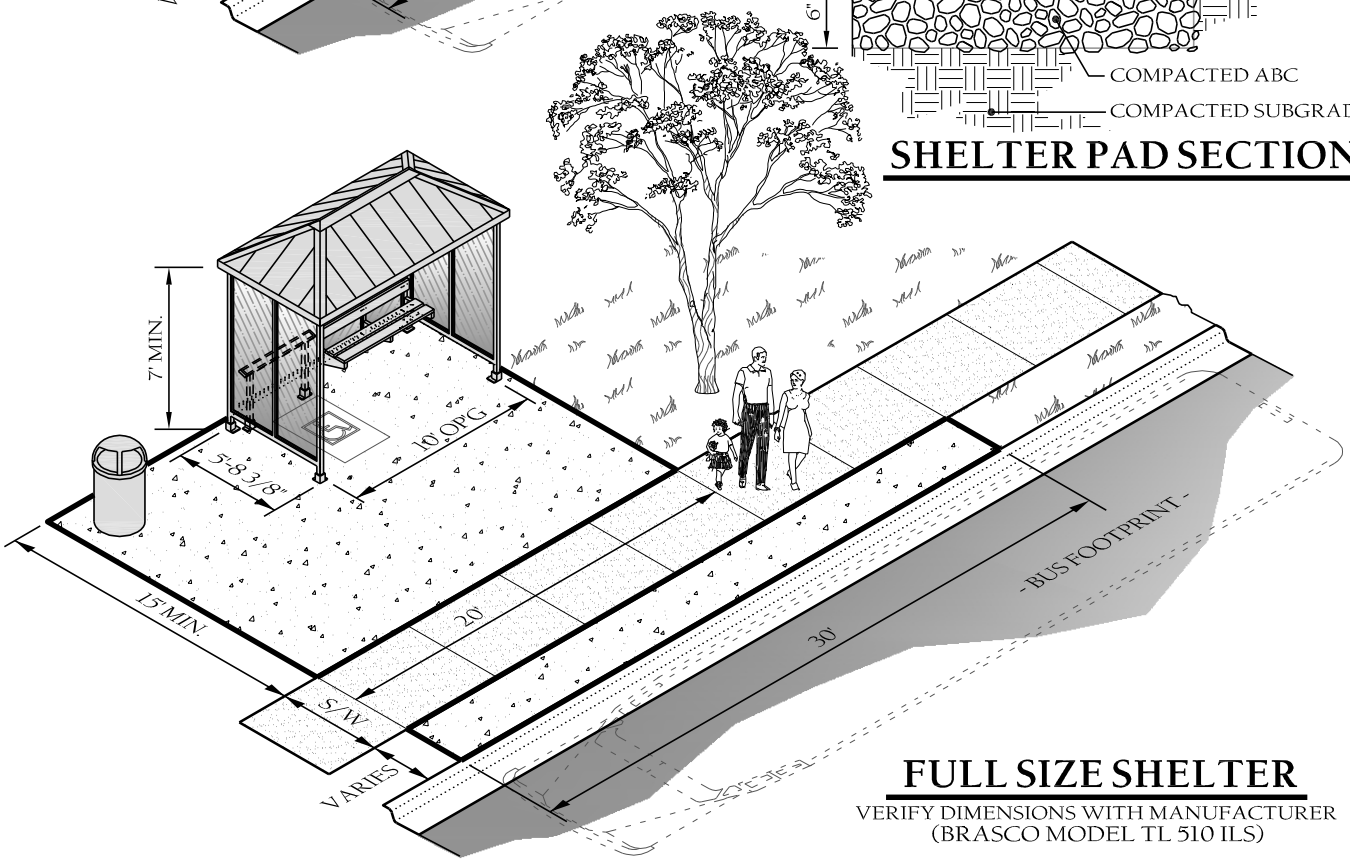


SLIMLINE SHELTER

VERIFY DIMENSIONS WITH MANUFACTURER
(BRASCO MODEL TL 510 C)



SHELTER PAD SECTION



FULL SIZE SHELTER

VERIFY DIMENSIONS WITH MANUFACTURER
(BRASCO MODEL TL 510 ILS)

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BUS SHELTER DETAILS

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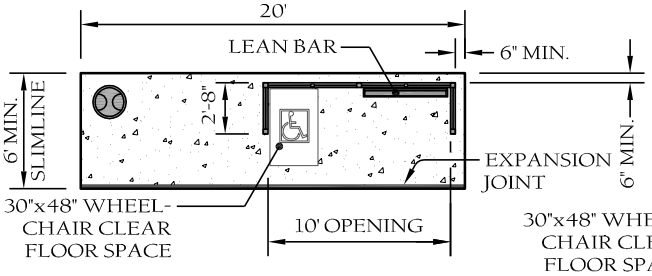
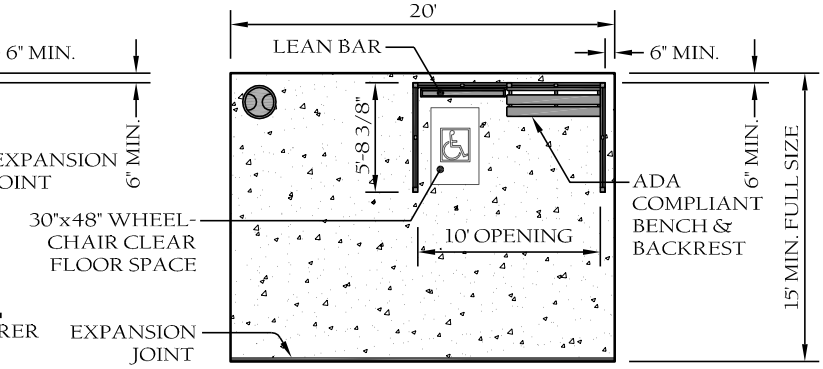


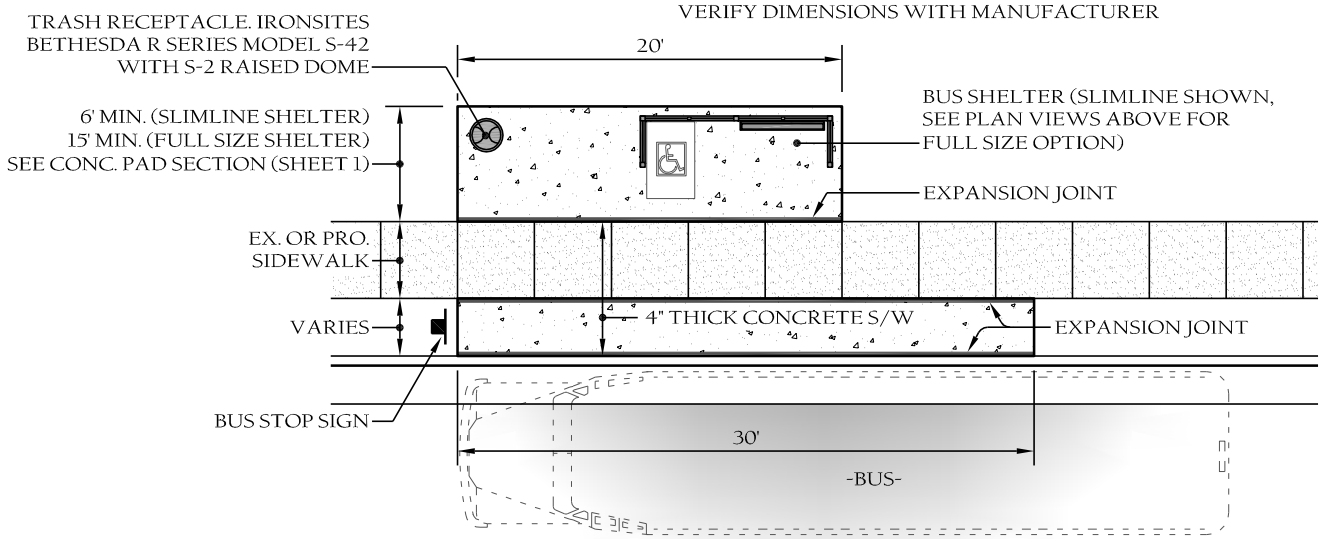
SLIMLINE SHELTER

VERIFY DIMENSIONS WITH MANUFACTURER

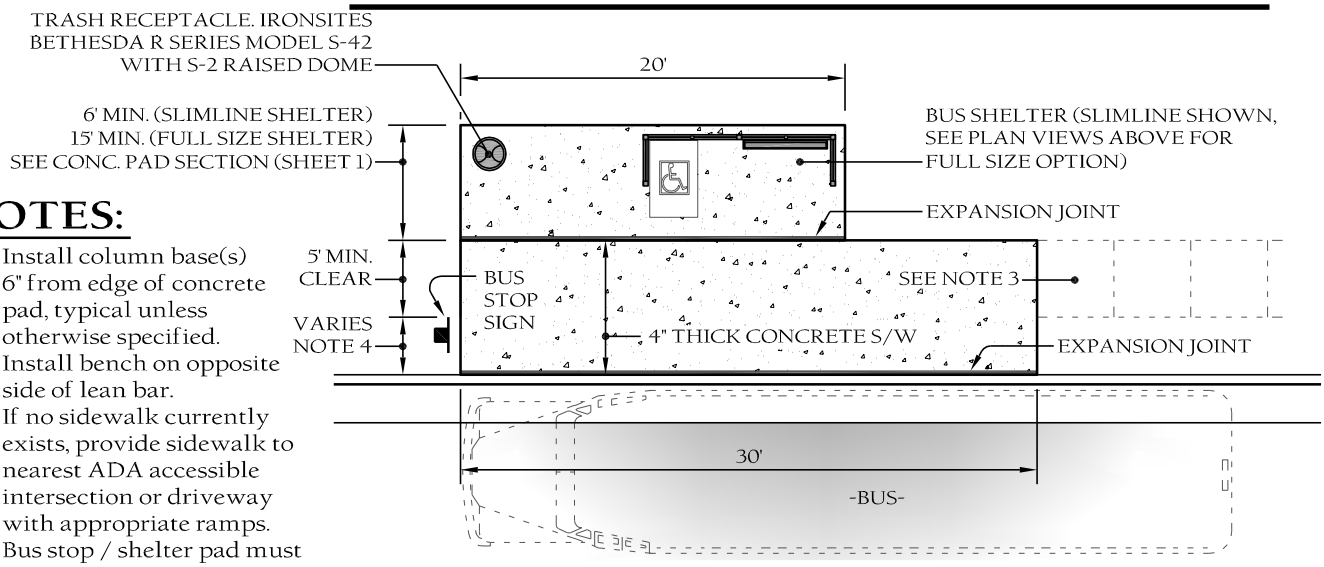


FULL SIZE SHELTER

VERIFY DIMENSIONS WITH MANUFACTURER



SHELTER LAYOUT WITH EXISTING SIDEWALK



SHELTER LAYOUT WITHOUT EXISTING SIDEWALK

NOTES:

1. Install column base(s) 6" from edge of concrete pad, typical unless otherwise specified.
2. Install bench on opposite side of lean bar.
3. If no sidewalk currently exists, provide sidewalk to nearest ADA accessible intersection or driveway with appropriate ramps.
4. Bus stop / shelter pad must be clear of utility poles, fire hydrants & other similar obstacles.
5. See UDO 6.7.2.

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BUS SHELTER DETAILS

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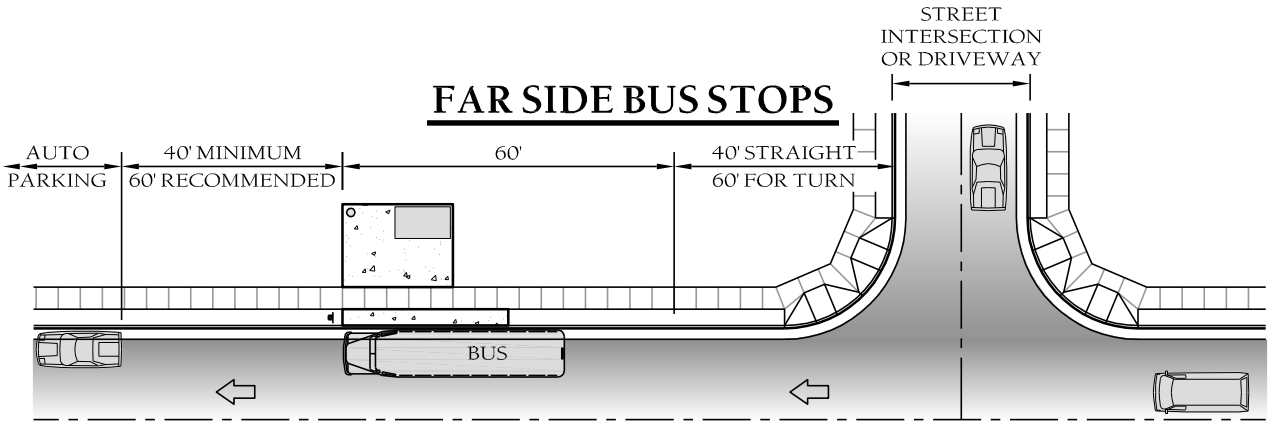
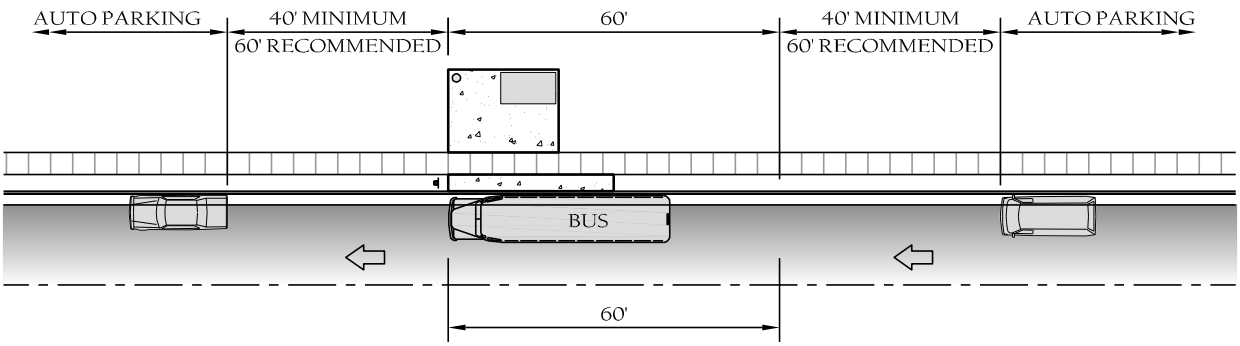
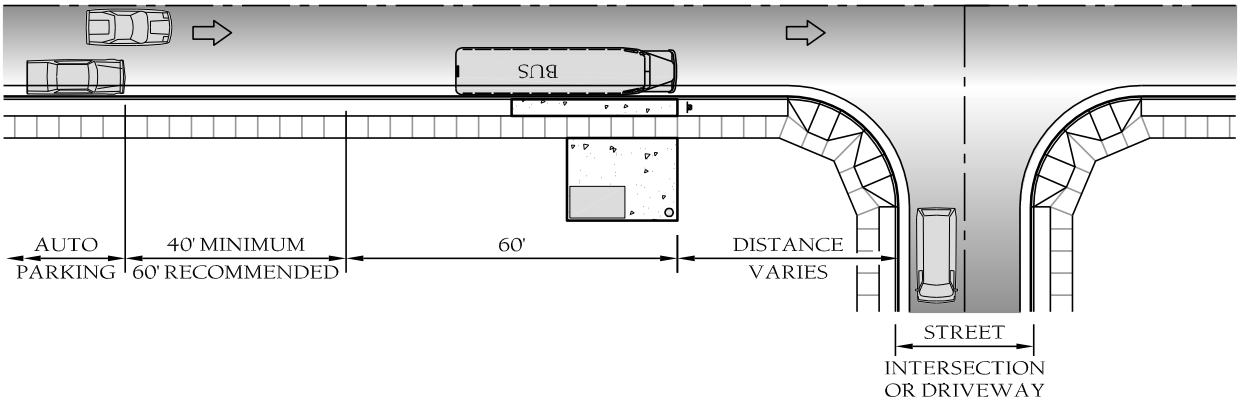
FAR SIDE BUS STOPS



MID BLOCK BUS STOPS



NEAR SIDE BUS STOPS



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BUS SHELTER DETAILS

Scale:	Detail #:
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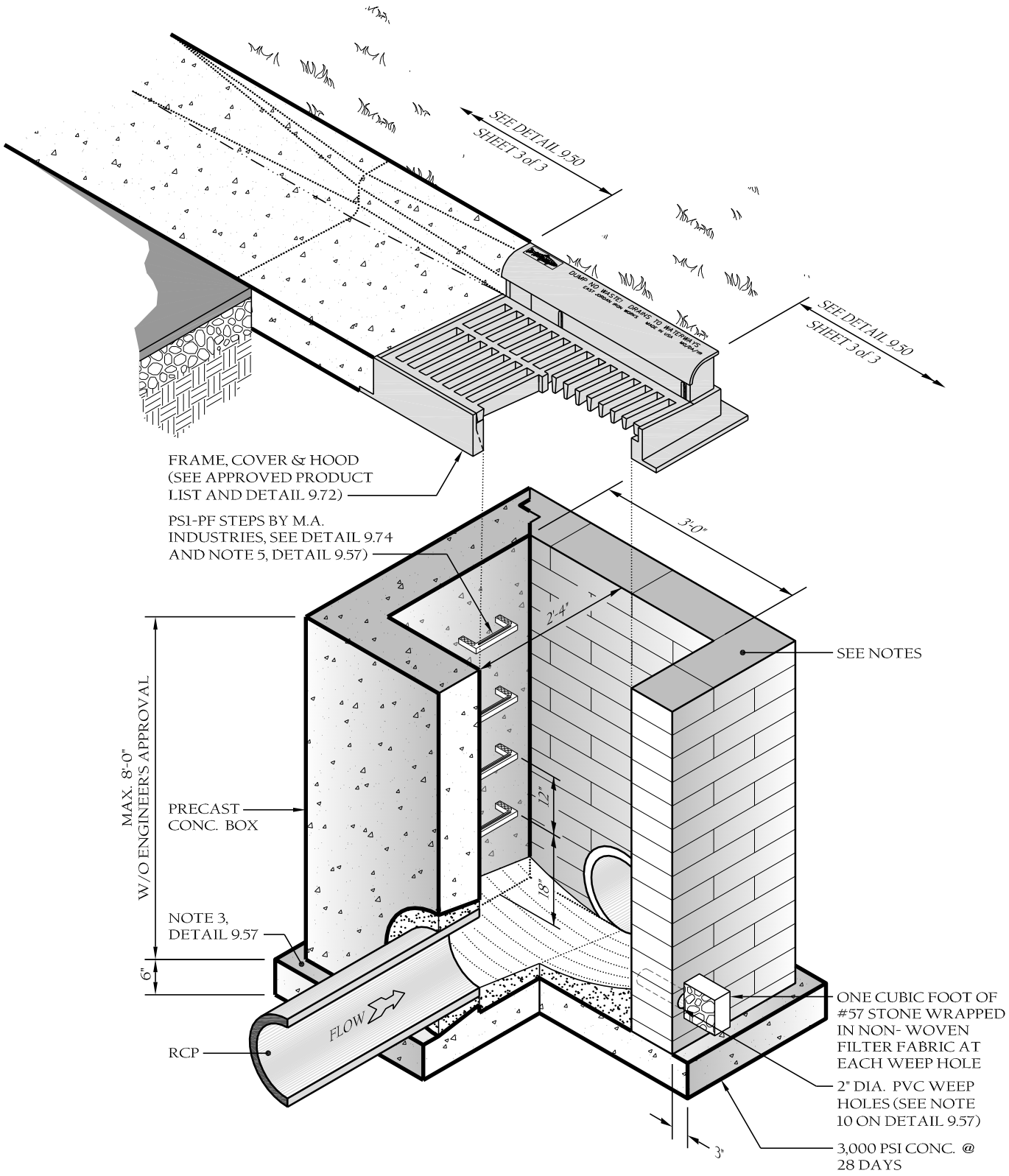

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STD. C&G INLET W/HOOD DETAIL

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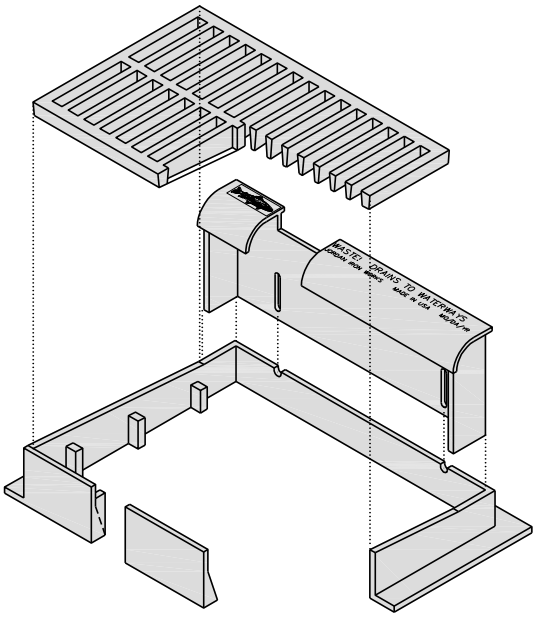
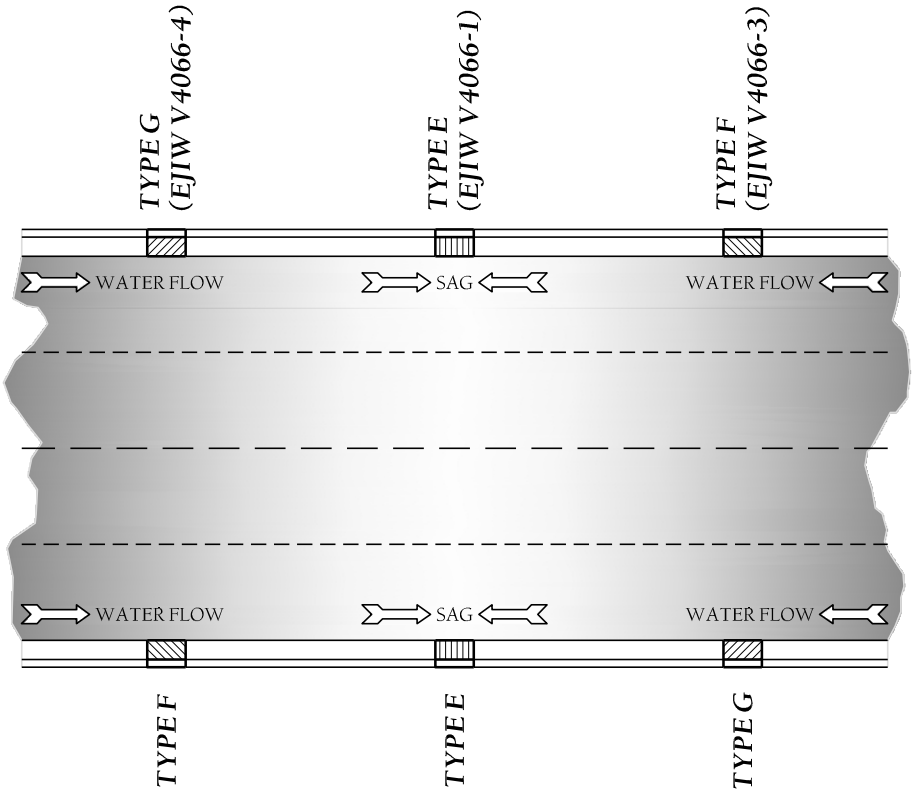
- SEE DETAIL 9.72 AND PRE-APPROVED PRODUCT LIST. (NCDOT DETAIL 840.03 - SHOWN WITH TYPE "E" GRATE) HEAVY DUTY FRAME, COVER & HOOD
- BIKE-FRIENDLY GRATES ARE REQUIRED AT BIKE/PEDESTRIAN CORRIDORS.





DETAIL SHOWING TYPES OF GRATES TO BE USED ACCORDING TO WATER FLOW

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

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STD. C&G INLET W/HOOD DETAIL

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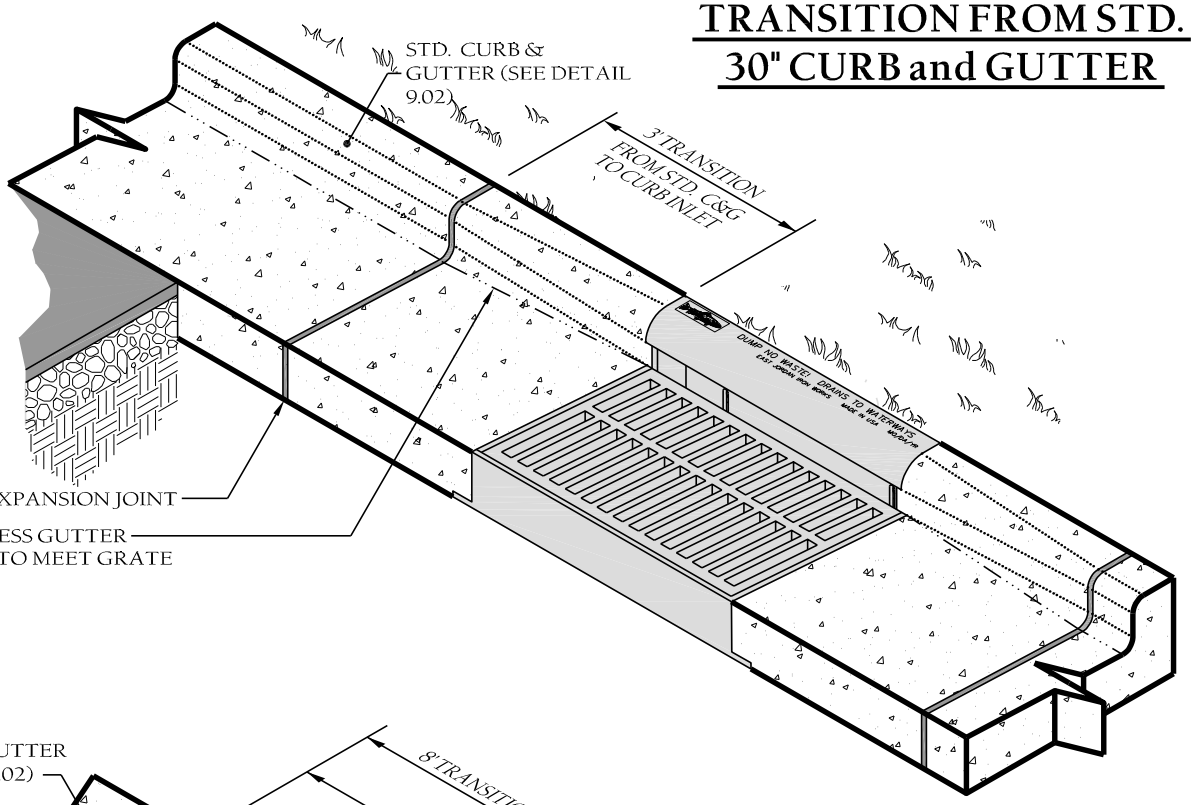
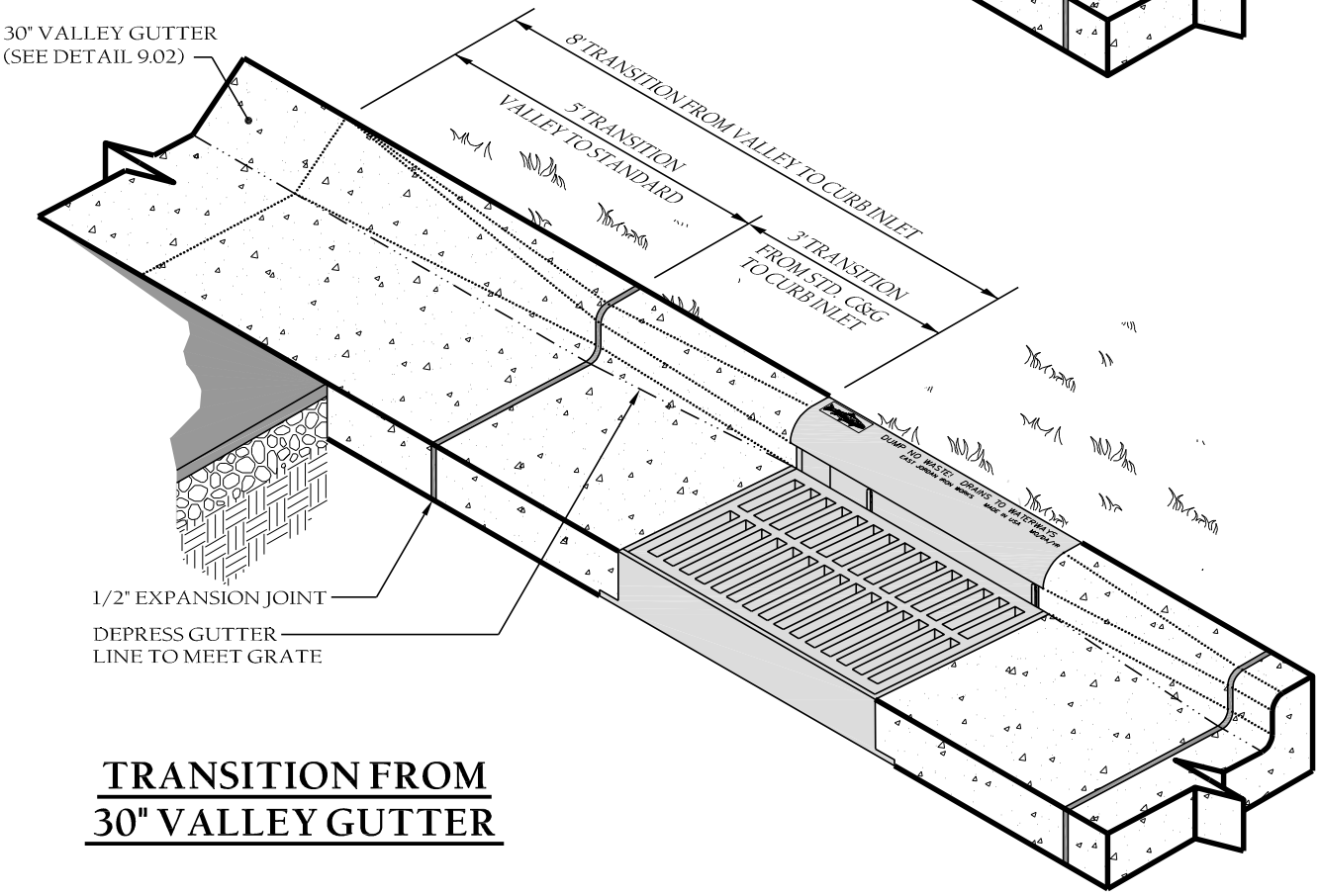
TRANSITION FROM STD. 30" CURB and GUTTER





TRANSITION FROM 30" VALLEY GUTTER

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STD. C&G INLET W/HOOD DETAIL

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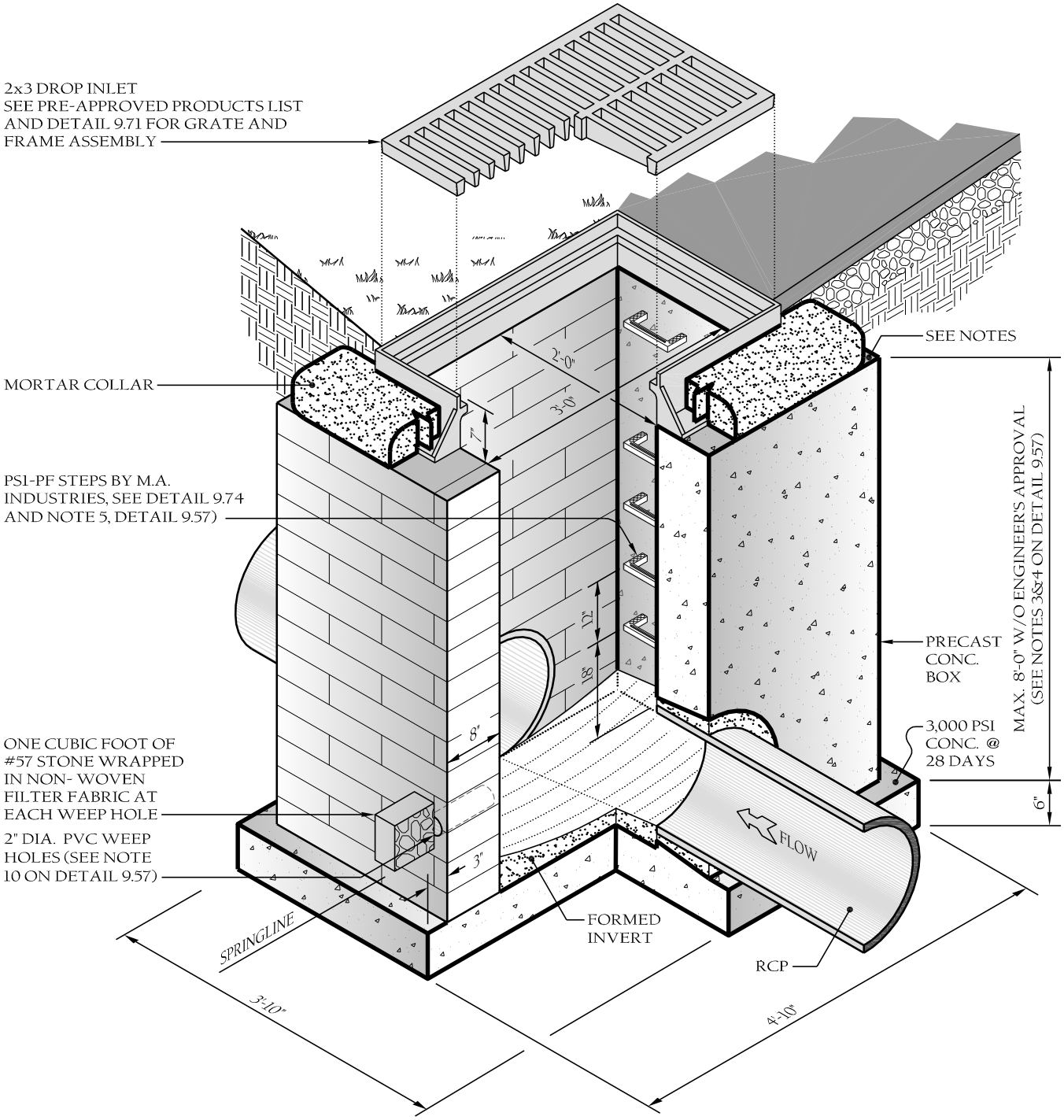

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STANDARD 2x3 CATCH BASIN

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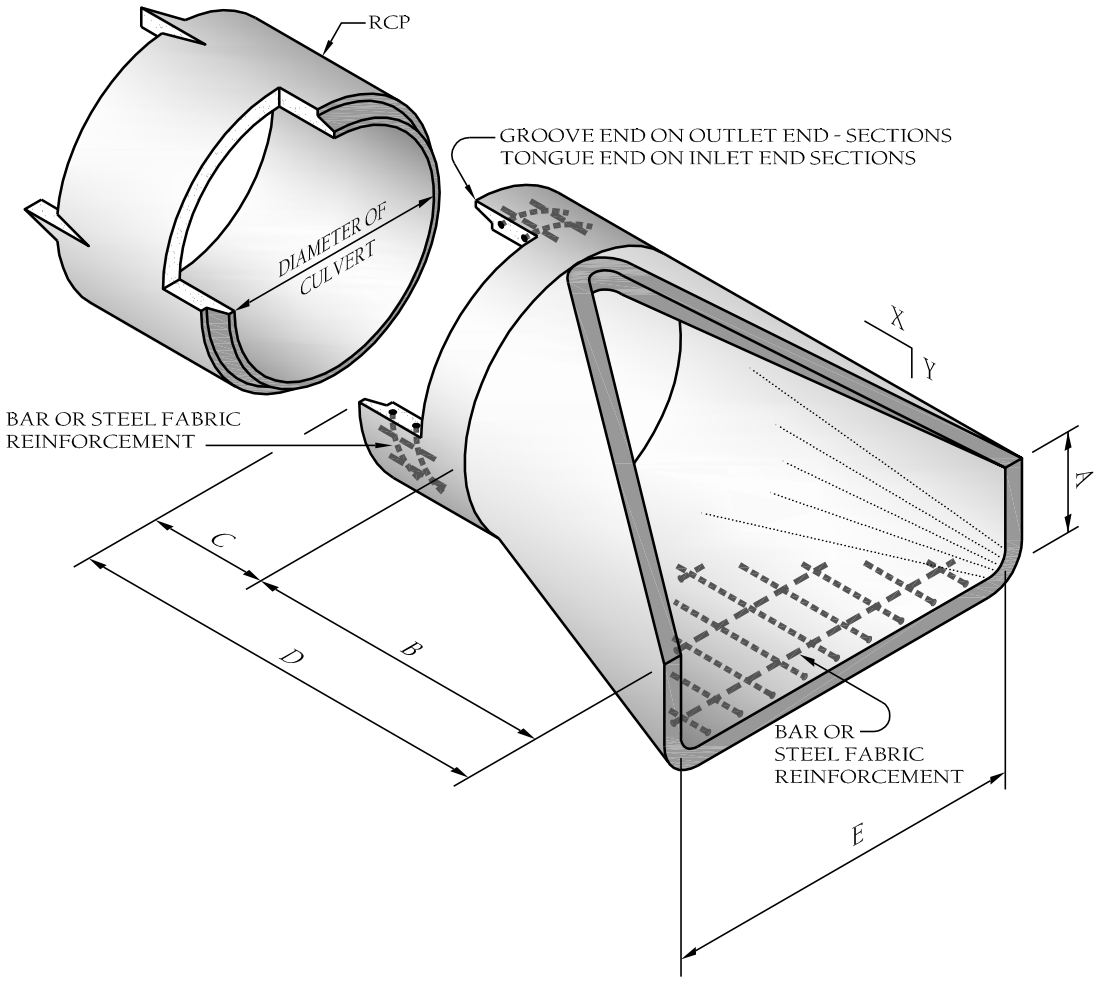
END SECTION DIMENSIONS						
DIA.	A	B	C	D	E	X:Y
15"	6"	2'-3"	3'-10"	6'-1"	2'-8:	2.4:1
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"	2.4:1
24"	10"	3'-8"	2'-6"	6'-2"	4'-0"	2.3:1
30"	1'-0"	4'-6"	1'-8"	6'-2"	5'-0"	2.5:1
36"	1'-3"	5'-3"	2'-11"	8'-2"	6'-0"	2.5:1
42"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	2.5:1



NOTES:

1. *Design Of End-section Shall Conform To Standard Reinforced Sectional Concrete Culvert Pipe.*
2. *Any Twin Barrel System Greater Than 42" Rcp Requires a headwall.*
3. *Any System Of More Than 2 Pipes Requires a headwall.*
4. *See NCDOT "Roadway Standard Drawings" for headwall construction details.*
5. *See Erosion & Sedimentation Manual for dissipation pad design requirements.*

TOWN of WAKE FOREST

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STD. FLARED END SECTIONS DESIGN AID DETAIL

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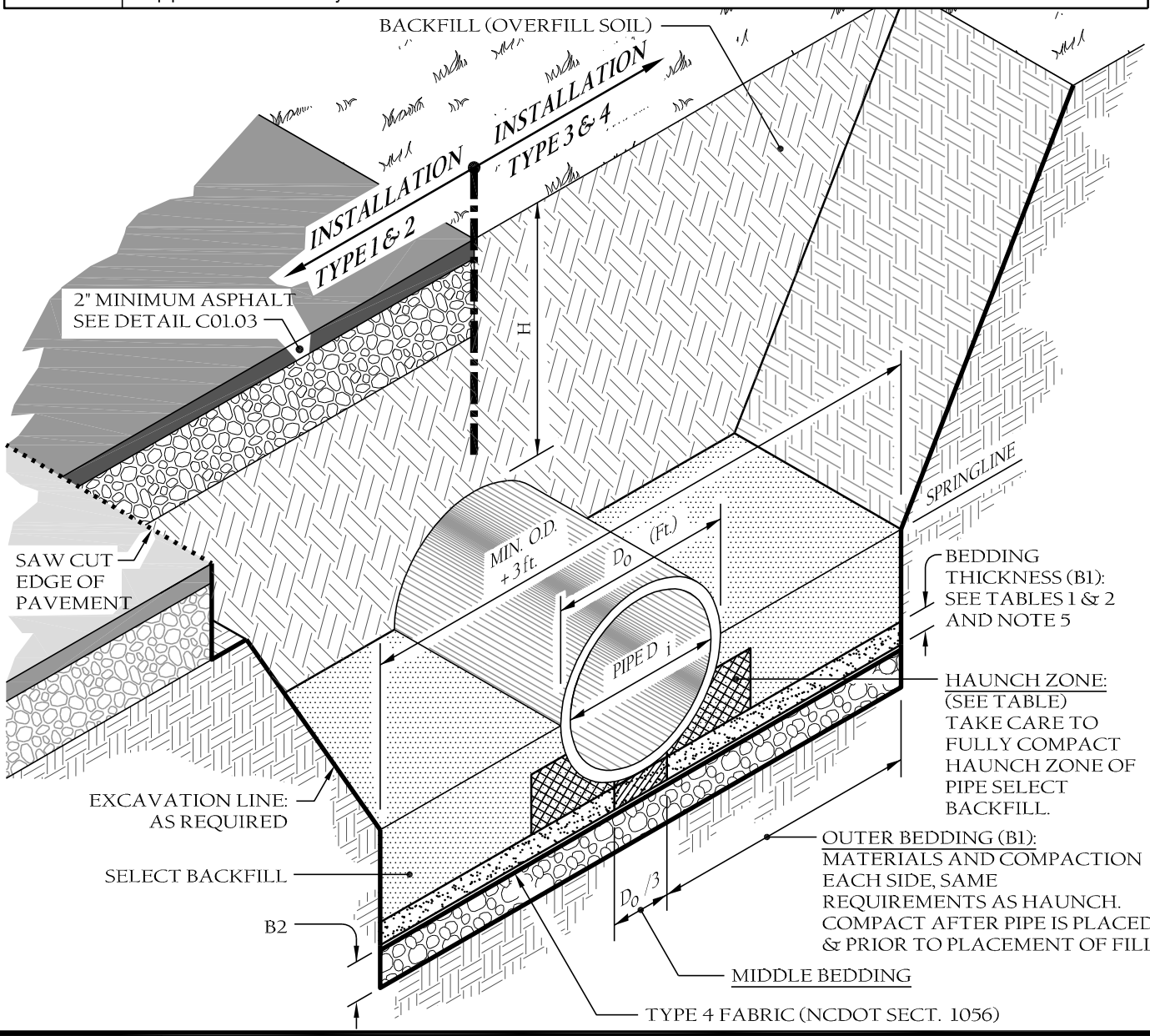
H=	The fill height measured vertically at any point along the pipe from the top of the pipe to the top of the embankment at that point. Do not operate heavy equipment over any pipe culvert until the pipe culvert has been properly backfilled and covered with at least 3 feet of approved material.
	Undisturbed earth material
	Bedding (Middle and Outer): Loosely placed select backfill material meeting NCDOT Class **II**, Type 1 (washed or unwashed crushed stone screenings) or Class **III**, Type 1 (NCDOT 2S or 2MS fine aggregate). Leave section directly beneath pipe uncompacted as pipe seating and backfill will accomplish compaction.
	Select Backfill (Below springline): Select backfill material meeting NCDOT Class **II**, Types 1 or 2 or NCDOT Class **III**, Types 1 or 2.
	Backfill: Approved suitable local compactable material above springline of pipe meeting Town of Wake Forest specifications.
	Rock Foundation or Unsuitable Material Foundation: Select material NCDOT Class V (#78M stone) or NCDOT Class VI (#57 stone) for foundation conditioning. Encapsulate with engineering fabric as directed by the Engineer; Type 4 soil stabilization fabric (NCDOT Table 1056-1). Overlap all transverse and longitudinal joints in fabric at least 18 inches. Maintain the pipe foundation in a dry condition.



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STORM DRAIN PIPE INSTALLATION

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Table 1
Equivalent USCS[a] and AASHTO Soil Classifications for SIDD[b] Soil Designations

SIDD	USCS	NCDOT/AASHTO
Gravelly Sand (Category I)	SW, SP, GW, GP	- NCDOT Class II-Type I (crushed stone screenings), LL < 30; PI ≤ 6. - NCDOT Class III, Type 1 (2S or 2MS), LL < 30; PI ≤ 6.
Sandy Silt (Category II)	GM, SM, Also GC, SC with less than 20% passing #200 sieve	- NCDOT Class II Type 1 (crushed stone screenings) and Class II, Type 2 (AASHTO M145 for A-2-4 with maximum PI of 6, A-4 w/ max 45% passing No. 200 Sieve and a maximum PI of 6) - NCDOT Class III, Type 1 (2S or 2MS) or Class III, Type 2 (AASHTO M145 for soil classification A-1 or A-3)
Silty Clay (Category III)	CL, MH, GC, SC	A5, A6

[a] Unified Soil Classification System
[b] Standard Installations Direct Design

Table 2
Standard Installations Soils and Minimum Compaction Requirements

Installation Type	Bedding Thickness	Outer Bedding (B1) Note 5 (% compaction/Category)	Haunch Zone & Select Backfill Area (% compaction/Category)	Location
Type 1	B1 = Di/6 (6" min) B2 = If Rock foundation or over unsuitable foundation, ½"/ft of 'H', 12" min/24" max	95% Category I	90% Category I, 95% Category II	Paved Areas with 2' or less bury
Type 2	B1 = Di/6 (6" min) B2 = If Rock foundation or over unsuitable foundation, ½"/ft of 'H', 12" min/24" max	90% Category I	85% Category I, 90% Category II	Paved Areas with greater than 2' of bury
Type 3	B1 = Di/6 (6" min) B2 = If Rock foundation or over unsuitable foundation, ½"/ft of 'H', 12" min/24" max	85% Category I 90% Category II	85% Category I, 90% Category II, or 95% Category III	In R/W outside of Pavement
Type 4	B1 = Di/6 (6" min) B2 = If Rock foundation or over unsuitable foundation, ½"/ft of 'H', 12" min/24" max	No Compaction required, except if Category III, use 85% Category III	No Compaction required, except if Category III, use 85% Category III	Natural Areas

NOTES:

1. *Compaction and soil symbols - i.e. "95% Category I" - refers to Category I soil material with minimum standard Proctor compaction of 95%.*
2. *Soil in the outer bedding, haunch, and lower side zones, except under the middle 1/3 of the pipe, shall be compacted to at least the same compaction as the majority of the soil in the overfill (backfill) zone.*
3. *For trenches, the top elevation shall be no lower than 0.1H below finished grade or, for roadways, its top shall be no lower than an elevation of 1-foot below the bottom of the pavement base material.*
4. *For trenches, the width shall be wider than shown if required for adequate space to attain the specified compaction in the haunch and bedding zones.*
5. *Compact outer bedding after pipe is placed and prior to placement of select fill. Middle bedding is uncompacted.*
6. *Overfill (Backfill) soils to be placed per standard specification 02700 Storm Drainage for the applicable backfill type and bury limitations.*
7. *These two tables were excerpted from Design Data 9 and modified to generally conform to the NCDOT Standards as shown in Detail 300.01, Rigid Pipe in Trench Condition.*

Reference Sources:

1. *ACPA Design Data 9 [April, 2009] (formerly Design Data 40).*
2. *2012 NCDOT Standard Specifications for Roads and Structures and NCDOT Standard Details 300.01 for Rigid Pipe, "Trench Condition."*

Fill Height Table[a]				
	Type 3 (Bedding) Installation (0.01 Inch Crack)		Type 4 (Bedding) Installation (0.01 Inch Crack)	
Inside Pipe Diameter D_i (inches)	Class III Pipe Maximum Bury H (feet)	Class IV Pipe Maximum Bury H (feet)	Class III Pipe Maximum Bury H (feet)	Class IV Pipe Maximum Bury H (feet)
15	2 min, 12 max	1 min, 20 max	3 min, 7 max	2 min, 12 max
18	2 min, 12 max	1 min, 20 max	3 min, 7 max	1 min, 13 max
24	1 min, 12 max	1 min, 20 max	2 min, 8 max	1 min, 13 max
30	1 min, 12 max	1 min, 20 max	1 min, 8 max	1 min, 13 max
36	1 min, 12 max	1 min, 20 max	1 min, 8 max	1 min, 13 max
42	1 min, 12 max	1 min, 20 max	1 min, 8 max	1 min, 13 max
48	1 min, 12 max	1 min, 19 max	1 min, 8 max	1 min, 13 max
54	1 min, 12 max	1 min, 19 max	1 min, 8 max	1 min, 13 max
60	1 min, 12 max	1 min, 19 max	1 min, 8 max	1 min, 13 max
72	1 min, 11 max	1 min, 19 max	1 min, 7 max	1 min, 13 max

Fill Height Tables Based On:

1. Ys= 120 pcf (backfill load)
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition (this gives conservative results in comparison to trench conditions).
4. Pipe = Reinforced Concrete Pipe meeting ASTM C76 (AASHTO M170), wall C thickness.
5. Concrete pipe should be installed in accordance with AASHTO LRFD Bridge Construction Specifications, Section 27 or ASTM C1479.

[a]Fill Height Tables, the portion excerpted here, was developed by the American Concrete Pipe Association (ACPA) using the indirect design method in accordance with Section 12.10.4.3 of the AASHTO LRFD Bridge Design Specification, 4th Edition, 2007 with 2008 Interim.

NOTES:

1. *Greater bury depths than those shown above are achievable by either using Type 1 or 2 Installation, using Class V pipe, controlling backfill type, calculating depth using a trench condition, or by Special Design. See also Design Data 9 published by the ACPA for design methodology.*
2. *In lieu of calculating bury depth for other conditions, first see "LRFD Fill Height Tables for Concrete Pipe", last revised July 2009 (or later), prepared by the ACPA for other bury depth possibilities.*

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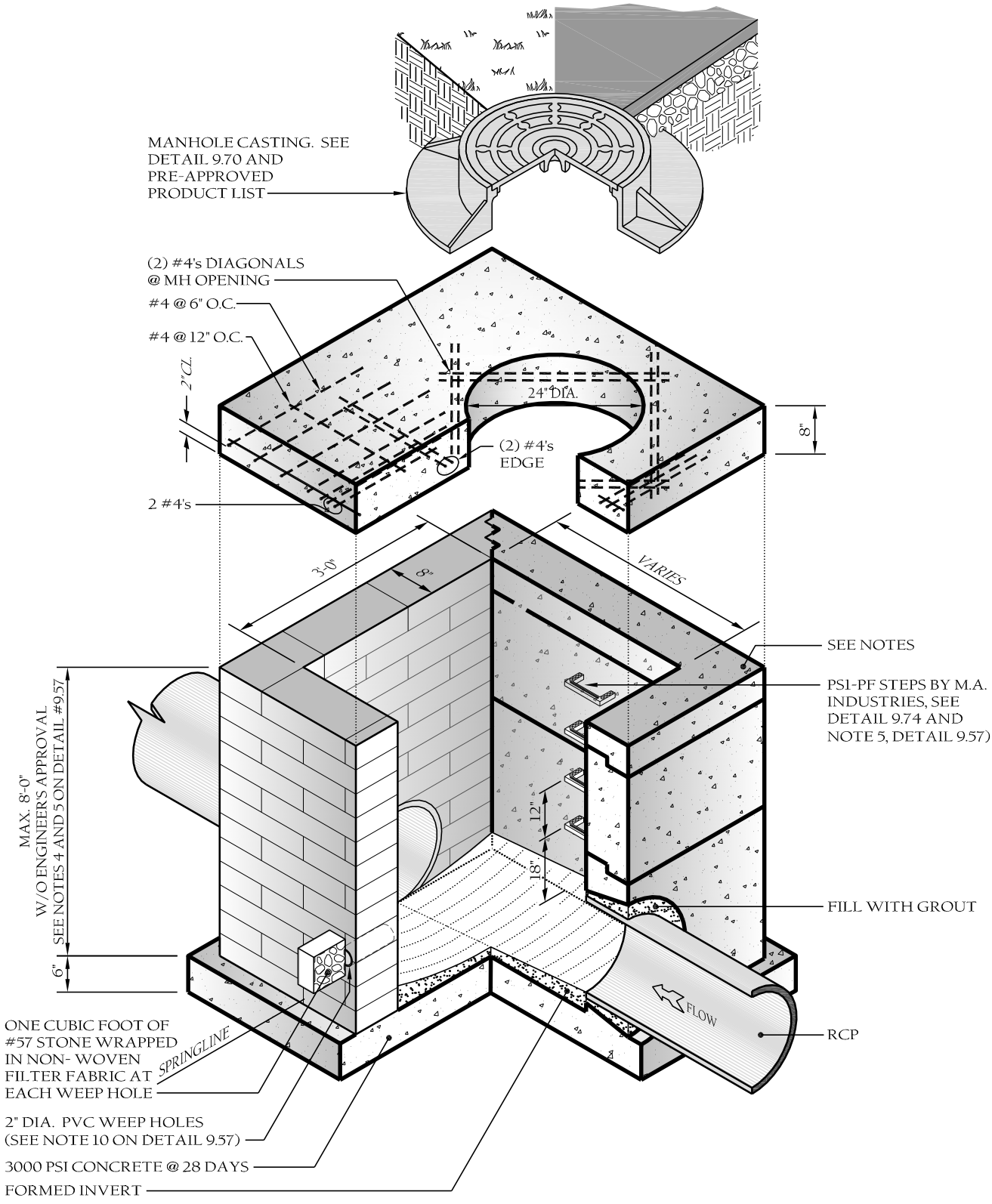

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STD. M.H. J.B. VARIABLE LENGTH

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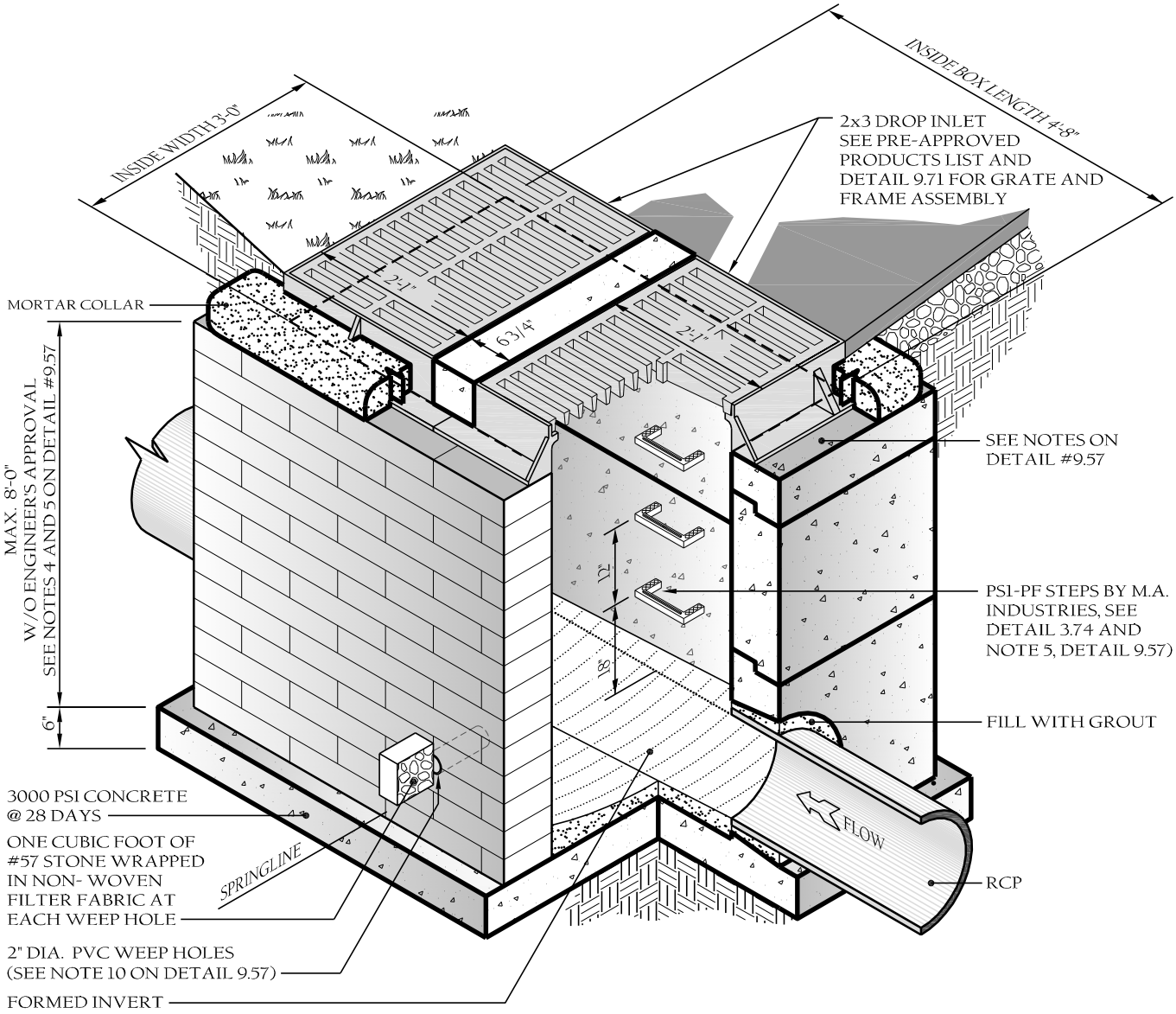

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STD. MULTIPLE 2' x 3' CATCH BASIN DETAIL

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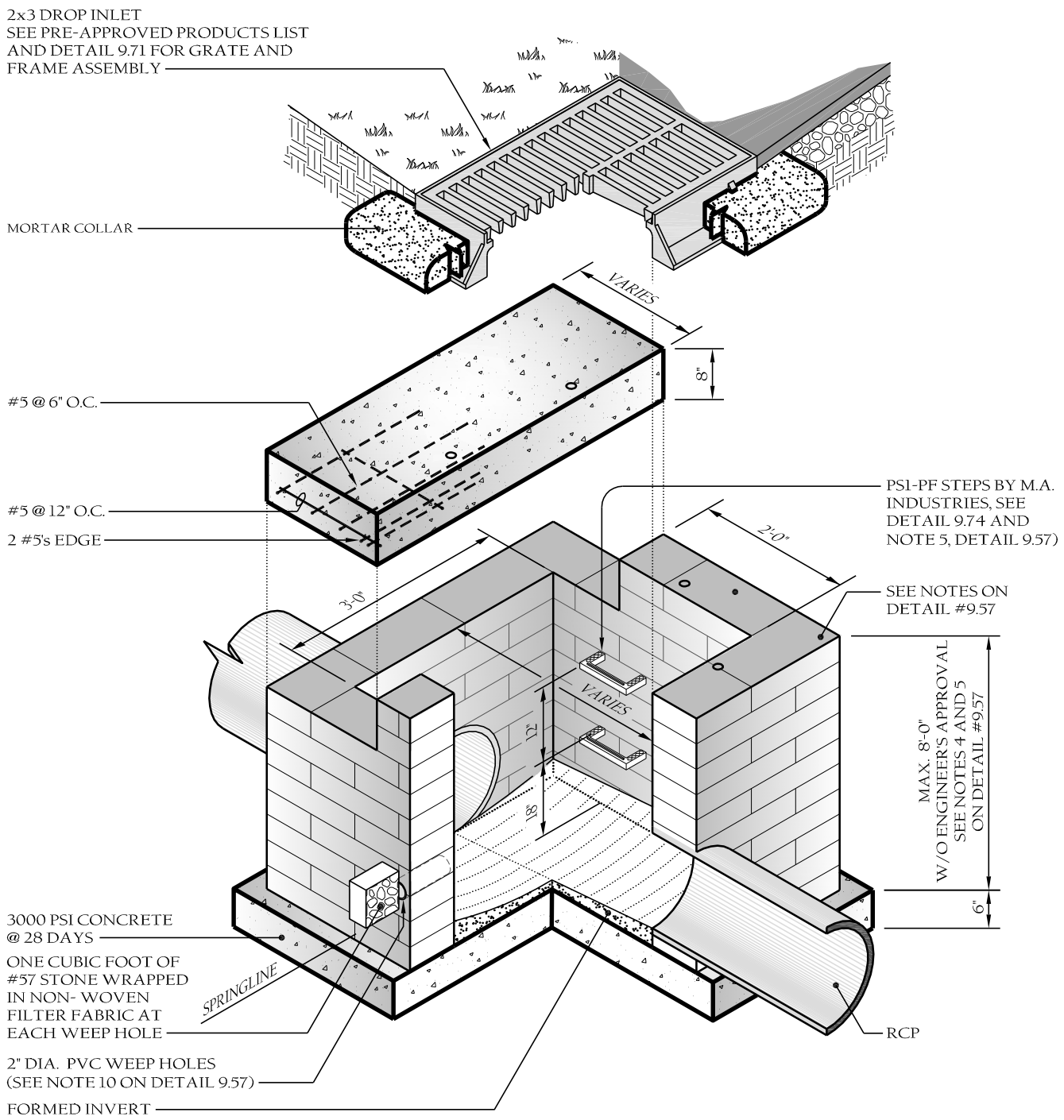

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STD. 3' x VARIABLE LENGTH BRICK BOX WITH 2' x 3' CATCH BASIN

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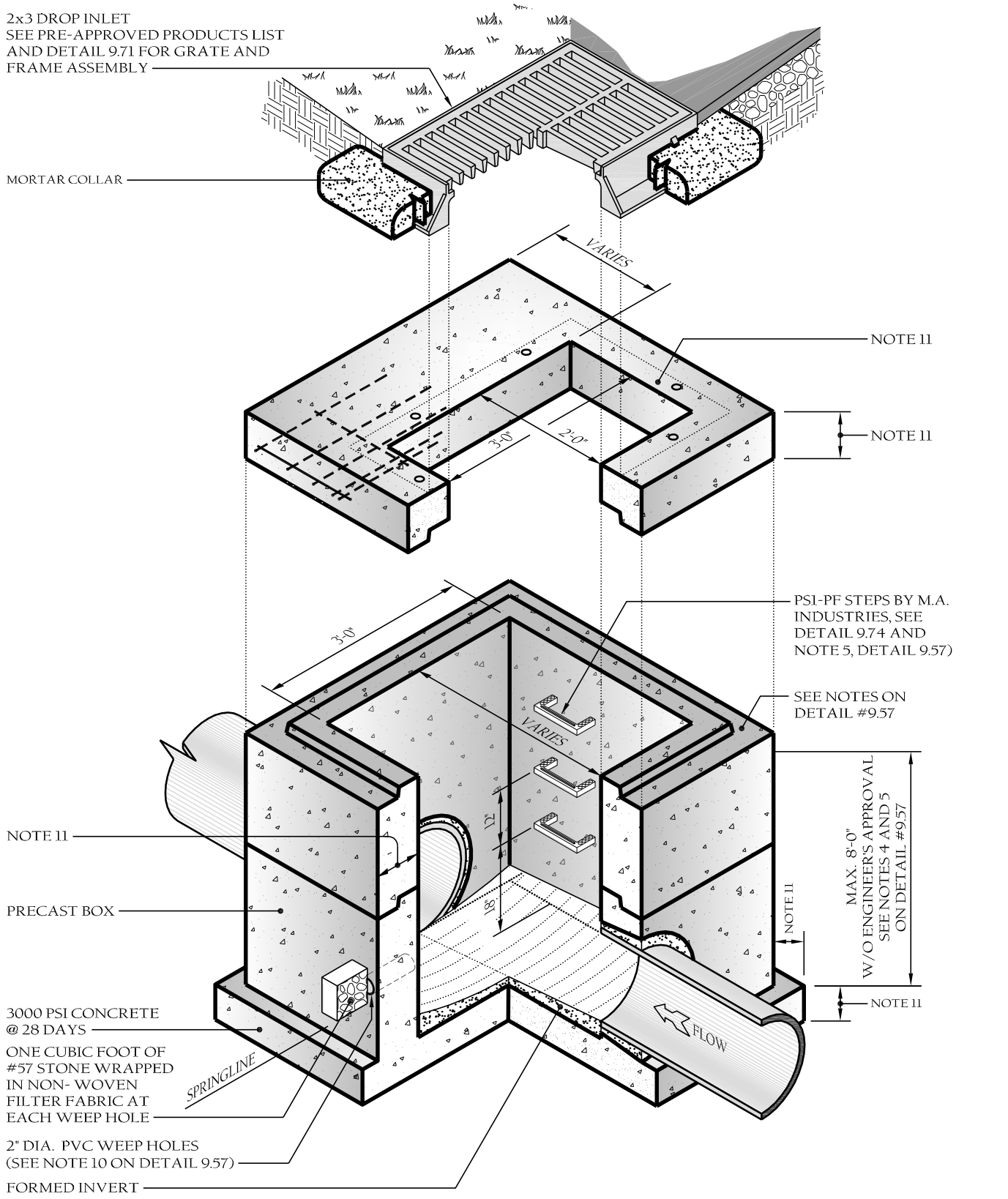

TOWN of WAKE FOREST

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STD. 3' x VARIABLE LENGTH PRECAST BOX WITH 2' x 3' CATCH BASIN

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Notes:

Drainage Structures Notes.

1. *Boxes may be reinforced masonry, masonry, precast concrete or cast-in-place reinforced concrete.*
2. *Any non-standard box (non-standard meaning not shown in this manual), is to be designed by a NC Professional Engineer.*
3. *The maximum height of an unreinforced masonry drainage structure with 8" walls shall be limited to 8'-0" from invert of the outlet pipe to the top of the iron casting. Depths greater than 8'-0" shall have walls 12" thick. Basins over 12' in total depth shall be designed by a NC Professional Engineer. Four inch walls are not allowed on drainage structures. Bottom slab on structures shall be reinforced when box depth exceeds 8 ft. The maximum horizontal span of an unreinforced brick/block box at 8' deep without engineering, = 5'-0" clear (K_0=0.66, EFP=65 psf silty/clayey sand).*
4. *Steps are to be provided on all basins deeper than 42".*
5. *Steps are to be PS1-PF as manufactured by M. A. Industries or an approved equal. Locate on non-pipe walls. See detail 9.74.*
6. *Mortar in masonry boxes is to be type M.*
7. *Clay brick structures are not allowed.*
8. *Concrete pipe is to be minimum class III.*
9. *Concrete building brick is to meet ASTM C-90 for Type II. Solid concrete block to be used in lieu of clay brick for minor drainage structure and manholes to meet ASTM C139.*
10. *Basin located in wet areas, or as otherwise required by the town engineer, shall have weep holes as shown on details.*
11. *All cast-in-place or precast concrete drainage structures located in paved areas accessible to truck loadings to be designed to meet AASHTO HS 20-44 loading. See manufacturers details for wall, top and bottom thickness.*
12. *Place minimum 6" #57 stone bedding beneath precast structures.*

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DRAINAGE STRUCTURE NOTES

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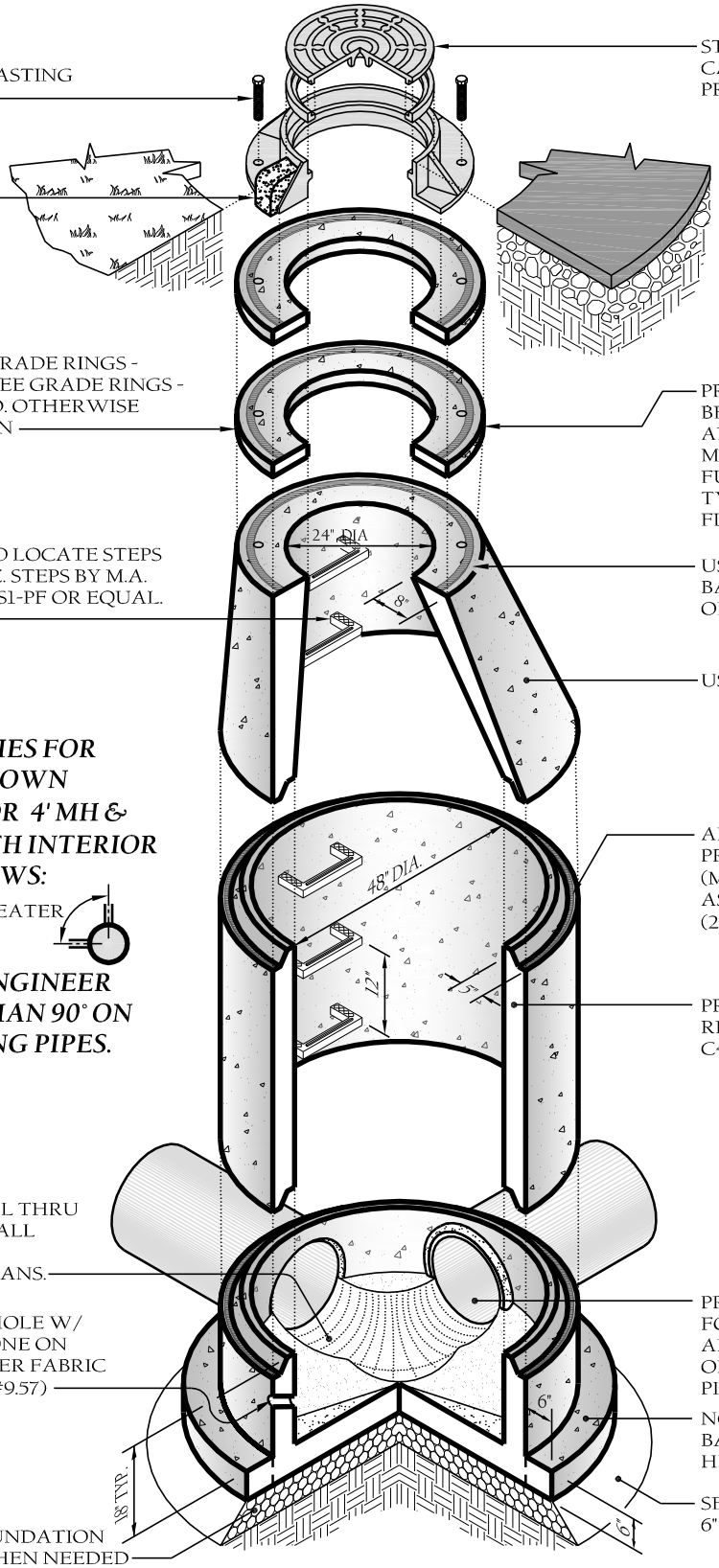

NOTE:

THIS DETAIL APPLIES FOR LARGEST PIPES SHOWN BELOW (I.E.: 30" FOR 4' MH & 42" FOR 5' MH) WITH INTERIOR ANGLES AS FOLLOWS:

90° OR GREATER

CONSULT WITH ENGINEER IF ANGLES LESS THAN 90° ON TWO INTERSECTING PIPES. SEE DETAIL 9.75.

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PRECAST CONCRETE 4' DIA. MH JB

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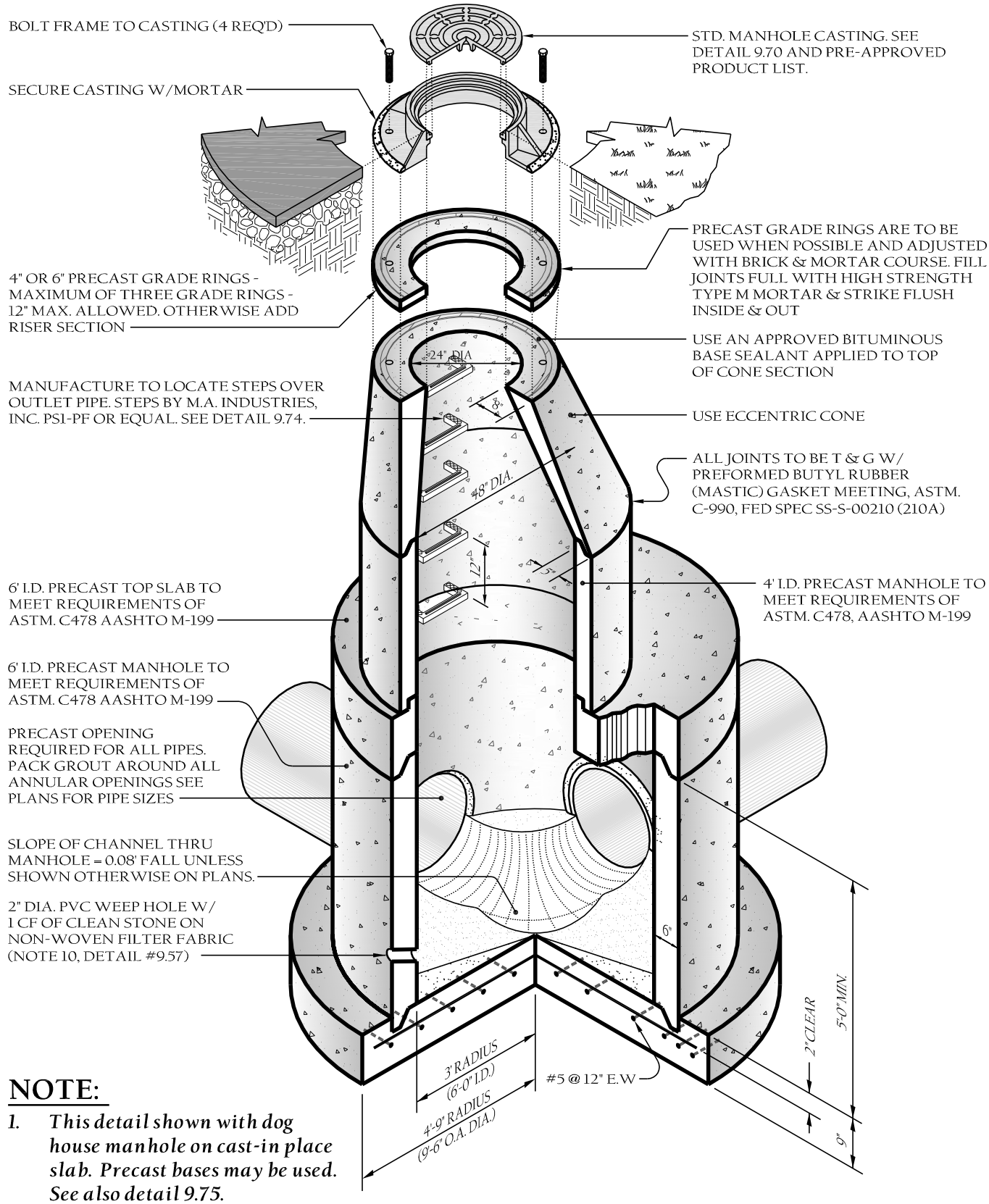

NOTE:

1. *This detail shown with dog house manhole on cast-in place slab. Precast bases may be used. See also detail 9.75.*

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PRECAST CONCRETE 6' TO 4' DIA. MH JB

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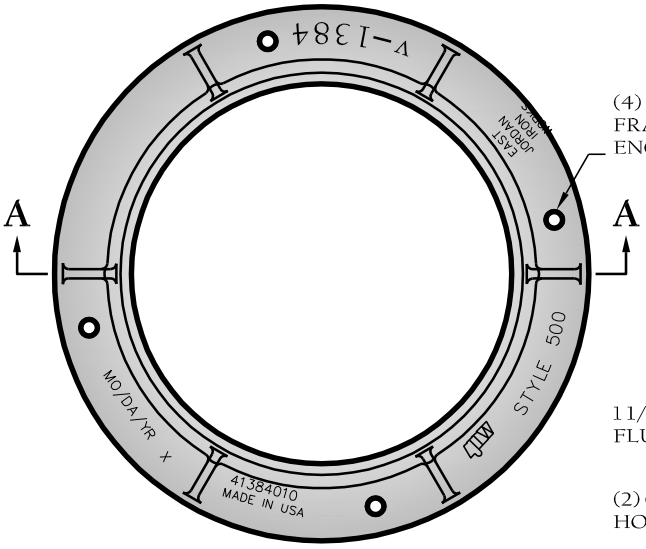
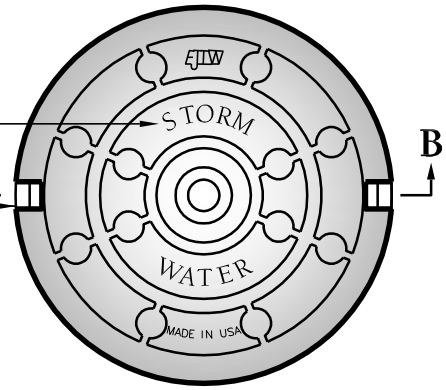


(4) 1" DIA. ANCHOR BOLT. HOLES EQUALLY SPACED. BOLT FRAME TO CONE SECTION WHEN ORDERED BY CITY ENGINEER OR WATER RESOURCES.

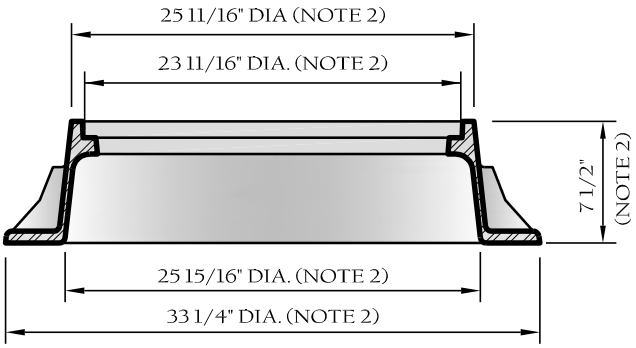
FRAME TOP

1 1/4" LETTERS (RECESSED FLUSH

(2) CLOSED PICK HOLES

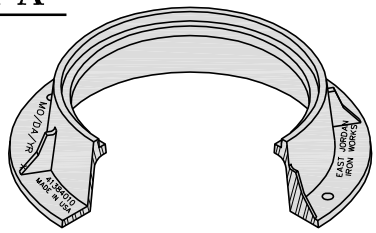


COVER FACE

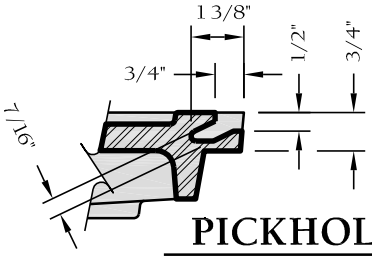


FRAME SECTION A-A

COVER SECTION B-B



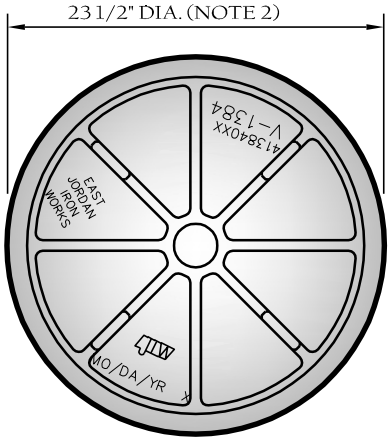
ISOMETRICS



PICKHOLE

APPROVED MODELS	EAST JORDON V-1384 *
COVER WEIGHT	128 Lbs.
FRAME WEIGHT	153 Lbs.
LOAD RATING	HEAVY DUTY
MATERIAL	ASTM A 48 CLASS 35B
FINISH	UN COATED

* EJIW OR APPROVED EQUAL
SEE PRE-APPROVED PRODUCTS LIST



COVER BACK

NOTES:

1. *Frame & Cover weight may not deviate by more than -5.0%.*
2. *Iron casting to comply with AASHTO M306.*

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STANDARD MANHOLE CASTING STORM DRAINAGE STRUCTURES

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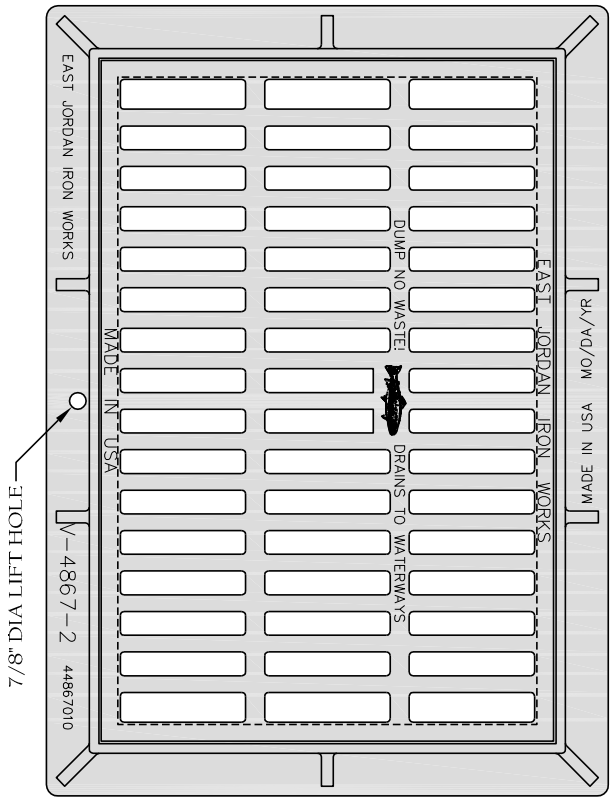
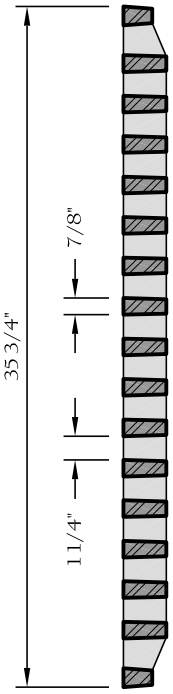
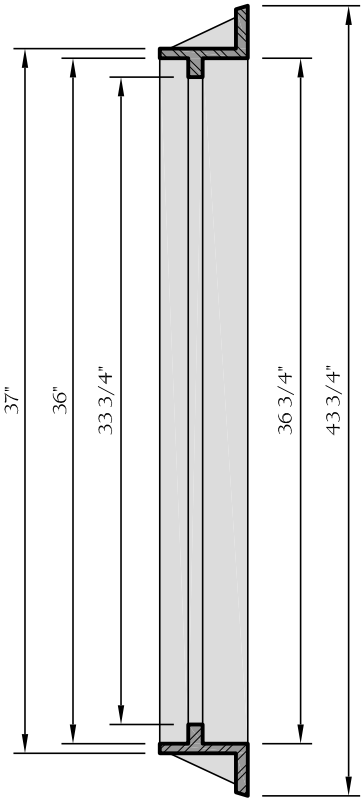
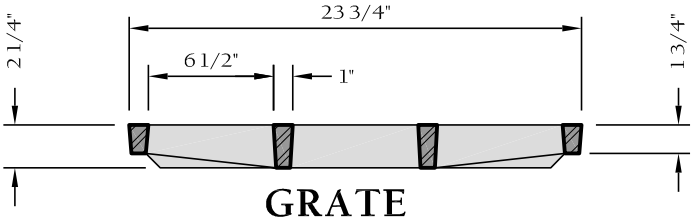




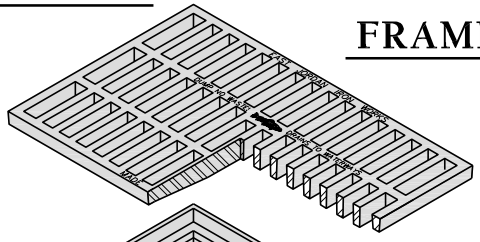
GRATE



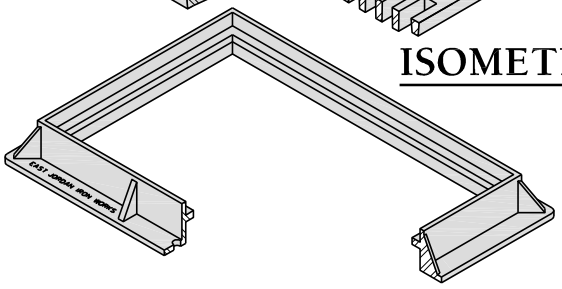
FRAME

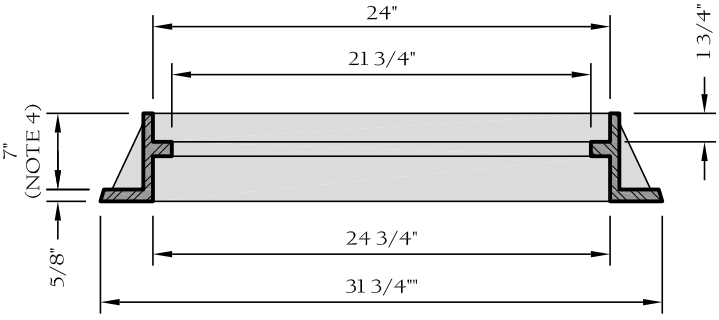


GRATE



ISOMETRIC





FRAME

APPROVED MODELS	EAST JORDON V-4867-2 *
GRATE WEIGHT	190 Lbs.
FRAME WEIGHT	159 Lbs.
LOAD RATING	HEAVY DUTY
MATERIAL	ASTM A 48 CLASS 35B
FINISH	UNDIPPED

* EJIW OR APPROVED EQUAL. SEE PRE-APPROVED PRODUCT LIST

NOTES:

1. *Frame & Cover weight may not deviate by more than -5.0%.*
2. *Iron casting to comply with AASHTO M306.*
3. *Net open area = 390 Sq. In.*
4. *For a 4" high frame, Use EJIW V-5660 or approved equal.*

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STANDARD CATCH BASIN ASSEMBLY FRAME & GRATE

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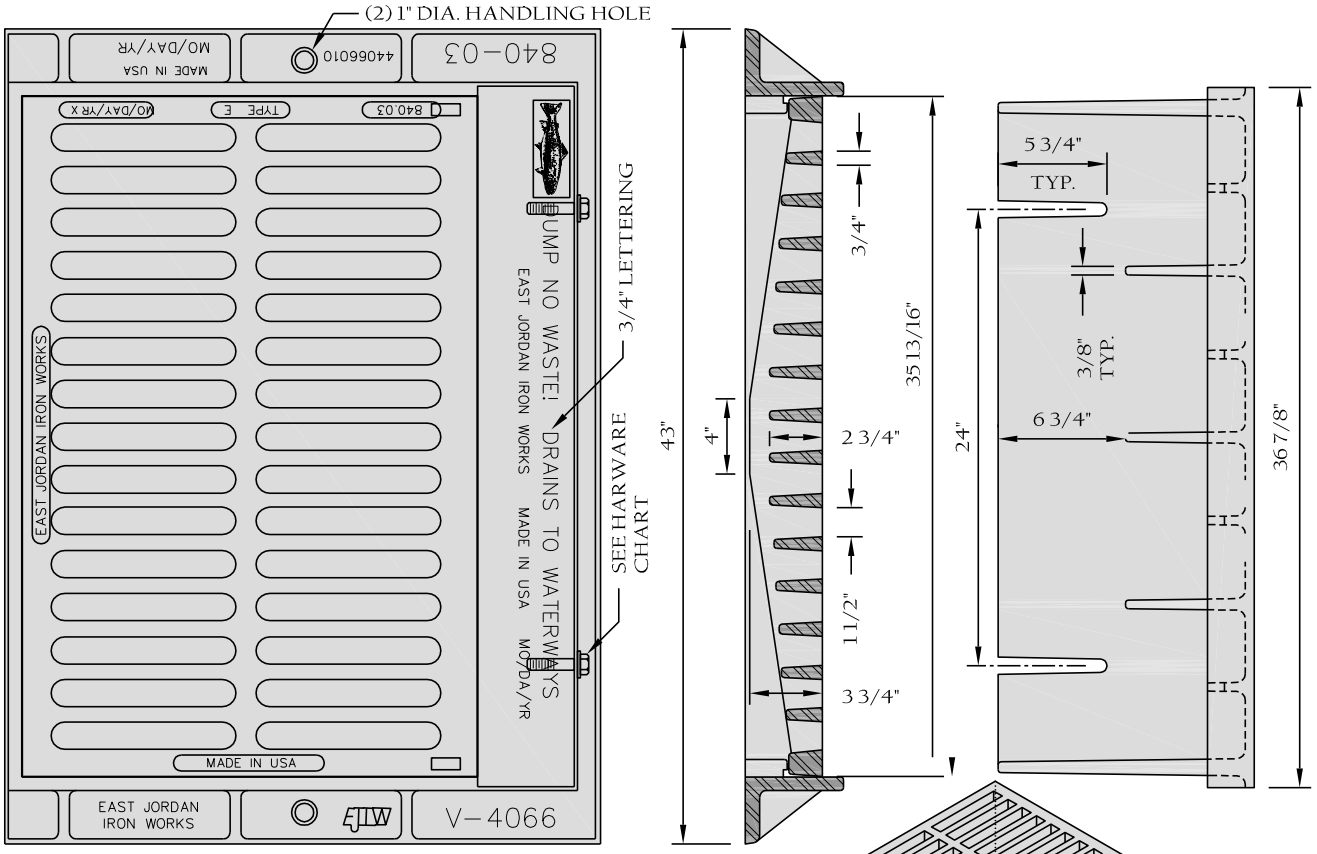
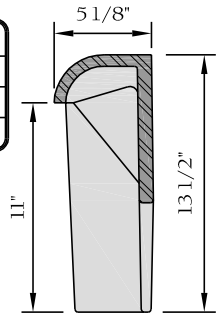
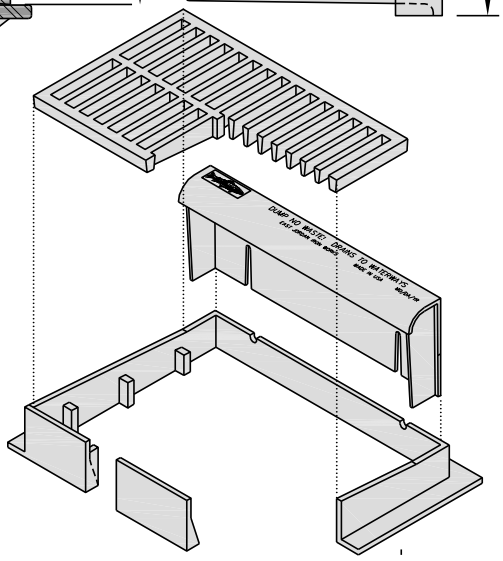
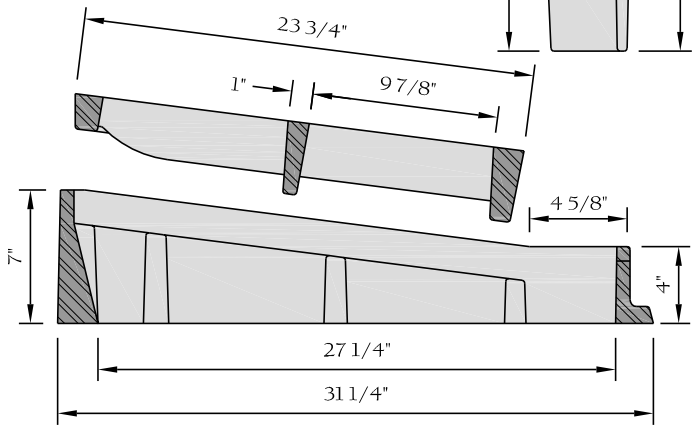


HARDWARE CHART:
(2) 00981234 BLT HX 5/8-11x2.5 ZN2
(2) 00981290 NUT HX 5/8-11 ZN
(4) 00981291 WSHR 5/8 ID 1.75 OD ZN







APPROVED MODELS	EAST JORDON V-4066-1 *
GRATE WEIGHT	218 Lbs.
FRAME WEIGHT	215 Lbs.
BACK WEIGHT	140 Lbs.
LOAD RATING	HEAVY DUTY
MATERIAL	ASTM A 48 CLASS 35B
FINISH	UNDIPPED

* EJIW OR APPROVED EQUAL. SEE PRE-APPROVED PRODUCT LIST.

NOTES:

1. *Frame & Cover weight may not deviate by more than -5.0%.*
2. *Iron casting to comply with AASHTO M306.*

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STANDARD COMBINATION FRAME, HOOD & GRATE (NCDOT 840.03)

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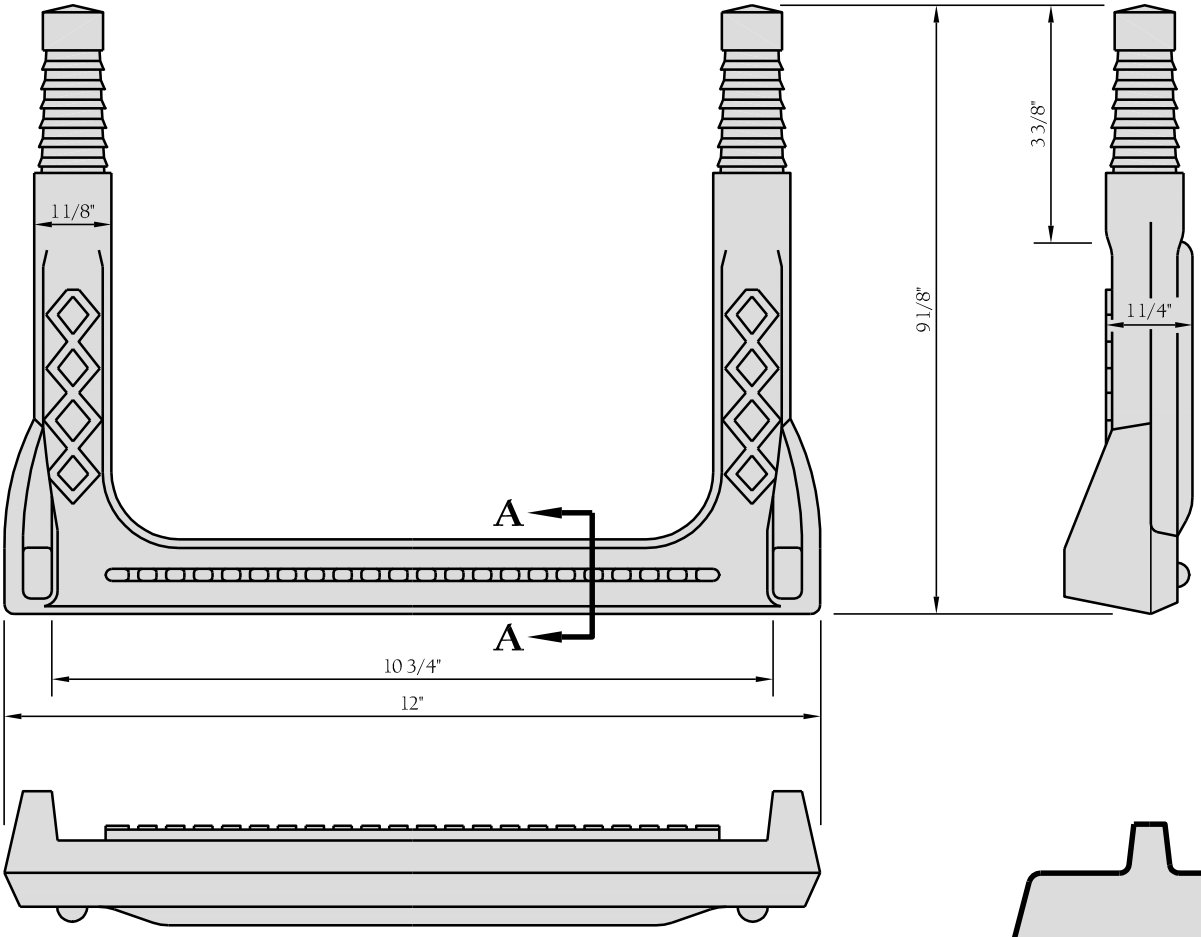
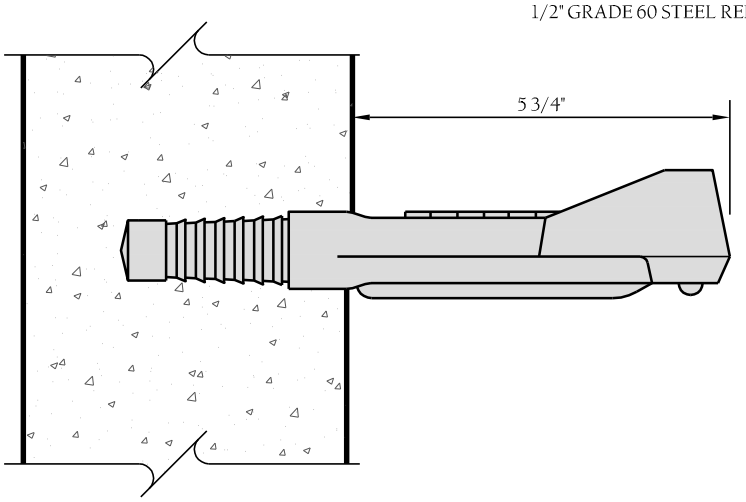
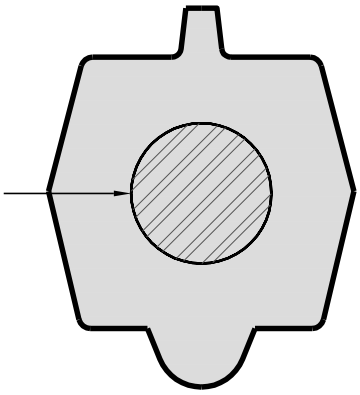


COPOLYMER POLYPROPYLENE PLASTIC
1/2" GRADE 60 STEEL REINFORCEMENT





SECTION A-A

NOTES:

1. *Step shown is PS1-PF BY M.A. Industries Inc. Peachtree City, GA. Alternate may be used if approved by town.*

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MANHOLE STEP DETAIL

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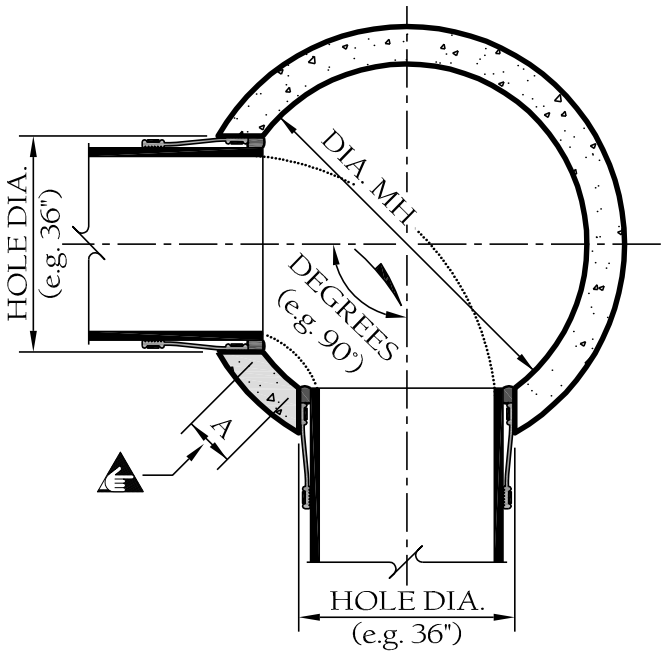
To calculate the closest possible distance between two holes (openings) on the same horizontal centerline, use the following formula:

A = Distance between holes (in degrees)
B = Angle between centerline of pipes
C = Degrees for hole number one from chart below
D = Degrees for hole number two from chart below



If A < 0, the openings are overlapping
If A > 0, A = the distance between holes (in degrees)

4' DIA:

A = 90 - 1/2(95+95) = 90 - 95 = -5, *Holes too close*

5' DIA:

A = 90 - 1/2(75+75) = 90 - 75 = 15, *O.K. for 5' dia.*

There are 15° of angle between holes which is 7 7/8".

4' Dia. MH	
Hole Dia.	Degrees
12"	28°
12"	28°
18"	45°
24"	60°
30"	76°
36"	95°

5' Dia. MH	
Hole Dia.	Degrees
12"	22°
18"	35°
24"	48°
30"	62.6°
36"	75°
40"	82°
48"	108°

6' Dia. MH	
Hole Dia.	Degrees
12"	20°
16"	25°
20"	32°
24"	38°
36"	60°
40"	65°
43"	70°
48"	84°
55"	98°
63"	125°

8' Dia. MH	
Hole Dia.	Degrees
12"	15°
18"	22°
24"	28°
36"	44°
40"	48°
42"	52°
48"	60°
55"	68°
60"	80°
70"	90°
78"	108°

10' Dia. MH	
Hole Dia.	Degrees
12"	12°
18"	18°
24"	24°
36"	36°
40"	38°
48"	46°
55"	55°
62"	62°
70"	70°
78"	80°

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC
Manual of Specifications, Standards and Design

DISTANCE BETWEEN TWO HOLES (OPENINGS) FORMULA

Scale: Not To Scale
Detail #: 9.75
Revision Date: Feb., 2015
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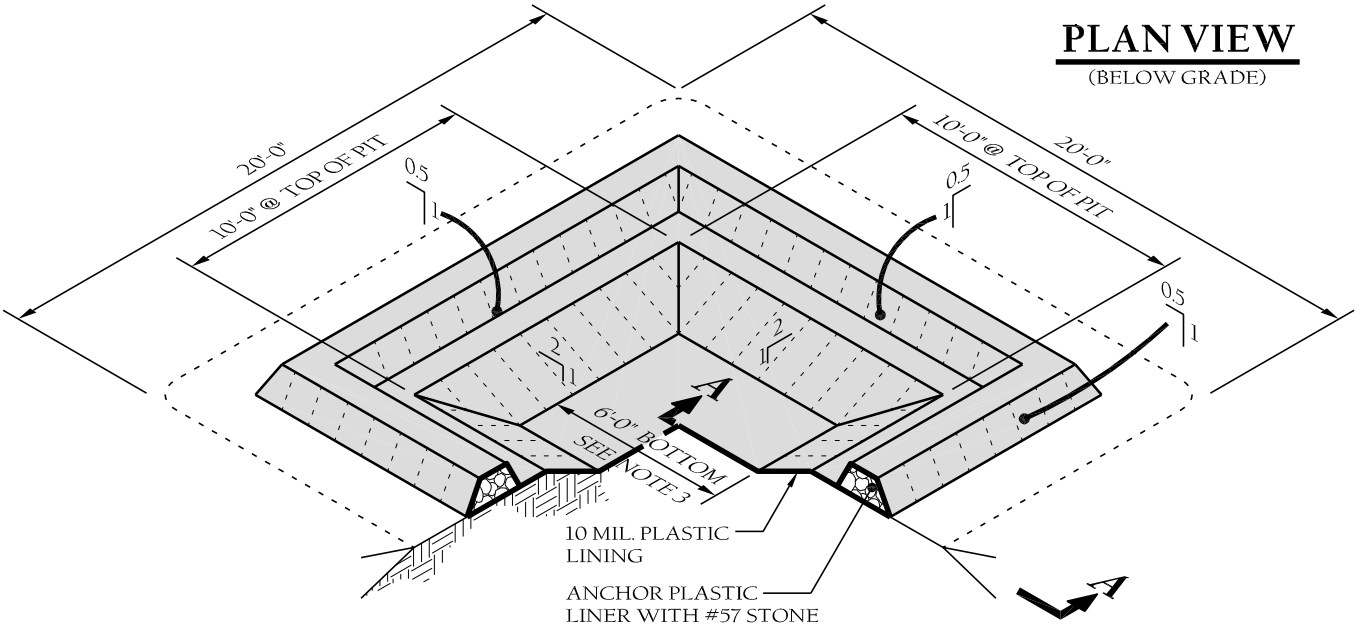
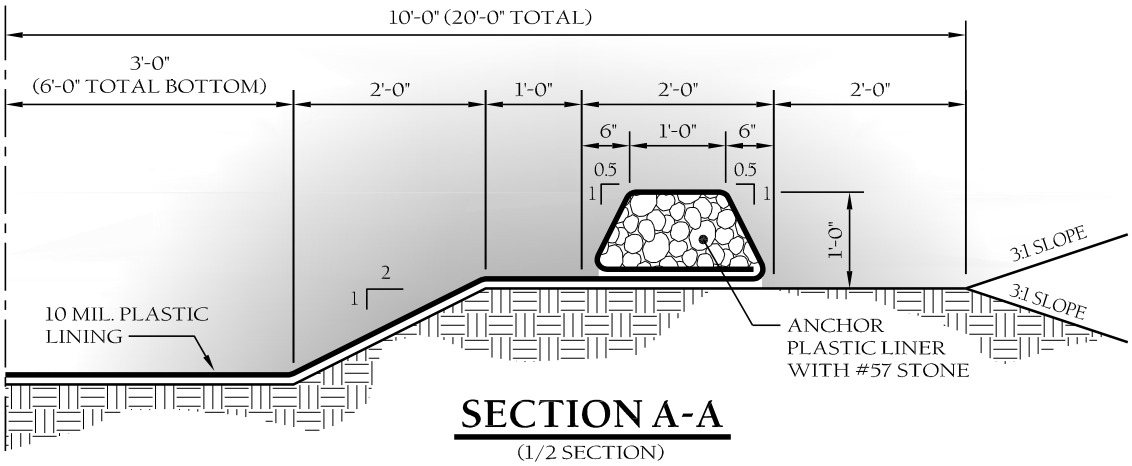
PLAN VIEW
(BELOW GRADE)





SECTION A-A
(1/2 SECTION)

EXCAVATED PIT WITH STONE SUPPORT
NOT TO SCALE

STONE SUPPORT NOTES:

1. Actual layout to be determined in field.
2. The "concrete washout" sign shall be installed within 30 ft of the temporary concrete washout facility.
3. Pit capacity is minimum of 6 cu ft per 10 cu yd of concrete.
4. Contractor to coordinate with usage contracting officer for proper disposal of concrete.

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC
Manual of Specifications, Standards and Design

CONCRETE WASHOUT PIT DETAIL

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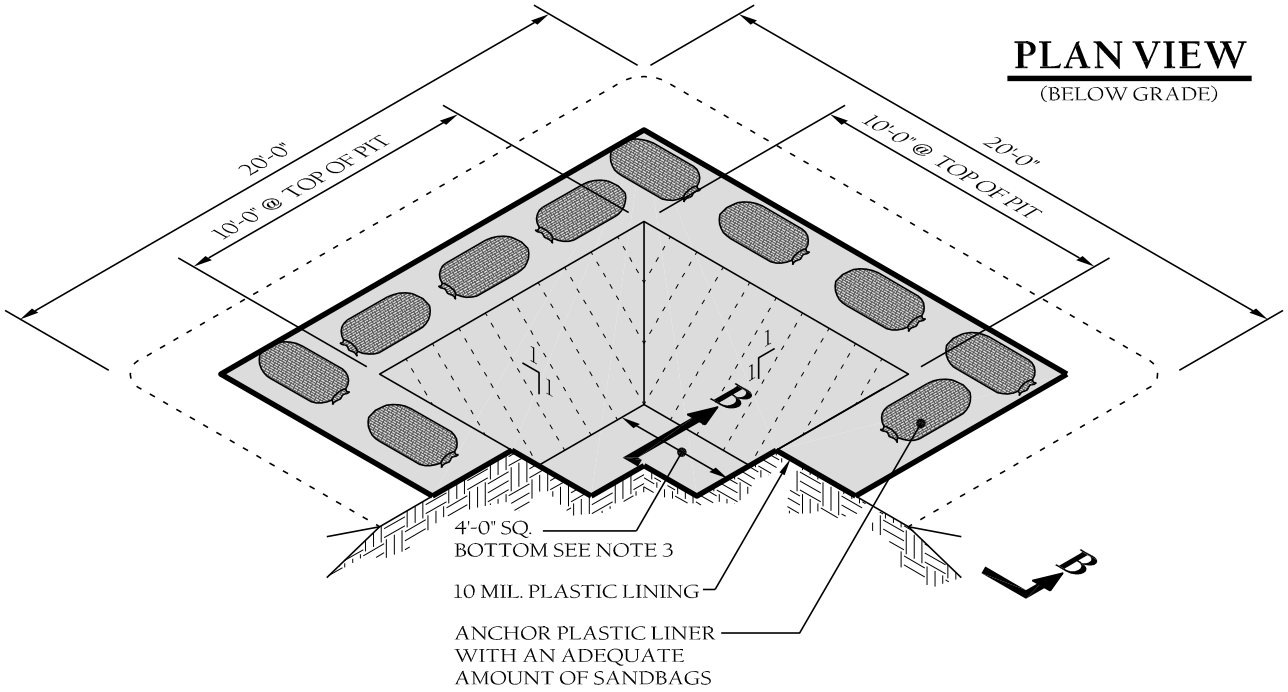

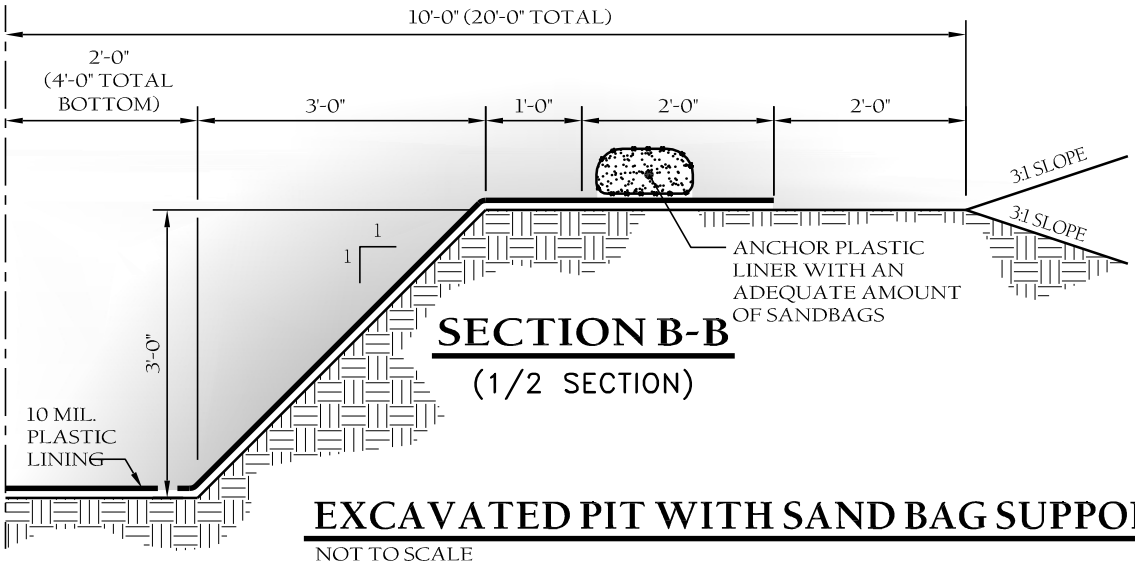

EXCAVATED PIT WITH SAND BAG SUPPORT

NOT TO SCALE

SAND BAG SUPPORT NOTES:

1. Actual layout to be determined in field.
2. The "concrete washout" sign shall be installed within 30 ft of the temporary concrete washout facility.
3. Pit capacity is minimum of 6 cu ft per 10 cu yd of concrete.
4. Contractor to coordinate with usage contracting officer for proper disposal of concrete.

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

CONCRETE WASHOUT PIT DETAIL

Scale:	Detail #:
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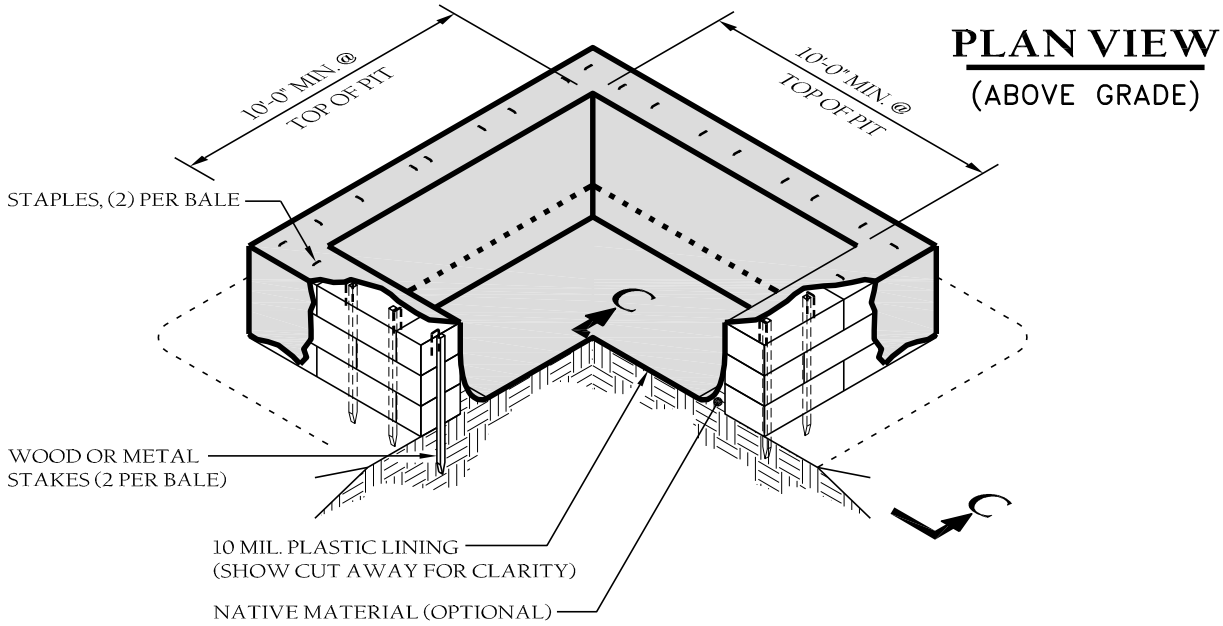
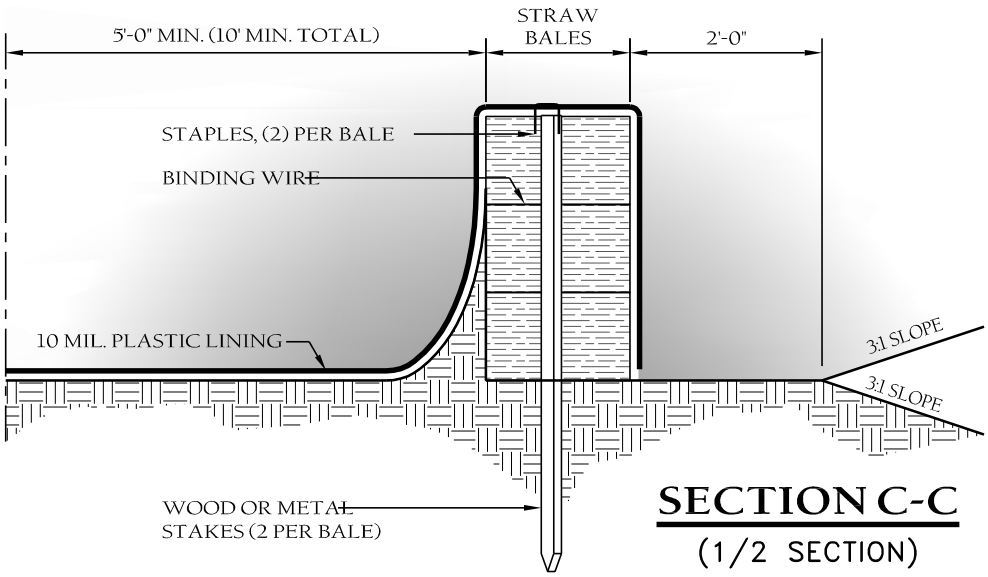
Revision Date:	Sheet #:
Feb., 2015	2 of 4





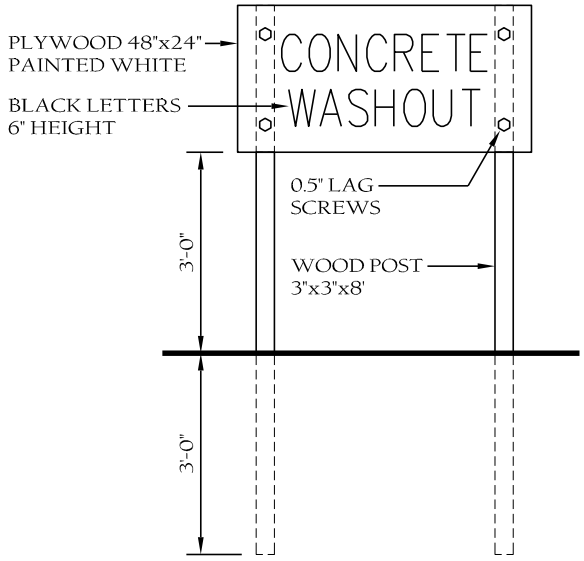
ELEVATED PIT WITH STRAW BALE DETENTION WALLS

NOT TO SCALE

STRAW BALE DETENTION NOTES:

1. Actual layout to be determined in field.
2. The "concrete washout" sign shall be installed within 30 ft of the temporary concrete washout facility.
3. Pit capacity is minimum of 6 cu ft per 10 cu yd of concrete.
4. Contractor to coordinate with usage contracting officer for proper disposal of concrete.

TOWN of WAKE FOREST	**TOWN of WAKE FOREST, NC** Manual of Specifications, Standards and Design		
	CONCRETE WASHOUT PIT DETAIL	Scale: Not To Scale	Detail #: 9.76
		Revision Date: Feb., 2015	Sheet #: 3 of 4



SIGN DETAIL

(OR EQUIVILANT)

CONCRETE WASHOUT DETAIL NOTES

Concrete washouts are used to contain concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery. The washout facilities consolidate solids for easier disposal and prevent runoff of liquids. The wash water is alkaline and contains high levels of chromium, which can leach into the ground and contaminate groundwater. It can also migrate to a storm drain, which can increase the pH of area waters and harm aquatic life. Revised NPDES and NC General Construction Permits require the use of concrete washout areas on all sites using concrete:

1. No concrete or cement slurry shall be discharged from the site.
2. Any hardened concrete residue shall be disposed of, or recycled on site, in accordance with local and state solid waste regulations.
3. Concrete washout area to be minimum 50' from storm drain inlets and surface waters (ie, detention pond, ditches, etc).
4. Prefabricated washout container or pit equal detail provided may be used if approved by Engineer.
5. Install concrete washout pit at all construction entrances used by concrete trucks.
6. Dimensions may be modified to fit topography. Provide minimum 100 Sf. of surface area level.
7. Locations shown on plans are for illustrative purposes only. Contractor shall determine final number of pits required, and their placement.
8. Inspection:
   a. Contractor to check all concrete washout facilities daily to determine if they have been filled to 75% capacity, which is when materials need to be removed.
   b. Both above- and below- ground self-installed washouts should be inspected daily to ensure that plastic linings are intact and sidewalls have not been damaged by construction activities. Contractor to repair plastic lining as needed.
   c. Prefabricated washout containers should be inspected daily as well to ensure the container is not leaking or nearing 75 percent capacity.
   d. Inspectors should also note whether the facilities are being used regularly.
6. Material Removal:
   a. Concrete washouts are designed to promote evaporation where feasible. However, if stored liquids have not evaporated and the washout is nearing capacity, vacuum and dispose of them in an approved manner - check with the local sanitary sewer authority to determine if there are special disposal requirements for concrete wash water.
   b. Remove liquids or cover the structures before predicted rainstorms to prevent overflows. Companies that offer prefabricated and watertight washout containers generally offer a vacuum service to remove the liquid material.
   c. Contractor to remove hardened solids or reuse onsite or haul them away for recycling.
   d. When removing materials from the concrete washout, building a new structure or, if the previous structure is still intact, Contractor is to inspect the structure for signs of weakening or damage and make any necessary repairs. Line the structure with new plastic that is free of holes or tears and replace signage if necessary. It is very important that new plastic is used after every cleaning because pumps and concrete removal equipment can damage the existing liner.
7. At completion of project, washout area to be backfilled and graded to be level with existing grade..
8. General Contractor is to educate concrete subcontractors, post signage indicating the location and designated use of these areas, and provide careful oversight to inspect for evidence of improper dumping of concrete waste and wash water. Contractor should include requirements in contracts with concrete delivery companies that drivers must use designated concrete washout facilities.

TOWN of WAKE FOREST

TOWN of WAKE FOREST, NC

Manual of Specifications, Standards and Design

CONCRETE WASHOUT PIT DETAIL

Scale:	Detail #:
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TEMPORARY

NO PARKING

TIME _____ _____

DATE From _____ To _____

CONSTRUCTION ZONE

TOW-AWAY

TOWN of WAKE FOREST

www.wakeforestnc.gov

Tel: 919-435-9400

301 S. Brooks Street, Wake Forest, NC 27587

TOWN *of*
WAKE FOREST

301 S. Brooks Street
Wake Forest, NC 27587
t 919.435.9400

www.wakeforestnc.gov

Address Block

----------, 2024

REGARDING WORK IN YOUR AREA

Dear Resident:

The Town of Wake Forest plans to do street rehabilitation in your neighborhood. Construction is expected to begin in, ---------- ,2024 and be completed by ----------, 2024, weather permitting.

The affected streets include:

The Town of Wake Forest maintains approximately 133 miles of paved roadways and we are committed to performing necessary maintenance and street rehabilitation to improve the longevity of these assets withing the Town's limits. The street rehabilitation process requires maintenance and preservation practices to reduce and minimize the deterioration processes. For this reason, maintaining and rehabilitation of the pavement is a top priority for the Town, and it can be utilized to extend the pavement service life. The street rehabilitation project includes the milling and placement of new asphalt on the Town owned roadways. Your cooperation is greatly appreciated, and every effort will be made to minimize inconveniences to those adjacent to the work areas.

During the construction period, residents will have access to their driveways. No parking will be allowed along the street during the designated time of the construction. All vehicles will be towed, if necessary, to complete the work.

All work is expected to be conducted during weekdays from 7:00 a.m. to 4:00 p.m. Town employees and their contractor will work closely with residents and regulatory agencies to deliver a high-quality project on time, while minimizing disruptions to traffic and the environment. Noise and dust may cause temporary impacts to residents during the construction, and this will be limited to a few hours at a time. If the construction work must be rescheduled due to weather, personnel, or equipment, the residents will be notified the rescheduled construction dates.

Also please note that some trees may have to be pruned or removed to accommodate the work. For any tree removal, residents will be notified ahead of time.

If you have any questions about this project or need additional information, please contact me at (919-435-9439) or by e-mail at jguckavan@wakeforestnc.gov. However, if you experience a water or sewer emergency, please call 24-hr hotline at 919-City of Raleigh. For your convenience, you will find a map on the back of this letter showing the affected streets.

Sincerely,

Joseph Guckavan, Jr., PE
Director of Engineering
ENGINEERING

Office: 919-435-9510 | **Direct:** 919-435-9439
301 S. Brooks Street | Wake Forest, NC 27587
wakeforestnc.gov

Town of Wake Forest
301 S. Brooks Street
Wake Forest, NC 27587
Street Resurfacing Project FY24
Bid # 0002-2023

	LINE ITEM	EST QTY	UNITS	1St				3Rd								2Nd	
				$ 4,807,627.60				$ 5,161,873.45								$ 4,953,309.70	
												$ 5,536,174.47					
				$ 4,807,627.60		$ 5,244,432.60		$ 5,161,873.45		$ 5,169,143.24		$ 6,133,190.98		$ 5,493,984.76		$ 4,953,309.70	
				FSC II, LLC DBA Fred Smith		Blythe Construction		Carolina Sunrock		Daniels Inc. of Garner		Turner Asphalt GC, LLC		Barnhill		ST Wooten Corporation	
				701 Corporate Center Drive, Suite		2911 North Graham St		200 Horizon Dr. Suite 100		1975 Highway 70 East		5805 Lease Lane		4325 Pleasant Valley Road		PO Box 2408	
				Raleigh NC 27607		Charlotte, NC 28206		Raleigh, NC 27615		Garner, NC 27529		Raleigh, NC, 27617		Raleigh, NC, 27612		Wilson, NC 27894-2408	
				UNIT BID PRICE	BID AMOUNT	UNIT BID PRICE	BID AMOUNT	UNIT BID PRICE	BID AMOUNT	UNIT BID PRICE	BID AMOUNT	UNIT BID PRICE	BID AMOUNT	UNIT BID PRICE	BID AMOUNT	UNIT BID PRICE	BID AMOUNT
	RESURFACING																
1	ASPHALT CONCRETE SURFACE MIX S9.5B	14,731	TON	$ 62.00	$ 913,322.00	$ 80.00	$ 1,178,480.00	$ 68.00	$ 1,001,708.00	$ 110.00	$ 1,620,410.00	$ 125.00	$ 1,841,375.00	$ 84.00	$ 1,237,404.00	$ 77.00	$ 1,134,287.00
2	ASPHALT CONCRETE SURFACE MIX S9.5C	4,592	TON	$ 62.00	$ 284,704.00	$ 78.00	$ 358,176.00	$ 72.00	$ 330,624.00	$ 109.00	$ 500,528.00	$ 125.00	$ 574,000.00	$ 77.50	$ 355,880.00	$ 74.00	$ 339,808.00
3	ASPHALT BINDER	1,198	TON	$ 635.00	$ 760,730.00	$ 685.00	$ 820,630.00	$ 600.00	$ 718,800.00	$ 618.13	$ 740,519.74	$ 618.13	$ 740,519.74	$ 500.00	$ 599,000.00	$ 615.00	$ 736,770.00
	RESURFACING SECTION SUBTOTAL				$ 1,958,756.00		$ 2,357,286.00		$ 2,051,132.00		$ 2,861,457.74		$ 3,155,894.74		$ 2,192,284.00		$ 2,210,865.00
	UTILITY ADJUSTMENTS																
4	MANHOLE ADJUSTMENT (RAISE ONLY)		EA														
5	WATER VALVE BOX ADJUSTMENT (RAISE ONLY)		EA														
6	MANHOLE ADJUSTMENT (LOWER/RAISE)	258	EA	$ 1,150.00	$ 296,700.00	$ 1,150.00	$ 296,700.00	$ 1,127.05	$ 290,778.90	$ 250.00	$ 64,500.00	$ 350.00	$ 90,300.00	$ 1,245.00	$ 321,210.00	$ 1,150.00	$ 296,700.00
7	WATER VALVE BOX ADJUSTMENT (LOWER/RAISE)	325	EA	$ 750.00	$ 243,750.00	$ 750.00	$ 243,750.00	$ 951.05	$ 309,091.25	$ 250.00	$ 81,250.00	$ 350.00	$ 113,750.00	$ 1,050.00	$ 341,250.00	$ 750.00	$ 243,750.00
8	MILLING / CHIPPING AROUND UTILITY NOT ADJUSTED		EA				$ -		$ -		$ -		$ -		$ -		$ -
9	MILLING / CHIPPING AROUND UTILITY NOT ADJUSTED		EA				$ -		$ -								
10	PROVIDE AND INSTALL MANHOLE RISER		EA				$ -		$ -								
11	PROVIDE AND INSTALL WATER VALVE RISER		EA				$ -		$ -								
12	PROVIDE NEW 7.5" MANHOLE FRAME & COVER		EA				$ -		$ -								
13	PROVIDE NEW 4" MANHOLE FRAME & COVER		EA				$ -		$ -								
	UTILITY ADJUSTMENTS SECTION SUBTOTAL				$ 540,450.00		$ 540,450.00		$ 599,870.15		$ 145,750.00		$ 204,050.00		$ 662,460.00		$ 540,450.00
	SIDEWALK IMPROVEMENTS																
14	SIDEWALK REMOVAL		SY														
15	4" SIDEWALK REPLACEMENT		SY														
16	6" SIDEWALK REPLACEMENT		SY														
17	6" CONCRETE DRIVEWAY	183	SY	$ 130.00	$ 23,790.00	$ 130.00	$ 23,790.00	$ 150.00	$ 27,450.00	$ 167.00	$ 30,561.00	$ 201.00	$ 36,783.00	$ 165.00	$ 30,195.00	$ 130.00	$ 23,790.00
18	SAWCUT & REMOVAL OF CONCRETE CURB		LF		$ -		$ -		$ -		$ -		$ -		$ -		$ -
19	SAWCUT & REMOVAL OF GRANITE CURB		LF		$ -		$ -		$ -		$ -		$ -		$ -		$ -
20	CURB & GUTTER REMOVAL / REPLACEMENT	5,904	LF	$ 52.00	$ 307,008.00	$ 52.00	$ 307,008.00	$ 67.00	$ 395,568.00	$ 62.50	$ 369,000.00	$ 76.00	$ 448,704.00	$ 57.00	$ 336,528.00	$ 52.00	$ 307,008.00
21	CONCRETE SIDEWALK ACCESS RAMPS WITH DETECTABLE WARNING SURFACE	251	EA	$ 2,200.00	$ 552,200.00	$ 2,200.00	$ 552,200.00	$ 2,650.00	$ 665,150.00	$ 3,650.00	$ 916,150.00	$ 3,800.00	$ 953,800.00	$ 2,606.00	$ 654,106.00	$ 2,200.00	$ 552,200.00
22	5" CONCRETE MONOLITHIC ISLAND		SY				$ -		$ -								
	SIDEWALK IMPROVEMENTS SECTION SUBTOTAL				$ 882,998.00		$ 882,998.00		$ 1,088,168.00		$ 1,315,711.00		$ 1,439,287.00		$ 1,020,829.00		$ 882,998.00
	MILLING																
23	MILLING (0-2") EDGE	3,545	SY	$ 3.00	$ 10,635.00	$ 3.00	$ 10,635.00	$ 14.50	$ 51,402.50	$ 2.25	$ 7,976.25	$ 4.50	$ 15,952.50	$ 3.30	$ 11,698.50	$ 2.95	$ 10,457.75
24	MILLING (0-2") FULL WIDTH	191,593	SY	$ 3.00	$ 574,779.00	$ 3.00	$ 574,779.00	$ 3.70	$ 708,894.10	$ 2.45	$ 469,402.85	$ 3.50	$ 670,575.50	$ 3.75	$ 718,473.75	$ 1.95	$ 373,606.35
25	MILLING (0-2") MILL & FILL		SY		$ -		$ -		$ -		$ -		$ -		$ -		$ -
26	INCIDENTAL MILLING	6,500	LS	$ 7.00	$ 45,500.00	$ 7.25	$ 47,125.00	$ 14.50	$ 94,250.00	$ 2.95	$ 19,175.00	$ 6.50	$ 42,250.00	$ 7.75	$ 50,375.00	$ 6.95	$ 45,175.00
	MILLING SECTION SUBTOTAL				$ 630,914.00		$ 632,539.00		$ 854,546.60		$ 496,554.10		$ 728,778.00		$ 780,547.25		$ 429,239.10
	PAVEMENT PATCHING																
27	PAVEMENT PATCHING	567	TON	$ 450.00	$ 255,150.00	$ 400.00	$ 226,800.00	$ 274.00	$ 155,358.00	$ 225.00	$ 127,575.00	$ 258.00	$ 146,286.00	$ 430.00	$ 243,810.00	$ 300.00	$ 170,100.00
	PAVEMENT PATCHING SECTION SUBTOTAL				$ 255,150.00		$ 226,800.00		$ 155,358.00		$ 127,575.00		$ 146,286.00		$ 243,810.00		$ 170,100.00
	PAVEMENT MARKINGS																
28	THERMOPLASTIC PAVEMENT MARKINGS - 4", 90 MILS	3,756	LF	$ 2.10	$ 7,887.60	$ 2.10	$ 7,887.60	$ 1.45	$ 5,446.20	$ 1.80	$ 6,760.80	$ 1.74	$ 61.00	$ 2.31	$ 8,676.36	$ 2.10	$ 7,887.60
29	THERMOPLASTIC PAVEMENT MARKINGS - 8", 90 MILS	4,243	LF	$ 3.00	$ 12,729.00	$ 3.00	$ 12,729.00	$ 4.75	$ 20,154.25	$ 3.60	$ 15,274.80	$ 3.48	$ 14,765.64	$ 3.30	$ 14,001.90	$ 3.00	$ 12,729.00
30	MILS	3,811	LF	$ 13.00	$ 49,543.00	$ 13.00	$ 49,543.00	$ 12.75	$ 48,590.25	$ 10.80	$ 41,158.80	$ 10.44	$ 39,786.84	$ 14.25	$ 54,306.75	$ 13.00	$ 49,543.00
31	THERMOPLASTIC SYMBOLS - 90 MILS	1	EA	$ 200.00	$ 200.00	$ 200.00	$ 200.00	$ 550.00	$ 550.00	$ 168.00	$ 168.00	$ 140.00	$ 140.00	$ 219.50	$ 219.50	$ 200.00	$ 200.00
32	THERMOPLASTIC CHARACTERS - 90 MILS	4	EA	$ 150.00	$ 600.00	$ 150.00	$ 600.00	$ 250.00	$ 1,000.00	$ 102.00	$ 408.00	$ 98.60	$ 394.40	$ 200.00	$ 800.00	$ 150.00	$ 600.00
33	SPEED HUMP SYMBOL - 90 MILS		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
34	BIKE LANE ARROW - 90 MILS		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
35	BIKE SYMBOL - 90 MILS	4	EA	$ 425.00	$ 1,700.00	$ 425.00	$ 1,700.00	$ 487.00	$ 1,948.00	$ 300.00	$ 1,200.00	$ 288.84	$ 1,155.36	$ 470.00	$ 1,880.00	$ 425.00	$ 1,700.00
36	BIKE SHARROW - 90 MILS		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
37	GREEN PAINT, 24"		LF		$ -		$ -		$ -		$ -		$ -		$ -		$ -
38	SHARK TEETH SYMBOL, 24"		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
39	TEMPORARY PAINT, 4"		LF		$ -		$ -		$ -		$ -		$ -		$ -		$ -
40	TEMPORARY PAINT, 8"		LF		$ -		$ -		$ -		$ -		$ -		$ -		$ -
41	TEMPORARY PAINT, 24"		LF		$ -		$ -		$ -		$ -		$ -		$ -		$ -
42	TEMPORARY PAINT SYMBOLS		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
43	TEMPORARY PAINT CHARACTERS		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
44	THERMOPLASTIC ERADICATION, LINES (4-24")	3,700	LF	$ 1.00	$ 3,700.00	$ 1.00	$ 3,700.00	$ 1.95	$ 7,215.00	$ 1.25	$ 4,625.00	$ 1.16	$ 4,292.00	$ 1.10	$ 4,070.00	$ 1.00	$ 3,700.00
45	THERMOPLASTIC ERADICATION, SYMBOLS		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
46	THERMOPLASTIC ERADICATION, CHARACTERS		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
47	FLEXIBLE DELINEATORS		EA		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	PAVEMENT MARKINGS SECTION SUBTOTAL				$ 76,359.60		$ 76,359.60		$ 84,903.70		$ 69,595.40		$ 60,595.24		$ 83,954.51		$ 76,359.60
	SIGNALS & INTELLIGENT TRANSPORTATION SYSTEMS																
48	INDUCTIVE LOOP SAWCUT		LF														
49	BIKE COUNT LOOP SAWCUT		LF														
50	DETECTOR CARD (2070)		EA														
51	JUNCTION BOX, STANDARD		EA														
	SIGNALS & INTELLIGENT TRANS SYSTEMS SECTION SUBTOTAL																
	SPEED HUMPS																
52	REMOVE SPEED HUMP	6	EA	$ 500.00	$ 3,000.00	$ 500.00	$ 3,000.00	$ 1,685.00	$ 10,110.00	$ 1,500.00	$ 9,000.00	$ 1,800.00	$ 10,800.00	$ 600.00	$ 3,600.00	$ 795.00	$ 4,770.00
53	INSTALL SPEED HUMP		EA								$ -		$ -		$ -		$ -
	SPEED HUMPS SECTION SUBTOTAL				$ 3,000.00		$ 3,000.00		$ 10,110.00		$ 9,000.00		$ 10,800.00		$ 3,600.00		$ 4,770.00
	TRAFFIC CONTROL																
54	TEMPORARY TRAFFIC CONTROL	1	LS	$ 220,000.00	$ 220,000.00	$ 275,000.00	$ 275,000.00	$ 317,785.00	$ 317,785.00	$ 62,000.00	$ 62,000.00	$ 262,000.00	$ 262,000.00	$ 290,000.00	$ 290,000.00	$ 398,528.00	$ 398,528.00
55	LAW ENFORCEMENT		HR				$ -		$ -								
56	PORTABLE LIGHTING, IF USED		LS				$ -		$ -								
	TRAFFIC CONTROL SECTION SUBTOTAL				$ 220,000.00		$ 275,000.00		$ 317,785.00		$ 62,000.00		$ 262,000.00		$ 290,000.00		$ 398,528.00
	SHALLOW UNDERCUT																
57	SHALLOW UNDERCUT		CY				$ -		$ -								
58	FABRIC FOR SOIL STABILIZATION		SY				$ -		$ -								
59	GEOGRID FOR SOIL STABILIZATION		SY		$ -		$ -		$ -		$ -		$ -		$ -		$ -
60	CLASS IV STONE FOR SOIL STABILIZATION		TN		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	SHALLOW UNDERCUT SECTION SUBTOTAL				$ -		$ -		$ -		$ -		$ -		$ -		$ -
	MOBILIZATION																
61	MOBILIZATION	1	LS	$ 240,000.00	$ 240,000.00	$ 250,000.00	$ 250,000.00	$ -	$ -	$ 81,500.00	$ 81,500.00	$ 125,500.00	$ 125,500.00	$ 216,500.00	$ 216,500.00	$ 240,000.00	$ 240,000.00
	MOBILIZATION SECTION SUBTOTAL				$ 240,000.00		$ 250,000.00				$ 81,500.00		$ 125,500.00		$ 216,500.00		$ 240,000.00
	TOTAL BID AMOUNT				$ 4,807,627.60		$ 5,244,432.60		$ 5,161,873.45		$ 5,169,143.24		$ 6,133,190.98		$ 5,493,984.76		$ 4,953,309.70

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-279-
Submitted by: Terry Savary
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Approval of a Resolution Accepting a Downtown Revitalization Grant from Electricities of North Carolina

Recommendation:

Item Summary:

ATTACHMENTS
- SUMMARY - BOC Acceptance of Electricities Downtown Revitalization Grant 9.27.23.docx
- BOC Resolution Accepting Elecricities Downtown Revitalization Grant 9.27.23.docx

Summary

The Wake Forest Business & Industry Partnership, Inc. (WFBIP) recently applied for and has been awarded a $10,000 Downtown Revitalization Grant from Electricities of North Carolina. The grant is designated to pilot a Downtown Business Retention Grant Program in Wake Forest.

It is anticipated the grant recipient will be Firebox Theatre Company to support its ongoing operations and sustain its presence Downtown for the 2024 season. Firebox productions Downtown generate economic growth for the area by enhancing the cultural offerings available to residents and visitors and by creating additional, new foot traffic to patronize Downtown businesses.

Per Town policy, grants awarded to the Town totaling $10,000 or more require the Board of Commissioners' approval. This resolution formally authorizes the Town to accept this grant award from Electricities and designates it to WFBIP in support of a pilot Downtown Business Retention Grant Program.

RESOLUTION 2023-XX

RESOLUTION ACCEPTING A DOWNTOWN REVITALIZATION GRANT FROM ELECTRICITIES OF NORTH CAROLINA

WHEREAS, the Town of Wake Forest has identified economic development as a beneficial and necessary priority to support the long-term strategic growth and development of the Town; and

WHEREAS, the Town of Wake Forest has entrusted the facilitation and advancement of its economic development priorities and strategic goals to the not-for-profit Wake Forest Business & Industry Partnership, Inc. (WFBIP); and

WHEREAS, Wake Forest's Downtown offers a distinctly special environment and quality of life for which the WFBIP and Town prioritize the preservation of its unique character and actively engage with the local business community committed to the Town's core; and

WHEREAS, ElectriCities of North Carolina, Inc. provides power supply and related critical services to over 90 community-owned electric systems and helps its public power member providers thrive today and in the future by delivering innovative services, including legislative, technical, communications, and economic development expertise; and

WHEREAS, Wake Forest is a proud public power community, long-term invested partner with Electricities, and a regular recipient of its services; and

WHEREAS, Electricities includes among the economic development services it provides to its public power communities a Downtown Revitalization Grant Program for which WFBIP applied on behalf of the Town and has subsequently been awarded to pilot a Downtown Business Retention Grant Program in Wake Forest;

NOW, THEREFORE, BE IT RESOLVED that the Board of Commissioners of the Town of Wake Forest hereby accepts the grant award of $10,000 from Electricities of North Carolina for WFBIP's allocation in support of its pilot of a Downtown Business Retention Grant Program.

Duly Adopted this 17th day of October 2023.

(ATTEST)

Vivian A. Jones
Mayor

Theresa Savary
Town Clerk

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-283-
Submitted by: Candace Davis
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Approval of a Resolution to Enact an Ordinance Prohibiting Smoking and the Use of Tobacco Products and Vapor Products in Town Buildings, in Town Vehicles, and on Town Grounds

Recommendation:

Item Summary:

ATTACHMENTS
- Agenda Item Summary_Tobacco Resolution_10.10.2023.docx
- TWF Tobacco Ordinance (003)_DRAFT.docx

Agenda Item: Approval of a Resolution to Enact an Ordinance Prohibiting Smoking and Use of Tobacco Products and Vapor Products in Town Buildings, in Town Vehicles, and on Town Grounds

Summary: The Town of Wake Forest is committed to providing a safe and healthy work environment for our employees and others. As such, staff proposes adding additional language within Chapter 14 Environment Section 14 of the Town's Ordinance to prohibit smoking and the use of tobacco products and vapor products in town buildings, in town vehicles and on town grounds.

Attachment: Resolution and Ordinance

A RESOLUTION TO ENACT AN ORDINANCE PROHIBITING SMOKING AND THE USE OF TOBACCO PRODUCTS AND VAPOR PRODUCTS IN TOWN BUILDINGS, IN TOWN VEHICLES, AND ON TOWN GROUNDS

WHEREAS, according to the Centers for Disease Control and Prevention (the "CDC"), tobacco use and secondhand smoke exposure are the leading preventable causes of illness and premature death in North Carolina and the nation; and

WHEREAS, tobacco is a recognized carcinogen in humans, and health risks associated with the use of tobacco products include myocardial infarction (heart attack), stroke, adverse reproductive outcomes, lung cancer and diabetes; and

WHEREAS, in 2006, the United States Surgeon General determined that secondhand smoke exposure causes disease and premature death in children and adults who do not smoke; that children exposed to secondhand smoke are at an increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more severe asthma; that smoking around children causes respiratory symptoms and slows their lung growth; and that scientific evidence indicates that there is no risk-free level of exposure to secondhand smoke; and

WHEREAS, research indicates that, during active smoking, outdoor levels of secondhand smoke may be as high as indoor levels and may pose a health risk for people in close proximity, and some hazard exists beyond 30 feet; and

WHEREAS, in 2009, the United States Food and Drug Administration (the "FDA") announced that an analysis of vapor product samples indicated that the vapor products contained not only nicotine but also detectable levels of known carcinogens and toxic chemicals, including tobacco-specific nitrosamines and diethylene glycol, a toxic chemical used in antifreeze; and it has been found that the emitted aerosol from vapor products during active vaping is not just water vapor, but contains nicotine and can contain additional toxins, making it less safe than clean air to the nearby non-user of vapor products; and

WHEREAS, experimentation with vaping and use of vapor products have risen sharply among young people according to the recently released Youth Tobacco Survey, which found that: (i) current use of vapor products among North Carolina high school students jumped by 888 percent from 1.7% in 2011 to 16.8% in 2015; (ii) that 27% of high school students said they are considering using vapor products in the next year; and (iii) that from 2011 to 2015, overall tobacco use among NC high school students increased from 25.8% to 27.5%; and

WHEREAS, the CDC reports that nearly 90% of smoking and smokeless tobacco use are initiated and established before age 18, that most people who begin smoking during adolescence are addicted by the age of 20, and that adolescent smokeless tobacco users are more likely than nonusers to become adult cigarette smokers; and

WHEREAS, children model adult behavior and benefit from positive models of non-smoking behavior and positive reinforcement of healthy lifestyle messages through exposure to smoke-free, vape-free, and tobacco-free public areas; and

WHEREAS, pursuant to North Carolina General Statute § 130A-498(a), "a local government may adopt and enforce ordinances . . . restricting or prohibiting smoking that are more restrictive than State law and that apply in local government buildings, on local government grounds, in local vehicles, or in public places"; and

WHEREAS, pursuant to North Carolina General Statute § 160A-174(a), "[a] city may by ordinance define, prohibit, regulate, or abate acts, omissions, or conditions detrimental to the health, safety, or welfare of its citizens"; and

WHEREAS, pursuant to North Carolina General Statute § 160A-4, "[i]t is the policy of the General Assembly that cities of this State should have adequate authority to exercise the powers, privileges, and immunities conferred upon them by law. To this end, the provisions of this Chapter . . . shall be broadly construed and grants of power shall be construed to include any additional and supplementary powers that are reasonably necessary or expedient to carry them into effect and execution"; and

WHEREAS, the purpose and intent in enacting this Ordinance is to minimize the harmful effects of tobacco use among employees and the public and to eliminate secondhand smoke and vapor product aerosol exposure for employees and the public in and on those buildings, vehicles, and grounds controlled by the Town of Wake Forest Government, and

WHEREAS, the Town of Wake Forest Board of Commissioners hereby finds and determines that it is in the best interest of the citizens and residents of the Town of Wake Forest to enact this Ordinance.

NOW, THEREFORE, BE IT ORDAINED AND RESOLVED by the Board of Commissioners (the "Board") for the Town of Wake Forest, North Carolina (the "Town") as follows:

§ 14-___ AN ORDINANCE PROHIBITING SMOKING AND THE USE OF TOBACCO PRODUCTS AND VAPOR PRODUCTS IN TOWN BUILDINGS, IN TOWN VEHICLES, AND ON TOWN GROUNDS

(A) *Authority*. This subchapter is enacted pursuant to G.S. § 130A-498 and G.S. § 160A-174.

(B) *Definitions*. For the purpose of this subchapter, the following definitions shall apply:

SMOKING. The use or possession of a lighted cigarette, lighted cigar, lighted pipe, or any other lighted tobacco product as defined by G.S. § 130A-492(16).

VAPOR PRODUCT. Any non-combustible product that employs a mechanical heating element, battery, or electronic circuit regardless of shape or size that can be used to heat a liquid nicotine solution contained in a vapor cartridge as defined by G.S. § 14-313(5).

TOBACCO PRODUCT. Any product that contains tobacco or nicotine, irrespective of whether the nicotine is tobacco-derived or synthetic, and is intended for human consumption, as defined by G.S. § 14-313(4). As used in this subchapter, "tobacco product" includes but is not limited to: cigarettes, cigars, pipe tobacco, electronic cigarettes, hookah, smoked or vaped tobacco substitutes, chewing tobacco, snuff, snus, dissolvable tobacco products, and heated tobacco products. As used in this subchapter, "tobacco product" does not include nicotine replacement products approved by the USFDA for treatment of tobacco use and dependence.

TOWN BUILDING. A building owned by the Town, leased as lessor by the TOWN, or the area leased as lessee by the Town and/or occupied by the Town, within the meaning of "local government building" as defined by G.S. § 130A-492(8).

TOWN VEHICLE. A passenger-carrying vehicle owned, leased, or otherwise controlled by the TOWN and assigned permanently or temporarily by the Town to Town employees, agencies, institutions, or facilities for official Town business, within the meaning of "local vehicle" as defined by G.S. § 130A-492(9).

TOWN GROUNDS. An unenclosed area owned, leased, or occupied by the Town within the meaning of "grounds" as defined by G.S. § 130A-492(6). This includes

Town parks, playgrounds and athletic fields, greenways, trails, and open space lands owned, leased, or occupied by the Town.

MANAGER. The individual exercising the powers and duties of manager for the Town pursuant to G.S. § 160A-148.

(C) *Areas where smoking, use of tobacco products, and use of vapor products are prohibited.*

(1) Smoking, use of tobacco products, and use of vapor products are prohibited in any Town building, any Town vehicle, and on any Town grounds. The prohibition on smoking, use of tobacco products, and use of vapor products in these places includes those times when they are being used for private events.

(2) The Manager shall direct conspicuous and clear signage to be posted at reasonable intervals in all Town buildings and grounds where smoking, use of tobacco products, and use of vapor products are prohibited by this subchapter.

(3) This subchapter does not prohibit smoking, use of tobacco products, and use of vapor products on public streets or sidewalks.

(D) *Public Education.*

The Town shall engage in an ongoing program to explain and clarify the purposes and requirements of this Ordinance to residents and businesses affected by it, and guide operators and managers in their compliance with it. In doing so, the Town may rely on materials and information provided by the Wake County Department of Health and Human Services.

(E) *Severability; Conflict of Laws.*

If this Ordinance or application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the Ordinance that can be given separate effect and to that end the provisions of this Ordinance are declared to be severable. All ordinances or parts of ordinances in conflict with this Ordinance are hereby repealed.

This ordinance shall take effect on _____, 2023.

APPROVED AS TO FORM:

_____

Hassan Kingsberry, Town Attorney

ATTEST:

_____

Town Clerk

Moved by:

_____

Seconded By:

_____

Mayor: _____

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-284-
Submitted by: Monica Sarna
Submitting Department: Engineering
Meeting Date: October 17, 2023

SUBJECT
Approval to authorizing execution on the behalf of the Town of Wake Forest, a contract with A. Morton Thomas and Associates, Inc. for the warrant analysis, future planning options, design, and survey for the future signal, listed as a CIP project, at the intersection of Forestville Road (State Road 2049) and Coach Lantern Ave/Green Drake Drive.

Recommendation:
Authorize the Town Manager to execute a contract with AMT for the engineering design services for Forestville Rd and Coach Lantern

Item Summary:

ATTACHMENTS
- Summary_Forestville Coach Lantern Signal Intersection.docx
- Attachment_A_Resolution_Forestville_Coach_Lantern_Signal (3).docx
- Attachment_B_Agreement - 540 - A. Morton Thomas and Associates, Inc..pdf

Agenda Item: Approval to authorizing execution on the behalf of the Town of Wake Forest, a contract with A. Morton Thomas and Associates, Inc. for the warrant analysis, future planning options, design, and survey for the future signal, listed as a CIP project, at the intersection of Forestville Road (State Road 2049) and Coach Lantern Ave/Green Drake Drive.

Summary: A. Morton Thomas and Associates are through a Master Service Agreement Contract for On-Call Professional General Engineering Services. At the request of the Town, A. Morton Thomas and Associates performed a signal warrant analysis at the intersection of Forestville Road and Coach Lantern Ave./Green Drake Drive to determine if the signal was warranted before providing an executed contract for the signal design and planning.

The Town and A. Morton Thomas and Associates have explored all the potential constraints for the future signal, if poles are placed at the future road widening condition based on the Town's Comprehensive Transportation Plan. The (if required) tasks in the contract are based on the site constraints and congested underground utilities that may alter the design during construction plan development. The Town and A. Morton Thomas and Associates are in agreement that the survey limits for the future signal design will be most cost effective if future pole placement requires redesign of unground utilities. The attachments provided are the Supplemental Service Agreement, Master Service Agreement and the executed Warrant Analysis.

The project is estimated not to exceed amount cost $167,984.74. The amount excluding (if required) tasks is $124,049.74.

Attachment: Attachment_A_Resolution _Forestville Coach Lantern Signal
Attachment_B_Agreement - 540 - A. Morton Thomas and Associates, Inc.

RESOLUTION 2023-XX

RESOLUTION AUTHORIZING THE TOWN MANAGER TO EXECUTE ON BEHALF OF THE TOWN OF WAKE FOREST, THE PROFESSIONAL SUPPLEMENTAL SERVICES AGREEMENT FROM THE MASTER SERVICE AGREEMENT ENGINEERING SERVICES FOR THE FORESTVILLE ROAD/ COACH LANTERN SIGNAL DESIGN

WHEREAS, consistent with the Town's On-Call Master Service Agreement, on March 6, 2023, a Supplemental Service Agreement with A. Morton Thomas and Associates; and

WHEREAS, the Town requested a scope of services for the signal design at Forestville Road/ Coach Lantern Avenue intersection; and

WHEREAS, providing warrant analysis, future planning pole locations, design, survey, and coordination with NCDOT/ other agencies involved; and

WHEREAS, the signal design project is listed as a CIP for the FY24; and

WHEREAS, the lump sum of the contract is $167,984.74; and

BE IT RESOLVED by the governing body of the Town of Wake Forest hereby authorizes the Town Manager to execute Supplemental Service Agreement through the Town's On-Call Master Agreement Contract with A. Morton Thomas and Associates for design services for the Forestville Road/ Coach Lantern Avenue intersection, with the understanding that services will be provided and executed, based on tasks listed in the scope of services provided.

Duly adopted this 17th day of October 2023.

_____

Vivian A. Jones
Mayor

(ATTEST)

_____

Theresa Savary
Town Clerk

APPENDIX B

TOWN OF WAKE FOREST, NORTH CAROLINA SUPPLEMENTAL SERVICES AGREEMENT NO. [1] TO THE MASTER SERVICE AGREEMENT FOR ON-CALL PROFESSIONAL ENGINEERING SERVICES

SECTION I: PURPOSE

The purpose of this Supplemental Services Agreement (hereinafter "SSA") is for,
AMT Engineering, the Consultant, to provide On-Call general engineering Professional Services, as assigned, in accordance with the Agreement titled, "TOWN OF WAKE FOREST, NORTH CAROLINA MASTER SERVICES AGREEMENT FOR ON-CALL PROFESSIONAL ENGINEERING SERVICES" between the Town and AMT Engineering, dated March 6, 2023 (hereinafter "Master Services Agreement" or "MSA").

SECTION II: SCOPE

Consultant will perform On-Call General engineering Professional Services on an as-needed basis upon receipt of request and assignment from the Town representative. The Consultant shall comply with all terms of the MSA, which agreement is incorporated into this SSA as if fully set forth verbatim herein. Duties will involve the scope of services outlined in Exhibit A.

Services to be provided include, but are not limited to the scope of services outlined in Exhibit A. Consultant and the Town will mutually determine at time of assignment of individual tasks the Consultant personnel to be assigned, schedule, and deliverables.

SECTION III: SCHEDULE

Consultant shall perform tasks as expeditiously as practical and in conformance with schedules developed at the time of assignment of individual tasks and agreed upon by the Town and Consultant.

SECTION IV: PERIOD OF SERVICE

This SSA shall be for a period of from August 28, 2023 to July 1, 2025.

SECTION V: COMPENSATION

Consultant shall perform the services detailed in the scope described in Section II above on the basis of the hourly rate schedule contained in the MSA or set fee for services and attached hereto.

Billing shall be on a monthly basis in conformance with Section VI of the MSA, and invoices for all compensation owed in accordance with this SSA shall be submitted to the Town with sufficient detail to process the invoice for payment and for a proper pre-audit and post-audit thereof in accordance with Town standards. The total amount billed to the Town under this Supplemental Service Agreement shall not exceed $167,984.74 nor shall the Consultant incur costs above $124,049.74 without the written permission of the Town.

SECTION VI: INSURANCE COVERAGE

Consultant shall provide insurance coverage as provided for in Section VII of the MSA.

SECTION VII: OTHER SPECIAL TERMS

The Town will provide the Consultant all pertinent information and data available to the Town and deemed necessary to perform assigned tasks.

SECTION VIII: PRE-AUDIT, if applicable

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____

(Signature of Finance Officer)
Town of Wake Forest
301 S. Brooks Street
Wake Forest, NC 27587

SECTION IX: CONTRACT MONITORING

Staff member responsible for monitoring the contract performance requirements is:

Name and Title: __Chris Glass Senior Civil Engineer_____

Department Head Initials: _____

IN WITNESS WHEREOF, the Town of Wake Forest and the Consultant have caused this contract to be executed under seal by their respective duly authorized agents or officers.

TOWN OF WAKE FOREST:	CONSULTANT:
By: _____	By: _____
_____ Printed	_____ Printed
Witnessed by:	Witnessed by:
_____ Name	_____ Name
_____ Printed	_____ Printed
(SEAL)	(SEAL)

Exhibit A

SR 2049 (Forestville Road) at

Coach Lantern Avenue/Green Drake Drive

Signals/Signal Communications Scope of Services

July 14, 2023

General Description of Work

This project consists of all traffic signal work (warrant analysis, upgrades, and new installations) and intersection modification design work (**if required**) and wireless signal communication plans on the traffic signal project for SR 2049 (Forestville Road) from Coach Lantern Avenue/Green Drake Drive to SR 2051 (Burlington Mills Road).

The Town of Wake Forest (Town) has selected A. Morton Thomas and Associates (AMT) to conduct all design and analysis for this signal project.

Intersection modification design work and traffic signal design work shall be limited to the project intersection of SR 2049 (Forestville Road) and Coach Lantern Avenue/Green Drake Drive. Traffic signal interconnect design work will be limited to the corridor of SR 2049 (Forestville Road) between Coach Lantern Avenue/Green Drake Drive and SR 2045 (Burlington Mills Road). The work shall consist of the following elements:

Analysis including:

- **Task 1** -Conduct a Traffic Signal Warrant Analysis
  - Conduct turning movement counts for weekday (school in session)
  - Conduct turning movement counts for weekend (within school year)
  - Traffic Signal Warrant Analysis for the project intersection
  - Create Traffic Signal Warrant Analysis report for the project intersection
- **Task 2** -Create four alternatives for a Preliminary Pole Placement Analysis
  - Metal Strain Poles with optimal intersection reconfiguration
  - Mast Arms with optimal intersection reconfiguration
  - Wood Poles with optimal intersection reconfiguration
  - Maximum span configuration for future road widening

Plans, Special Provisions and Quantities including:

SIGNAL DESIGN:

- **Task 1** – Field Survey for Signal Plans:
  - Field survey trips to:
    - Check location of existing utilities, stormwater devices, and other roadway features
    - Survey locations for installation of new signal equipment
    - Validate and verify existing right-of-way and easements
    - Provide topography of existing site
- **Task 2** – Final Signal Designs with Electrical and Programming Details & Quantities for:
  - SR 2049 (Forestville Road) at Coach Lantern Avenue/Green Drake Drive

- **Task 3** - Pedestrian Features on Final Signal Designs for:
  - SR 2049 (Forestville Road) at Coach Lantern Avenue/Green Drake Drive
- **Task 4** – Metal Pole on Final Signal Designs for:
  - SR 2049 (Forestville Road) at Coach Lantern Avenue/Green Drake Drive
- **Task 5** – Limited Intersection Modification Designs for:
  - SR 2049 (Forestville Road) at Coach Lantern Avenue/Green Drake Drive
- **Task 6** – General Design:
  - Title sheet
  - Summarize quantities
  - Special Provisions
- **Task 7** – Field Work/Meeting:
  - Field review – 1 trip for 2 people
  - Meetings for coordination, assume virtual meetings (when possible)
  - Preliminary Field Inspection (prior to R/W)
  - Final Field Inspection (prior to Let)
- **Task 8** – Miscellaneous Items:
  - Clearance Calculation figures and spreadsheet (part of signal design task 2)
  - Metal pole elevations and clearance calculations (part of signal design task 2)
  - Mast arm design (if required, part of signal design task 2)

SIGNAL COMMUNICATIONS:

- **Task 1** -Scoping:
  - Scoping Document
    - Use **Signal Communications** C**hecklist** below
  - Scoping meetings, discussions and coordination
- **Task 2** – CAD Design:
  - Basemap development
  - Transfer any existing plans to new basemap
- **Task 3** – Field Survey for UMR plans and Radio Signal Analysis:
  - Field Survey trips to:
    - Check location of existing communications and other ITS equipment
    - Survey locations for installation of new communications and ITS equipment
    - Preliminary utility data collection for UMR plans
    - Wireless Site Survey
    - Coordination with NCDOT Division 5 for bucket truck and field personnel for the Wireless Site Survey
- **Task 4** – UMR Plans (*if required)*:
  - First Draft UMR Plans
    - Tree diagrams for poles requiring UMR work
    - Existing heights above driveways and roadways
  - Coordinate with Utility Companies
    - Phone/email communications with Utility Companies
    - Provide preliminary UMR plans
    - Utility Walkthrough with all involved utilities

- Draft UMR plans for DOT and utility company review
- Final UMR Plans

-
- **Task 5** – Preliminary Design (Wireless):
  - Develop Preliminary Radio Plans for DOT review
  - Request up to date construction notes, common design practices and typical details
  - Address any comments with proper changes and quality control
- **Task 6** – Preliminary Specifications and Quantities:
  - Develop Preliminary Project Special Provisions for DOT review
    - Submit with preliminary radio plans
  - Develop Preliminary Quantities total for DOT review
    - Submit with final radio plans
- **Task 7** – Final Design – review and address NCDOT Comments
  - Develop Final Plans for NCDOT review
- **Task 8** – Final Submittal
  - Submit final sealed plan package to Town of Wake Forest
    - Include all plans sheets, special provisions and quantities

PUBLIC INVOLVEMENT:

- **Task 1** -Public Notice of Upcoming Signal Addition
  - Provide a public notice for release by the Town prior to submission of 75% design plans
- **Task 2** -Amend 75% Signal Plans based on Public Feedback
  - Provide a revision to 75% signal plans based off any public feedback the Town wishes to incorporate into the design

Design Considerations

The following are major **signal** design considerations for ***this*** project:

- The intersection will include **QFREE MAXTIME** controllers in **standard NCDOT 332** cabinets as listed on the NCDOT QPL.

- Final design will have all new equipment – poles, cabinets, detection, etc.

- Inductive loop detectors will be used for vehicle detection.

- The final intersection phasing will be determined after review of the preliminary pole location alternatives. Alternative phasing will be incorporated into the design if protected/permissive signal phasing is used. Split phasing will be omitted unless unavoidable.

- **MicroStation** will be used for the design of this project, using NCDOT CAD design standards.

- No signal preemption is intended for this signal

- The Town will determine pole material to be used after reviewing the preliminary pole placement alternatives

- Coordination with Division Utility Engineer is required for signal pole locations. Pole/Metal pole locations should be sent to the Division, **as soon as available**, for coordination with utilities.

- Pedestrian signal requirements will be provided for all legs of the intersection.

- High-visibility crosswalks will be used at signalized intersections on this project.

- Stopbar and crosswalk locations will be coordinated with the pavement marking designer. Signal designer is responsible for stopbar and crosswalk locations at signalized locations. Signal designer will provide turning simulations at all locations to validate stopbar and crosswalk locations.

- Roadway designer will be used for pavement markings and curb ramp updates.

- Roadway designer will be used to design modifications to existing nose of median on Coach Lantern Drive, if required.

- Water resources designer will be used for any necessary drainage improvements.
    - This scope only covers any required storm pipe rerouting of any, some, or all of the following existing drainage structures:
        - Approximately 180 LF pipe crossing the Coach Lantern Avenue approach
        - Approximately 90 LF pipe located in the NE quadrant of the intersection
        - Approximately 75 LF pipe crossing the SB Forestville Road approach
        - Approximately 30 LF pipe crossing the WB Green Drake Drive approach
    - Any additional required drainage work is outside the scope of this agreement.

- System detectors will be included in this design and used with the Wake Forest Signal System.

- AMT will directly transmit all submissions simultaneously to NCDOT Division 5 and NCDOT ITS/Signals.

- Town Staff will review all NCDOT submittal comments and provide a unified and consolidated feedback document listing NCDOT and Town comments to AMT between each submittal. Unless directed by NCDOT, AMT will not resubmit any submissions; instead, comments will be incorporated on the subsequent submittal.

- Resubmissions due to preferential design changes are outside the scope of this agreement.

Signal Communications Checklist:

The following are possible Signal Communications design considerations for ***this*** project

- Wireless Communications to tie into the Wake Forest Signal System as constructed under NCDOT TIP # U-6023 at the NCDOT signal # 05-1924 (SR 2049 at SR 2051)

- Interconnect *may* require installation of pole-mounted repeaters and antennas at key locations along Forestville Road.

- Ethernet Communications *may* be required

- Utility Make Ready (UMR) for the relocation of conflicting utilities or the installation of wireless signal interconnect equipment along SR 2049 (Forestville Road) *may* be necessary.

Work Standards

All work will be completed according to the standards established in the MUTCD, the NCDOT *Standard Specifications for Roads & Structures* and *Roadway Standard Drawings* (latest editions), the NCDOT Signals & Geometrics *Signal Design Manual*, and the "*Guidelines for the Preparation of ITS and Signal Plans by Private Engineering Firms*" located at https://connect.ncdot.gov/resources/safety/Pages/ITS-and-Signals.aspx.

A database configuration file will be provided for the signal at this project location. The file will include all the necessary programming entries to achieve the desired operation of the Signal Design for the location. The file will be compatible with the local controller software that is being used and will be able to be downloaded directly to the controller unit without conversion.

Information and Services to be Provided by the Town (obtained from NCDOT)

1. Copies of all available signal file folder information and electronic (Microstation) for NCDOT Signal No. 05-1924 wherever available.
2. Copies of existing Communications Plans and Splice Diagrams (PDF and/or MicroStation) for NCDOT Signal No. 05-1924 wherever available.
3. Any known revisions to original plans for the existing system in this area.
4. Catalog cuts/existing equipment information for ITS/system equipment if available.

Schedule - Dates are calculated around the Plan Due Date (for NCDOT, this has typically been a week prior to the "Roadway Plans to Cont & Prop" date. For Centrally Managed projects this is typically 15 weeks prior to let. For Municipal or Division Managed projects, use their required date.)

Regular Scheduling		
Item	**Date**	**Weeks Prior to Plan Due Date**
Signal Warrant Analysis to Town	August 1, 2023	N/A
Preliminary Pole Location Sheet to Town	October 2, 2023	24
Town consolidates comments and sends to AMT	October 9, 2023	23
Public Notice to Town	October 16, 2023	22
75% Signal Plans, Communication Plans to NCDOT ITS/Signals (NO electrical details)	October 30, 2023	20
NCDOT ITS/Signals Returns Comments to Town	November 20, 2023	17
Town consolidates comments and sends to AMT	November 27, 2023	16
90% signals, electrical, comm. plans, PSP, and quantities to ITS & Signals	December 22, 2023	12
NCDOT ITS/Signals Returns Comments to Town	January 12, 2024	9
Town consolidates comments and sends to AMT	January 19, 2024	8
100% sealed PS&E submittal due to ITS & Signals	February 16, 2024	4
Plan Due Date to Town	**March 15, 2024**	0

Deliverables

1. Preliminary Pole Location Sheets
2. 75% unsealed signal plans, wireless communication plan
3. 90% unsealed traffic signal plans, electrical details with configuration file, and wireless communication plan
   - One (1) copy of clearance calculations, quantities, project special provisions, wireless communication plan, utility make-ready plans (if any), and autoturn sheets
4. 100% sealed traffic signal plans, electrical details with configuration file, wireless communication plan, utility make-ready plans (if any), and autoturn sheets
   - One (1) copy of clearance calculations, quantities, project special provisions (sealed) and autoturn sheets
5. Electronic project files – Electronically sealed, searchable PDFs. One PDF per plan sheet.
   - For Plan checking

Plans, Special Provisions and Quantities including:

Roadway Design:

A. Morton Thomas and Associates, Inc. (AMT) shall develop final plans and project special provisions in sufficient form and detail for the Town of Wake Forest (Town) to let construction contracts. All final designs for the Project shall conform to the following design specifications:

- NCDOTs *Roadway Design Manual*
- NCDOTs Roadway Standard Drawings
- NCDOTs Standard Specifications for Roads and Structures
- NCDOT's *Municipal / Developer Submittals Guidelines*
- NCDOT's *Guidelines for Drainage Study and Hydraulic Design*
- AASHTO's *A Policy on Geometric Design of Highways and Streets* (latest edition)
- FHWA'S *Manual on Uniform Traffic Control Devices* (latest edition)
- Town of Wake Forest's *Manual of Specifications, Standards & Design*

Plans shall be developed using MicroStation V8i and GEOPAK software. Final design plans shall include roadway and sidewalk design and details, construction traffic control plans, pavement marking plans, erosion control notes and details, and material quantities; and shall identify existing right-of-way, proposed right-of-way, and permanent, utility, and construction easements sufficient to encompass all improvements. The roadway plans will conform to the plan requirements described in NCDOT's *Municipal / Developer Submittal guidelines* so that if an encroachment permit with NCDOT is required, the plans will only require minimal, if any edits to submit to NCDOT.

AMT will coordinate with the Town for roadway plan reviews. A formal scoping meeting with NCDOT is not anticipated and is not included in this scope.

- **Task 1** – Preliminary Design (25% Plans):

Prior to developing preliminary design plans, AMT will develop conceptual level designs and evaluate alternatives regarding the transitions/taper from the existing typical section to the proposed typical section at both project termini points. The conceptual design will be sent to the Town for review. Redesign of the vertical and horizontal geometry, including pavement width, is not anticipated on Green Drake or Forestville Road. Widening and lane reconfigurations may be necessary on Coach Lantern.

All curb ramps and crosswalks within the project area will be upgraded/corrected to meet standards. The Preliminary Plans shall consist of roadway typical sections, plans, profiles and cross sections. The plans at this stage will represent approximately 25% of roadway design.

AMT shall prepare the preliminary roadway plans on plan and profile sheets at a scale of 1"=40' horizontal and 1"=4' vertical. AMT shall prepare preliminary cross sections at a scale of 1"=10' every 50' throughout the project area.

AMT shall prepare an Opinion of Probable Cost to be submitted to the Town along with the preliminary plans. After the Town has reviewed the plans and provided comments, AMT will revise the Preliminary Plans and resubmit.

Task 1 Schedule:

The roadway plans will follow the schedule laid out in the Signals and ITS scope of work. Preliminary Design Plans will be submitted for review on or before the Public Notice deliverable.

Task 1 Deliverables:

- Conceptual layout
- Preliminary Plans and Cross Sections (PDF)
- Opinion of Probable Cost (PDF/Excel)

- **Task 2** – Right of Way Plans (75% Plans):

All existing structures, utilities, proposed signal pole locations, and other items affected by the project shall be shown in addition to the proposed construction. The plans shall include horizontal geometrics, pavements, existing drainage layout, property lines, typical sections, traffic control plans, preliminary signing and pavement marking plans, preliminary signal design plans, erosion control notes and details, utility by other plans, and special details.

AMT shall prepare an Opinion of Probable Cost to be submitted to the Town along with the plans. After the Town has reviewed the plans and provided comments, AMT will revise the Plans and resubmit.

Task 2 Schedule:
The roadway plans will follow the schedule laid out in the Signals and ITS scope of work. Right of Way Plans will be submitted for review with the 90% Signal plans.

Task 2 Deliverables:

- 75% Roadway Plans and Cross Sections (PDF)
- Opinion of Probable Cost (PDF/Excel)

- **Task 3** – Final Roadway Design Plans (100% Plans)

Once the comments on the 75% plans have been addressed, AMT will compile Final Roadway Design Plans, Specifications, and Estimate (PS&E) package. Items include standard drawings, general notes, special provisions, and relevant summary plan sheet summaries. Before sealing, AMT will submit the plans (approximately 90% final construction plans) to the Town for their final review. Once all comments have been addressed the plans will be sealed and submitted with the final PS&E package.

Task 3 Schedule:
The roadway plans will follow the schedule laid out in the Signals and ITS scope of work. 90% Final construction plans will be submitted for review with the 100% Signal plans. If any comments occur, AMT will address them, seal the plans and submit the PS&E package.

Task 3 Deliverables:

- Unsealed plans for final review
- Sealed Roadway Plans and Cross Sections (PDF)
- Final Construction Quantities
- Special Provisions
- Opinion of Probable Cost (PDF/Excel)

Pavement Markings:

- **Task 4** – Initiate Signing & Delineation Design

AMT will develop a delineation design based on the Preliminary Design Plans. Pavement delineations will be in accordance with Manual of Uniform Traffic Control Devices (MUTCD), NCDOT Roadway Standard Drawings, and NCDOT Signing and Delineation Manual. Design plans will include existing signage inventory sheet and an attempt to re-use or modify the existing signage will be evaluated.

Task 4 Schedule:
The Initial Delineation Plans will follow the schedule laid out in the Signals and ITS scope of work and will be submitted with the 75% Signal Plans

Task 4 Deliverables:

- Initial Delineation Plans

- **Task 5** – Complete Delineation Design

After the comments from the preliminary pavement marking and signing plans are addressed, the signing and delineation design plans will be created. These will include quantity estimate for all signing and pavement marking items. Unsealed plans will be submitted for review. After comments from the unsealed plans are addressed, the plans will be sealed and submitted.

Task 5 Schedule:
The Unsealed Delineation Plans will follow the schedule laid out in the Signals and ITS scope of work and will be submitted with the 90% Signal Plans. If any comments occur, AMT will address them and submit the sealed Completed Delineation Plans with the Sealed Signal PS&E.

Task 5 Deliverables:

- Unsealed Delineation Plans
- Sealed Delineation Plans
- Project Special Provisions
- Quantities

Hydraulic Design and Erosion Control Plans:

- **Task 6** – Hydraulic Design

AMT will conduct field reconnaissance of existing and proposed drainage features and patterns associated with the project including storm drain systems, pipe crossings and ditches. It is assumed no Pre-Design meeting is required. S**ignificant redesign of the existing drainage conveyance systems is not anticipated.** Analysis of the existing drainage system will not occur unless impacted by the intersection improvement project.

If any drainage design is required, it will consist of designing proposed ditches and storm drain improvements necessary to accommodate the proposed intersection improvements. Design of structural BMP's such as detention ponds are not anticipated or included in this scope of work. A drainage report is not anticipated as a part of this scope.

Proposed drainage features will be included with all each roadway plan submittal. The Drainage plans, if required, shall include a title sheet, applicable details, notes and planimetric designs.

Task 6 Deliverables:

- Drainage Plan Sheets
- Project Special Provisions
- Quantities

- **Task 7** – Erosion Control

AMT does not anticipate more than 1 acre of disturbance with this scope of work. Should total land disturbance be more than one (1) acre, the Engineer, will submit erosion control plans to NCDEQ for review and approval. The Town will be responsible for signing and notarizing the NCDEQ Financial Responsibility Form and paying the required review fees for the project.

If the project disturbs more than one (1) acre, AMT will develop preliminary erosion control plans for the clearing and grubbing and intermediate/final grade phases to identify large erosion control features that will impact right-of-way and easement acquisitions. These features will be sized accordingly and included with the 75% roadway plan submittal. The design will specify erosion control measures, which minimize erosion and limit off-site sedimentation during construction of the Project.

Once the preliminary plans have been reviewed, AMT will incorporate the comments into the Final Erosion Control Plans. Erosion Control quantities and special provisions will be prepared based on the final plans.

Task 7 Deliverables:

- Erosion Plan Sheets
- Project Special Provisions
- Quantities

Scope of Services

Forestville Rd Intersection with Coach Lantern Ave. and Green Drake Dr. Intersection Improvements
Wake Forest
Wake County, NC

Phase 1 - Topographic Surveying, Mapping and Platting

Task includes the following activities:

- Perform property owner research on approximately 15parcels.
- Property owner notification letters.
- Survey Corridor shall be as shown on attached sketch
- NV5 will perform sufficient field surveys to delineate those existing property lines, rights-of-way and easements within the survey limits. Existing property lines will be mapped based on existing property monumentation in conjunction with recorded deeds and plats.
- Topographic surveys will be performed according to the requirements for a Class C Trigonometric Topographic Survey depicting one foot contour lines. The topographic survey will include existing conditions such as buildings, sidewalks, curb/gutter, paving, roadways, parking areas, drainage features, concrete slabs and fences within the survey limits. Visible utility structures, including fire hydrants, power poles, manholes, vaults, traffic signal cabinets, valves, etc., will be located on the survey. Corresponding top, bottom and invert elevations of storm and sanitary structures will also be recorded. Pipe sizes entering and exiting these structures will also be noted, where accurately attainable. Storm drainage and sanitary systems will be traced and located to one structure beyond the survey limits of the project. Other information that will be shown on the final deliverable includes location of flood plain and perimeter of wooded areas.
- Location and mapping of Level B SUE designation (See Phase 2).
- The survey will be horizontally tied to the North Carolina State Plane Coordinate System under the North American Datum of 1983 (NAD83). Vertically, the project will be tied to the North American Vertical Datum of 1988(NAVD88). The project's units will be the U.S. Survey Foot. Additionally, the survey will be performed based on the Rules of Standard Practice as outlined by the North Carolina Board of Registration for Engineers and Land Surveyors.

Phase 2 – Level B Subsurface Utility Designation

NV5, shall employ geophysical prospecting techniques to determine the existence and horizontal position of underground utilities within the project limits. The utilities will be marked on the ground using a universally recognized system of paint markings at 50 foot intervals along the utility and at all bends in the line. Non-metallic lines cannot be located using standard pipe and cable locating equipment. NV5 will however, attempt to locate these lines

using utility records and indirect methods such as ground penetrating radar (GPR). GPR technology complements standard electromagnetic techniques in the field. Allowing NV5 to detect all material types metallic and non-metallic, including plastics, concrete, ceramics, asphalt composites and more. NV5 cannot guarantee the accuracy of these locates and will not guarantee that all non-metallic lines can be located. Utilities buried in a common trench, or in close proximity to other utilities or metal structures, occasionally cannot be isolated. NV5 will, if possible attempt to isolate all lines. However, such isolation and location may not be possible or practicable and NV5 does not warrant or guarantee the location and/or isolation of the underground utilities designated during the investigation. This service does not include the location of stormwater or sanitary sewer (gravity). NV5 will provide a copy of digital field sketches of the appurtenances as well as utilities that were designated.

Deliverables:

Existing Conditions and Topographic survey in Microstation format.

DTM, DAT and TIN files in Microstation/Geopak format.

PDF copies of Deeds and Plats collected during the property research

Exclusions:

The following items are excluded from the Scope of Services:

- Right of way and Easement acquisition plats, exhibits or legal descriptions.
- Any other platting services not specifically included in the above scope of services.
- Any stakeout services.
- Determination of the presence or absence of hazardous chemicals, threatened and endangered species, or other issues not expressly described in the scope of work.
- Appearance before courts or boards on matters of litigation or hearings related to the project, unless expressly specified in the scope of the project.
- Expenses for overnight delivery services
- Vacuum Excavation

P22–0641 FORESTVILLE AT COACH LANTERN

A. MORTON THOMAS AND ASSOCIATES, INC.
6131 FALLS OF NEUSE ROAD, SUITE 101 • RALEIGH, NC 27609
(919) 855-9989 • NC LICENSE NO. F-1049
WWW.AMTENGINEERING.COM

Fee Estimate
Project: Signal Installation at Forrestville/Coach Lantern
Firm: A Morton Thomas and Associates, Inc
Date: 8/8/23

LABOR

Task #	Description	Proposed Fee Type	Consultant Fee	Total Subconsultant Fee	Subconsultant
?	Survey			$66,119.74	NV5
1.0	Traffic Signal Warrant Analysis and Preliminary Pole Analysis		$ 7,335.00		
2.0	Traffic Signal Design		$ 30,990.00		
3.0	Final Roadway Design Plans - see Tasks 7.0 through 13.0 (if required)		$ -		
4.0	Signal Communications Plans		$ 19,605.00		
5.0	UMR Plans (if required)		$ 9,340.00		
6.0	Public Involvement		$ 1,470.00		
7.0	Preliminary Design (25% Plans) (if required)		$ 3,802.50		
8.0	Right of Way Plans (75% Plans) (if required)		$ 7,807.50		
9.0	Final Roadway Design Plans (100 % Plans) (if required)		$ 5,935.00		
10.0	Initiate Signing & Delineation Design (if required)		$ 3,335.00		
11.0	Complete Delineation Design (if required)		$ 1,875.00		
12.0	Hydraulic Design (if required)		$ 3,985.00		
13.0	Erosion Control Plans (if required)		$ 4,385.00		
		Subtotal	$ 99,865.00	$ 66,119.74	

EXPENSES

			Consultant	Subs
	REIMBURSEABLE EXPENSES		$2,000.00	
		Subtotal	$ 2,000.00	$ -

LABOR & EXPENSES TOTAL $ 167,984.74

ADDITIONAL SERVICES

				$ -

TOTAL $ 167,984.74

Contractor/Vendor Name: A. Morton Thomas and Associates

Vendor Number: 5746

Contract type: Consulting

Description / Scope of Work: Planning Signal location based on the CTP and providing construction documents for the signal design

Contract Amount: 167984.74

RFP/RFQ #:

Contractor signature: E-SIGNED by Samuel Macdonald on 2023-09-07 18:33:42 GMT

Date: September 07, 2023

Finance Department signature: E-SIGNED by Aileen Staples on 2023-09-25 22:33:47 GMT

Date: September 25, 2023

Town Manager signature: E-SIGNED by Kip Padgett on 2023-09-26 01:19:31 GMT

Date: September 26, 2023

Attested By: E-SIGNED by Theresa Savary on 2023-09-26 13:11:36 GMT

Date: September 26, 2023

TOWN OF WAKE FOREST INCORPORATED SEAL FEB. 20, 1909 NORTH CAROLINA

This instrument has been pre-audited in a manner required by the Local Government Budget and Fiscal Control Act.

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-276-
Submitted by: Ella Dowtin
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Appointment of Candidates for the Board of Adjustment and Planning Board

Recommendation:

Item Summary:

ATTACHMENTS
- Board ofAdjustment and Planning Board Candidates Cover letter_2.pdf
- Board of Adjustment Candidate 10-17-2023.pdf
- Planning Board Candidates 10-17-2023.pdf

Wake Forest Planning Board Applicants

Board of Adjustment – 1 Alternate Seat
Planning Board – 2 Regular Seats

Note: *Did not attend the September 19, 2023, BOC meeting
****Attended the September 19, 2023, BOC meeting**
***** Reapplying (Current Planning Board Member)**

All Candidates:

Candidates	Town Limits
Board of Adjustments	
Ta'Resa N. Turner	Yes
Planning Board	
Edward Aina	Yes
Ryan T. Blakenship	Yes
Jeffrey B. Bruck	Yes
Roger Deutsch	Yes
Christopher K Doherty	Yes
George Gawf	Yes
Joel W. Hubacheck	Yes
Deanna C. Kabler	Yes
Keith Meadors	Yes
Laurence J Pearlman	Yes
Nick H Spencer	Yes
Lasonda R. Stasinopoulos	Yes
Matthew Wittl	Yes
***Did not attend the September 19, 2023, BOC meeting**	
*James F. Barber	Yes
*Joshua Epperson	Yes
*Daniel Gardiner	Yes
*Jennifer Haley	Yes
*Kevin Haynes	Yes
*Benny A. Jenkins	Yes
*John Mann	Yes
*Shipman Northcutt	Yes
*Anthony Skubic	Yes
****Attended the September 19, 2023, BOC meeting**	
**Matt Davis	Yes
**Jarrett Lane	Yes
**Phillip Martin	Yes
**Sarah Mobraten	Yes
**Veronica Roanhouse	Yes
**Elaine Sheppard	Yes
***** Reapplying (Current Planning Board Member)**	
***Michael Siderio	Yes

Profile

Ta'resa
First Name

N
Middle Initial

Turner
Last Name

525 traditions grande blvd
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

taresa.turner@yahoo.com
Email Address

Mobile: (919) 539-8912
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Board of Adjustment: Submitted

Accountant/Consultant
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

1 year

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Growing up I was heavily involved in the community. Now that I am back in NC, I would like to get involved and help to make sure my child has similar opportunities.

Question applies to multiple boards

Upload Resume

Question applies to multiple boards

Personal_Statment_PRCR_Board.docx

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Question applies to Planning Board,Board of Adjustment

I participated in the following:

None Selected

Ethics Guidelines for Town Advisory Boards and Councils

Please Agree with the Following Statement

If appointed, I pledge to comply with the following ethics guidelines for advisory boards and commissions as adopted by the Wake Forest Board of Commissioners

☑ I Agree

Members of advisory boards and councils shall not discuss, advocate or vote on any matter in which they have a conflict of interest or an interest which reasonably might appear to be in conflict with the concept of fairness in dealing with public business. A conflict of interest or a potential conflict occurs if a member has a separate, private or monetary interest, either direct or indirect, in any issue or transaction under consideration. Any member who violates this provision may be subject to removal from the board or council.

If the advisory board or council member believes he/she has a conflict of interest then that member should ask the advisory board or commission to be recused from voting. The advisory board or council should then vote on the question on whether or not to excuse the member making the request. In cases where the individual member or the advisory board or council establishes a conflict of interest, then the advisory board or council member shall remove themselves from the voting area.

Any advisory board or council member may seek counsel of the Town Attorney on questions regarding the interpretation of these ethics guidelines or other conflict of interest matters. The interpretation may include a recommendation on whether or not the advisory board or council member should excuse himself/herself from voting. The advisory board or council member may request that the Town Attorney respond in writing.

Prior to being appointed to an advisory board/council, it is recommended that you attend a meeting of the advisory board/council in which you have an interest. This helps each applicant to be more aware of the work of the advisory board/council. If you have attended a meeting of an advisory board/council, please indicate the date:

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Per NCGS 160C-109, members of appointed boards shall not vote on any advisory or legislative decision regarding a development regulation adopted where the outcome of the matter being considered is reasonably likely to have a direct, substantial, and readily identifiable financial impact on the member. An appointed board member shall not vote on any zoning amendment if the landowner of the property subject to a rezoning petition or the applicant for a text amendment is a person with whom the member has a close familial, business, or other associational relationship. A member of any board exercising quasi-judicial functions shall not participate in or vote on any quasi-judicial matter in a manner that would violate affected persons' constitutional rights to an impartial decision maker. Impermissible violations of due process include, but are not limited to, a member having a fixed opinion prior to hearing the matter that is not susceptible to change, undisclosed ex parte communications, a close familial, business, or other associational relationship with an affected person, or a financial interest in the outcome of the matter. A "close familial relationship" means a spouse, parent, child, brother, sister, grandparent, or grandchild. The term includes the step, half, and in-law relationships.

☑ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Code of Conduct: When participating in a meeting or conducting Town business (whether in person, via email, or other communication method), board and commission members shall conduct themselves in an ethical and professional manner. Any board or commission member who engages in inflammatory, hostile or threatening language or behavior toward others, including but not limited to elected officials, staff or another board or commission member, will be removed from the meeting. Any member who engages in the aforementioned behavior is also subject to dismissal from the Board. I understand that that board and commission appointments serve at the pleasure of Board of Commissioners and may be removed from an appointed board or commission at the discretion of Board of Commissioners. Meeting Preparedness to successfully prepare for a meeting, then you will be provided agenda materials in advance. An unprepared board or commission member reflects poorly on the Town of Wake Forest as well as fellow board or commission members since questions asked are often found in the staff report. Any member who continually comes unprepared to meetings is subject to dismissal from the Board. Dress Code Board members are expected to be well groomed, cleaned, and dressed in business casual attire. Shorts, t-shirts, and jeans are not permitted. If a Planning Board member is dressed or groomed inappropriately for a meeting, work session, or a Comprehensive Plan workshop, they will be prevented from participating and counted as absent

---

☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Ta'resa Turner

How did you learn about the town's advisory board openings?

- [x] Town website

I am Ta’resa Turner, NC native who returned during the pandemic to be closer to my family after living in DC and Atlanta for six years. My upbringing revolved around sports and cultural arts. I was part of an African dance ensemble, Collage Dance Company, and still enjoy dancing now. I actively participated in volleyball, track and field, softball, and basketball. I strongly believe that children need positive outlets for self-expression. Combining my experiences with my desire for my child to grow up in an area with such opportunities makes me an invaluable potential board member.

Profile

Edward
First Name

Middle Initial

Aina
Last Name

1105 Meadowood Way
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

edwardaina@gmail.com
Email Address

Mobile: (678) 982-4515
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Salesforce Administrator
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

1 year

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I have had a chance to participate in urban planning during my residency in Fulton County, GA. Also, took collegiate courses in the cycle of poverty that focused on the effects of neighborhoods considered to be located in a food desert. 1. Understanding the social and economic impact of building freeways, and access roads in highly dense communities 2. Gathering statical data to forecast population growth and traffic flow to properly place zoning laws appropriately to serve the communities effectively 3. Designing CRM solutions to record and archive concerns that arise during the life cycle of planning and implementing new developments

Question applies to multiple boards

Upload Resume

Question applies to multiple boards

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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☑ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

Please Agree with the Following Statement

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☑ I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Edward Aina

How did you learn about the town's advisory board openings?

☑ Town website

Profile

Ryan
First Name

T
Middle Initial

Blankenship
Last Name

712 Elizabeth Ave.
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

ryant.src@gmail.com
Email Address

Mobile: (919) 229-5142
Primary Phone

Business: (919) 582-3201
Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Development & Construction Manager
Occupation

Do you live within the town's limits or ETJ?

- (•) Yes
- ( ) No

Length of residency in Wake County

25 Years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

In response to the request for relevant experiences and other pertinent information to support my candidacy for the Planning Advisory Board, I'd like to highlight the following: 1. Commercial Property Development: Over the past 12 years, I have been actively involved in commercial property development along the east coast of America, from Virginia through Florida. This experience has provided me with a comprehensive understanding of zoning laws, building regulations, and the intricacies of sustainable urban development. 2. Community Engagement: I have consistently engaged with local communities during the planning and execution phases of my projects. This has instilled in me the importance of transparent communication, understanding community needs, and ensuring that development projects align with the broader vision of the community. 3. Collaboration with Local Authorities: Throughout my career, I have worked closely with local authorities and regulatory bodies to ensure that my projects adhere to all guidelines and regulations. This has fostered a collaborative approach and has given me insights into the workings of local governance. 4. Continued Education: I have attended various workshops, seminars, and courses related to urban planning, sustainable development, and community engagement. This continuous learning has kept me updated with the latest trends and best practices in the field. 5. Leadership Roles: I have led teams of architects, planners, and engineers in various projects, ensuring that all stakeholders are aligned and that projects are executed efficiently and effectively. 6. Local Resident: As a resident of the Town of Wake Forest, I have a personal stake in the growth and development of our community. I am deeply invested in ensuring that any development aligns with the town's character and values. 7. Problem Solving & Conflict Resolution: In my line of work, I have often encountered challenges and conflicts, be it related to project timelines, community concerns, or regulatory hurdles. My approach has always been to address these challenges head-on, seeking collaborative solutions that benefit all parties involved. In conclusion, I believe that my professional experiences, combined with my personal commitment to the Town of Wake Forest, make me a strong candidate for the Planning Advisory Board. I am keen to leverage my skills and knowledge to contribute positively to the future planning and development of our town.

Question applies to multiple boards

Personal_Statement-Planning_Advisory_Board.docx

Upload Resume

Question applies to multiple boards

Ryan_T_Blankenship_Resume_2023.pdf

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

1. God 2. Family 3. Traveling 4. Fishing 5. Networking

Question applies to Planning Board,Board of Adjustment

I participated in the following:

- [x] Citizen's Planning Academy

Ethics Guidelines for Town Advisory Boards and Councils

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

Please Agree with the Following Statement

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☑ I Agree

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Ryan Blankenship

How did you learn about the town's advisory board openings?

☑ Other

Town of Wake Forest – Planning Advisory Board Application
Personal Statement – Ryan T, Blankenship

Growing up in Wake Forest since my days at Wake Forest-Rolesville Middle School has deeply rooted me in this community. My journey from those school days to now, as a professional in commercial property development, has only strengthened my dedication to our town. I am fervently committed to the programmatic development and future growth of Wake Forest, ensuring it reflects both our rich history and our shared aspirations. Serving on the Planning Advisory Board would be an honor, allowing me to contribute my expertise and lifelong passion for our beloved town.

Ryan T. Blankenship 712 Elizabeth Ave. • Wake Forest, NC 27587

Ryant.src@gmail.com • 919-229-5142

SUMMARY

Land acquisition and development professional with over 15 years of comprehensive experience in construction and real estate. Proven expertise in building and nurturing client relationships, leadership, and staying updated with market trends and demands.

KEY QUALIFICATIONS

Over 15 years in general construction, specializing in land development acquisitions, construction, and residential home building ($300k-$1mil+).

- Directed teams resulting in Gross sales of $10mil annually.
- Expertise in budget management, purchasing, inventory, and vendor relations.
- Latest knowledge of building codes, construction techniques, materials, and equipment
- Proficient in municipality UDO regulations
- Consistent delivery: 2 major subdivisions and 27 homes built annually.
- OSHA/CPR Certified

EDUCATION

Wake Technical CC | Raleigh, NC **2005-2007**

- *A.A*

North Carolina State University | Raleigh, NC **2008-2009**

- Completed Coursework

PROFESSIONAL HIGHLIGHTS

Development & Construction Manager **2022 - Present**
APG Companies, | Raleigh, NC
APG Capital, LLC
APG Development, LLC

- Lead the land entitlement process, ensuring timely approvals and compliance with local regulations.
- Collaborate with local authorities, agencies, and community stakeholders to facilitate the entitlement process.
- Coordinate with legal, engineering, and planning teams to address any challenges or issues during the entitlement phase.

President **2011- 2022**
Solid Rock Construction of NC Inc. | Raleigh, NC

- Managed acquisitions and development of residential subdivisions.
- Oversaw hiring, training, expenses, payroll, and business development.
- Ensured top-tier customer service and satisfaction.

Construction Manager **2002-2006**
David Weekley Homes, Raleigh, NC

- Supervised and managed contractors and vendors
- Supervised contractors and vendors, ensuring timely and quality work.
- Maintained reports and documentation, fostering positive business relationships.
- Directed home finishing processes and achieved top scores on customer surveys and final walkthroughs.

Profile

Jeffrey
First Name

B
Middle Initial

Bruck
Last Name

2800 Buggy Whip ct
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

bruckster318@gmail.com
Email Address

Home: (919) 671-2272
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Product Quality Engineer-
Supplier Quality GE
Aerospace
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

16 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

My living history includes growing up in developed suburban area outside of Detroit. I also lived in a small more rural area in Louisiana for 3 years. My family have lived in Wake Forest for the past 16 years. My work history includes being a part of family business in the insurance industry.

Question applies to multiple boards

Resume-Jeffrey-Bruck.pdf
Upload Resume

Question applies to multiple boards

Jeff_Bruck_personal_statement.pdf
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Family, Friends and Travel. Very active involvement in my Church, from hosting brown bag ministry and developing a men's ministry.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

- [x] Citizen's Academy

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Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

Please Agree with the Following Statement

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☑ I Agree

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Jeffrey Bruck

How did you learn about the town's advisory board openings?

☑ Town website

Jeffrey Bruck

bruckster318@gmail.com
9196712272
linkedin.com/in/jeffrey-bruck-b038a989

Summary

A Lean Manufacturing focused person with a history of working in the aviation and automotive industry. Skilled in Root Cause Analysis, Continuous Process Improvement, Visual Inspection, and Human Resources. An exceptional knowledge of Teaming Standards, Ergonomics, and Safety Risk Analysis.

Experience

Assembly and Test Technician Level 3

GE Aerospace

Mar 2007 - Present (16 years 8 months)

Technician Special Role Program Quality Leader CFM56 and CF34-10 (currently)

PFMEA Durham site focal September (2020 - present)

Assembly and Test Technician qualified on multiple engine lines including CFM56, GENX, GE90, CF34-8 and CF6

Completed a rotation as a Work Station Owner role for CFM56 Horizontal

Supported GE field service engineering at Boeing Renton, WA facility for CFM56 MMA P-8A Poseidon engine line

Served as council representative role on different production teams, including EHS, HR, Training and PDPD.

Facilitate required new hire training (torque, bearing handling,safety cable) per GE aviation standards

Qualified Stationary Grind Machine Operator for DEF Facility

EHS Safety Risk Assessment qualified, served as EHS Management of Change Focal for the reintroduction of CF34-8 engine program to DEF.

GE Aviation MRB Quality Chairperson

GE Aviation ARD under the authority PC 108 - FAA Airworthiness Documentation and Visual Inspector for LEAP, CFM56 and CF6.

Aircraft Maintenance Technician

ExpressJet Airlines

Sep 2004 - Mar 2007 (2 years 7 months)

Performed Heavy "C" Check on EMB135, EMB145, and EMB 145XR regional 35-50 seat aircraft.

Performed complicated wire modifications for avionic systems in accordance with Blue Print CID

Assisted introducing ExpressJet's pilot program 5S Lean system.

Learned basic knowledge of a teaming environment with mechanics functioning as a Bay Unit to deliver aircraft on time for Estimated Time of Completion.

Performed overnight routine aircraft maintenance and released aircraft back to revenue service.

Education

MIAT College of Technology
Associate of Science (A.S.), Airframe Mechanics and Aircraft Maintenance Technology/Technician
2000 - 2001

Oakland Community College
Business Administration and Management, General
1994 - 1997

Licenses & Certifications

Six Sigma Green Belt - GE

Airframe and Powerplant License - Federal Aviation Administration

Skills

Six Sigma • Lean Manufacturing • Aerospace • Aircraft Maintenance • Aviation • Manufacturing • Continuous Improvement • Testing • Process Improvement • Servant Leadership

To whom it may concern,

I feel I am well rounded candidate to be on the Planning Board Advisory for the following reasons.

Solid family married man with a wife and three children. Ages 18, 16 and 14 2 daughters and a son

No criminal background

I listen and treat people fair with what is presented to me.

My current job involves a lot of detail orientated acceptance per engineering blueprints.

Have traveled to Europe both on professional and personal trips.

Lived in different areas of the United States, from rural to near major cities.

Grew up in self-employee small business family.

Enjoy building new friendships and relationship with no expected outcomes.

Profile

Roger
First Name

Middle Initial

Deutsch
Last Name

428 Bridgeton Ave.
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

rogerdeutsch7@icloud.com
Email Address

Mobile: (919) 745-0907
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Chief Marketing Officer - Minority Business Owner
Occupation

Do you live within the town's limits or ETJ?

○ Yes ◉ No

Length of residency in Wake County

7 plus years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Extremely knowledgeable is growing various businesses as well as working with cities, counties, and municipalities. Also served on the Columbia MD school redistricting committee. Have served and worked with many organizations and people over the years.

Question applies to multiple boards

Profile__7_.pdf
Upload Resume

Question applies to multiple boards

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Not a hobby... but family, church, reading Bible, educated friends and family members to move to Wake Forest. So far three couples and several kids have moved into WF. Please visit my LI profile. That is where I heard about this opportunity.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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Roger Deutsch

How did you learn about the town's advisory board openings?

☑ Other

Contact

rogerdeutsch7@icloud.com

www.linkedin.com/in/roger-deutsch-b8614918 (LinkedIn)

Top Skills

Management

Recruiting

Temporary Placement

Roger Deutsch

Chief Marketing Officer at Action Technology, Inc. | Strategic Growth Driver

Raleigh-Durham-Chapel Hill Area

Summary

I am a senior executive with over 35 years of experience in the staffing and workforce solutions industry. As the Chief Marketing Officer and a minority owner at Action Technology, Inc., I lead the strategic direction and execution of our marketing and sales initiatives, as well as our operational excellence and financial performance.

I have a strong track record of securing and expanding national and local contracts with diverse clients, ranging from government agencies to private corporations. I have also increased our service offerings in consulting, project management, and staffing, leveraging my expertise in account management, operations management, business development, client relations, revenue growth, negotiation strategies, forecasting, sales cycle management, market analysis, and branding. I am passionate about delivering innovative and customized solutions that meet the needs of our clients and candidates, and that align with our mission and values as a woman-owned small business certified within the SBA WOSB Program.

Experience

Action Technology, Inc.

Chief Marketing Officer - (Minority Owner)

March 2018 - Present (5 years 6 months)

Midlothian, Virginia, United States

Action Technology, Inc. is a woman owned small business certified within the SBA WOSB Program and has been providing staffing needs across the United States for over 40 years. Action Technology's goal is to function as your strategic staffing partner.

Since March 2018 have been steering the organization by offering expertise in account management, operations management, business development,

client relations, revenue growth, negotiation strategies, forecasting, sales cycle management, market analysis and branding.

Secured several multi-million-dollar national programs as well as state, county, city, and municipality contracts. Continue to expand our footprint in Consulting, Project Management, Staff Augmentation, Contingent Labor, Employer of Record, and Payroll Services. Moved internal recruiting and sales organization from inhouse tool to JobDiva. Continue to drive sales and recruiting operation including training and expanding recruiting knowledge into new classifications and opportunities. Became a Virginia Values Veterans (V3) certified company. Added a proposal writer and created a library of information to respond to RFI's and RFP's. Completely revamped and branded the Action Technology website.

MS Companies
Executive Vice President
March 2017 - March 2018 (1 year 1 month)
Indianapolis, Indiana, United States

Initially hired as the Executive Vice President – Strategy and Emerging Services. Since initial hire date received additional responsibilities including managing several large MSP's on-site programs with headcount over 1000 contingent workers. Landed several new national programs in addition to growing on-site program locations. Partnered with one of the largest VMS software companies. Participated in several MSP and operation/delivery wide corporate initiatives including system development, supplier portal functionality, billing functionality, and vendor set-up logic.

Caliper, Inc.
Chief Operating Officer
January 2007 - January 2017 (10 years 1 month)
Virginia Beach, Virginia, United States

Revenues grew from 19 million in 2006 to over 90 million in 2016. Averaged weekly headcount of 2000 W2's. Received 2016 Supplier Excellence/Indirect Purchasing Supplier of the Year Award from Faurecia. Directly involved in new business development both national and regional accounts as well as expanding existing accounts. Assisted clients transform their business performance and accelerated growth through strategic sourcing and staffing solutions. Opened new offices in Michigan, Ohio, Indiana, Kentucky, Virginia, North Carolina and remote offices in Missouri, Pennsylvania, and Tennessee. Created National Recruiting Profit Center and National Program Office for tier-

two activity. Managed all profit centers and multiple on-site contracts, Human Resources department, Operations, Marketing, Sales, Safety Programs, and our QA/QC Program – 65 staff employees. Designed and deployed Managed Service Provider (MSP) solutions and services. Seamlessly transitioned 100's of contractors to Caliper's W2 payroll.

Created an organization that is completely flexible and scalable to our client's needs. Developed consistent labor practices and pro-active recruiting strategies. Built a positive team culture that was motivated to all our stakeholders. Continued to drive revenue and profit within the staff augmentation and temporary labor markets. Reviewed all contracts and legal documents. Produced and wrote many winning proposals, sales presentations, and marketing programs. Assisted in the writing and branding of the new Caliper, Inc. website. Assistant Facility Security Officer – Secret Clearance.

SJS Executives, LLC

Minority Owner

January 2012 - December 2015 (4 years)

Virginia Beach, Virginia, United States

SJS Executives is an 8(a) diversified minority and SDVOSB company. SJS supports task orders for the federal government and military agencies.

FPC of Hampton Roads

Minority Owner

January 2012 - December 2015 (4 years)

Virginia Beach, Virginia, United States

FPC of Hampton Roads supports global companies with direct placement services. FPC of Hampton Roads is part of SJS Executives.

CDI Corporation

Vice President

September 2005 - December 2006 (1 year 4 months)

Philadelphia, Pennsylvania, United States

Leadership of CDI's service to Northrop Grumman Corporation and its eight business sectors throughout the United States, providing leased labor for all skill sets. Developed and maintained high-level and local relationships with all the Northrop Grumman business sectors and business units. Oversaw dedicated Northrop Grumman National Program Office (NPO) based in Chantilly, Virginia. NPO managed Tier Two teaming partners, Split Fee

recruiting partners, SEBP partners and strategies, IQN/RPM requisition management process, support of tier two operations, reporting and tracking compliance, NG national intranet library, and NG national newsletter. Business development executive for internal CDI verticals and Tier Two teaming partners. Responsible for the creation and development of more than 60 alliance relationships for proactive recruiter partnerships. Market CDI's full continuum of services including leased labor, perm placement services, and outsourcing capabilities. Maintained partnership level relationship with IQNavigator.

From September 2005 to December 2006, the CDI/Tier Two Northrop Grumman program increased service hours fourfold; added over 250 new hires; expanded into 7 of the 8 Northrop Grumman business sectors; served Northrop Grumman in 20 states; and provided both staffing and project outsourcing support. In 2005, Northrop Grumman was not in CDI's Top 25 Client Base for Revenue, Direct Margin, or Hires – during 2006, Northrop Grumman was in the Top 25 for Revenue (8th), Direct Margin (15th), Hires (4th) and Net Hires (1st). In addition, CDI had over 120 assignments though our recruiting partners which made Northrop Grumman the third leading customer with supplier associate hires.

Volt Technical Resources

Senior Executive - Southeast Operations

May 2003 - August 2005 (2 years 4 months)

New York, New York, United States

Responsible for the continued development and profitability of the region. Determined the strategic priorities and sales direction for each branch office and onsite. Involved in the hiring of the management, sales, delivery and operational teams. Continually provided leadership in a changing environment through staff development. Demonstrated collaboration with corporate headquarters in Orange, California and New York City, New York as well as other regions and business sectors across the United States.

Profit and loss responsibility for managing the southeast region (from Maryland to Florida). Southeast Region climbed from $23 million in sales revenue in 2003 to over $36 million in 2004. The gross margin increased 79% and the net profit grew $355,000. Managed Information Technology/Engineering/ Technical staffing branches, SE Recruiting Hub, SE Perm Placement Hub, Cleared Resource Recruiting Hub, several managed programs and national accounts. Provided leadership and innovation in key account development,

management, expansion, while consistently broadening our customer base and channels of service. Developed a process to expedite our resource fulfillment, monitor our indirect costs, build new pipelines, attract and retain best-in-class employees, and provide the best resources with the best practices across the region while aggressively growing revenues and profits. Managed 52 staff employees including direct line management of six branch managers. Branch offices located Columbia Maryland, Vienna Virginia, Charlotte and Raleigh North Carolina, Atlanta Georgia, and Orlando and Tampa Florida.

Knowledge Workforce, Inc.
CEO President
March 2002 - May 2003 (1 year 3 months)
Columbia, Maryland, United States

Founded company in March 2002 to supply Information Technology, Engineering and Design, and other high-end technical contract and direct placement services. Developed and implemented strategic sales, recruiting, and business plans. Created, designed, and wrote content for website. Developed a national independent flexible sales and recruiter support organization that included a detailed compensation and incentive program.

Built partnering arrangements with senior consultants specializing in areas such as New Product and Service Development, Marketing, Supply Chain Management, IT Strategy, eBusiness, Knowledge Management, Engineering Design (CADD), Publications, Integrated Communication Solutions, Web Design, Purchasing, Government Contracts, and eLearning Tools.

CDI Corporation
Vice President
March 1985 - February 2002 (17 years)
Philadelphia, Pennsylvania, United States

Promoted nine times with CDI Corporation

Was responsible for managing and improving internal operations in areas including management, recruiting, sales, and field operations for the east coast. Technical Services East represented a $200 million-plus region with 2500 field employees. Provided focused leadership to improve productivity, quality, and customer satisfaction through the upgrading of people capabilities, resources, processes, systems, and strategies.

Previously - profit and loss responsibility for managing the $62 million Commercial South Region (from Westchester County, NY, to Florida) with $4 million-plus contribution line. Commercial South revenues grew an average of 14% year over year and operating profit increased 152% during this period. Managed 55 staff employees including direct line management of six branch managers, several managed staffing programs, two regional recruiters, and an operations coordinator. Facility Security Officer - Secret Clearance.

Education

New York Institute of Technology

Bachelor of Business Administration - BBA, Business Administration and Management, General

Profile

Christopher
First Name

K
Middle Initial

Doherty
Last Name

713 Bennett Ridge Ct
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

ckdoherty@outlook.com
Email Address

Mobile: (954) 826-9444
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Utilities Director - Franklin County
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

NC

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Worked in local government since 1989 and have been a department director for 15 years in Public Works and Utilities. I have worked closely with the planning departments in assisting with the updates to the Unified Development Ordinances and Comp Plans.

Question applies to multiple boards

CKD_Resume.pdf
Upload Resume

Question applies to multiple boards

CKD_Planning_Board_Statement.pdf
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Playing golf, officiating middle school, junior varsity and varsity high school, as well as division 3 college football. Home improvement

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

Ethics Guidelines for Town Advisory Boards and Councils

Please Agree with the Following Statement

If appointed, I pledge to comply with the following ethics guidelines for advisory boards and commissions as adopted by the Wake Forest Board of Commissioners

☑ I Agree

Members of advisory boards and councils shall not discuss, advocate or vote on any matter in which they have a conflict of interest or an interest which reasonably might appear to be in conflict with the concept of fairness in dealing with public business. A conflict of interest or a potential conflict occurs if a member has a separate, private or monetary interest, either direct or indirect, in any issue or transaction under consideration. Any member who violates this provision may be subject to removal from the board or council.

If the advisory board or council member believes he/she has a conflict of interest then that member should ask the advisory board or commission to be recused from voting. The advisory board or council should then vote on the question on whether or not to excuse the member making the request. In cases where the individual member or the advisory board or council establishes a conflict of interest, then the advisory board or council member shall remove themselves from the voting area.

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Prior to being appointed to an advisory board/council, it is recommended that you attend a meeting of the advisory board/council in which you have an interest. This helps each applicant to be more aware of the work of the advisory board/council. If you have attended a meeting of an advisory board/council, please indicate the date:

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Per NCGS 160C-109, members of appointed boards shall not vote on any advisory or legislative decision regarding a development regulation adopted where the outcome of the matter being considered is reasonably likely to have a direct, substantial, and readily identifiable financial impact on the member. An appointed board member shall not vote on any zoning amendment if the landowner of the property subject to a rezoning petition or the applicant for a text amendment is a person with whom the member has a close familial, business, or other associational relationship. A member of any board exercising quasi-judicial functions shall not participate in or vote on any quasi-judicial matter in a manner that would violate affected persons' constitutional rights to an impartial decision maker. Impermissible violations of due process include, but are not limited to, a member having a fixed opinion prior to hearing the matter that is not susceptible to change, undisclosed ex parte communications, a close familial, business, or other associational relationship with an affected person, or a financial interest in the outcome of the matter. A "close familial relationship" means a spouse, parent, child, brother, sister, grandparent, or grandchild. The term includes the step, half, and in-law relationships.

☑ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

◉ Yes ○ No

If so, what date did you attend a meeting?

August 21, 2023

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Christopher K Doherty

How did you learn about the town's advisory board openings?

- [x] Town website

Christopher K. Doherty

713 Bennett Ridge Court
Wake Forest, NC 27587
Cell – 954.826.9444
ckdoherty@outlook.com

Objective

Obtain an upper level management or project management position

Employment History

Public Utilities Director

8.2017 – Present Franklin County, Louisburg, NC

- Direct and oversee 5 divisions (water maintenance, sewer maintenance, administration/utility billing, WWTP, & WTP), 46 employees
- Long range and strategic planning for the department
- Budget preparation and monitoring, approve purchase orders
- Prepare utility rates for commission approval
- Capital projects and purchasing management, approval of pay applications, and grant reimbursements, reporting
- Consulting Engineering Contract Management/Oversight
- Bid specification preparation
- Oversee open cut pipe rehab and repairs
- Streamlined processes for departmental efficiency
- Grant writing, management and reporting
- Work with state and federal agencies
- Plan review
- Write/Update department Emergency Response Plan
- Write and institute policies for the department
- Write training and use manuals for programs and processes for employees
- Employee relations (disciplinary actions, hiring, terminating)

Superintendent – Big Cypress Basin Field Station

5.2012 – 3.2017 South Florida Water Management District Naples, FL

- Direct and oversee 17 employees
- Maintenance operations of primary flood control system in Collier County
- Fleet and Facility maintenance/oversight
- Long range and strategic planning for the field station
- Budget preparation and monitoring, approve purchase orders
- Employee relations (disciplinary actions, hiring, terminating)
- Work with local, state and federal agencies
- Project oversight/management
- Work closely with the Big Cypress Basin Board
- Streamline workflow for the field station
- Participate on STAN (standardization) Teams

Public Works/Utilities Superintendent

9.2010 – 4.2012 City of North Lauderdale North Lauderdale, FL

- Direct and oversee 8 divisions (water/sewer maintenance, streets, canal maintenance, facilities maintenance, & WTP), 35 employees
- Long range and strategic planning for the department
- Budget preparation and monitoring, approve purchase orders
- Capital projects and purchasing management, approval of pay applications, and grant reimbursements, reporting
- Oversee Fleet Maintenance Contract
- Solid Waste Contract Management/Oversight
- Consulting Engineering Contract Management/Oversight
- Supervision of unionized employees
- Oversee open cut pipe rehab and repairs
- Employee relations (disciplinary actions, hiring, terminating)
- Bid specification preparation

- Work with state and federal agencies
- Design, manage and inspect projects (water, streets, sidewalks, drainage, sewer)
- Plan review
- Re-write department Emergency Response Plan
- TAC Member to Resource Recovery Board
- Write and institute policies for the department
- Write training and use manuals for programs and processes for employees

Public Works & Utilities Director

3.2005 – 9.2010 City of Clinton, Clinton, NC

- Direct and oversee 8 divisions (water/sewer maintenance, streets, solid waste, fleet maintenance, facilities maintenance, cemeteries, WWTP, & WTP), 54 employees
- Long range and strategic planning for the department
- Budget preparation and monitoring, approve purchase orders
- Prepare utility and solid waste rates for council approval
- Capital projects and purchasing management, approval of pay applications, and grant reimbursements, reporting
- Consulting Engineering Contract Management/Oversight
- Bid specification preparation
- Oversee open cut pipe rehab and repairs
- Streamlined processes for departmental efficiency
- Grant writing, management and reporting
- Work with state and federal agencies
- Started a departmental monthly report for city council
- Design, manage and inspect projects (water, streets, sidewalks, drainage, sewer)
- Plan review
- Write department Emergency Response Plan
- Write Debris Management Plan
- Write and institute policies for the department
- Write training and use manuals for programs and processes for employees
- Employee relations (disciplinary actions, hiring, terminating)

Assistant Public Works Director/Operations

8.2002 – 3.2005 City of Oakland Park, Oakland Park, FL

- Manage the Operations Division (water, sewer, streets, and stormwater) 30 – 50 unionized employees
- Long range and strategic planning for the department
- Budget preparation and monitoring
- Development of Public Works projects and BMP's
- Prepare the NPDES permit and monitoring
- Stormwater inspector (state certified)
- Prepare the Vulnerability Assessment (trained in the preparation in RAM-W)
- Contract monitoring (janitorial, lawn maintenance, street sweeping, consulting engineer, aquatic spraying)
- Capital project management
- Created efficiency in the department by implementing streamlined work processes and daily forms
- Author of the Emergency Response Plan for street flooding
- Bid specification preparation for capital equipment purchasing and projects
- Design and inspect projects (water, streets, sidewalks, drainage, sewer)
- Plan review
- Oversee open cut pipe rehab and repairs
- Employee relations (disciplinary actions, hiring, terminating)
- Member of various committees
- Act on behalf of the director in his absence
- Departmental coordinator for special events

Assistant Public Works Manager

6.2001 – 8.2002 Town of Davie, Davie, FL

- Manage the day to day operations of the maintenance and upkeep of city parks, athletic playing fields, rights-of-way, streets, drainage systems and sidewalks
- Prepare and monitor daily work orders
- Contract monitoring (janitorial and lawn maintenance)
- Supervision of 30 unionized employees
- Project management
- Budget preparation and monitoring
- Bid specification preparation
- Purchasing of supplies

Public Works/Utilities Manager

2.1989 – 6.2001 City of North Lauderdale, North Lauderdale, FL

- Manage daily operations (streets, stormwater, canal maintenance, fleet, facilities, water plant, water/sewer maintenance)
- Budget preparation and monitoring
- Prepare and manage City's Capital Plan
- Bid specification preparation
- City Emergency Response Plan preparation
- Supervision of 50 – 60 unionized employees
- Employee relations (disciplinary actions, hiring, terminating)
- Oversee open cut pipe rehab and repairs
- Manage and author of the city's solid waste and recycling contract
- Manage the city's on-call engineering contract
- Manage the annual sanitary sewer rehab project and backflow prevention program
- Grant management (recycling education, TEA 21)
- Project management (water, sewer, drainage)
- Design and inspect projects (water, streets, sidewalks, drainage, sewer)
- Member of the City's Charter School Construction management team
- TAC Member to Resource Recovery Board
- Prepare departmental information for city website and newsletters
- Assisted in the design of the Wide Area Network for the city campus
- Member of various committees

Education

Nova Southeastern University, Ft. Lauderdale, FL

- May 1998; Awarded Bachelor of Science, Professional Management/Business Administration, with classes in Public Administration

Broward Community College, Ft. Lauderdale, FL

- June 1995; Awarded Associate of Arts – Civil Engineering

Professional Memberships

American Water Works Association & NC Chapter, American Public Works Association & NC Chapter, Rural Water Association, Water Environment Federation

Skills and Certifications

Advanced computer user in Microsoft Office applications, Trained in Vulnerability Assessments, NC Grade A distribution, NC Grade 4 Collections, NC Grade C Well, NC Grade 1 Biological, Flagger Trainer, Storm Debris Management, NIMS 100, 200, 300, 400, 700, 701, 702, 703, 704, 800 Certified, OSHA 30 Certification

I will use my local government experience during decisions on the planning board. I will also like to be one voice for the community (residents, visitors, commercial entities) when it comes to matters regarding development. We cannot stop development, but we can develop in smart ways that will benefit all stakeholders.

Christopher Doherty

Profile

George
First Name

E
Middle Initial

Gawf
Last Name

904 Del Webb Manor Ave.
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

egawf2@gmail.com
Email Address

Mobile: (480) 751-8408
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Retired
Occupation

Do you live within the town's limits or ETJ?

Yes No

Length of residency in Wake County

One Year

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Extensive experience in the field of city planning as professional planner. I have been involved in successful downtown developments in multiple cities, innovative and technology employment centers, historic preservation in both Boulder and Palo Alto, and neighborhood revitalization strategies.

Question applies to multiple boards

Statement_of_Interest.pages
Upload Resume

Question applies to multiple boards

Statement_of_Interest.pages
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Reading, Pickleball, Traveling.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

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☑ I Agree

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

I will attend the 9/12/23 meeting

Please Agree with the Following Statement

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- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

George E. Gawf

How did you learn about the town's advisory board openings?

- [x] Other

Profile

Joel
First Name

W
Middle Initial

Hubacheck
Last Name

928 Siena drive
Street Address

Suite or Apt

Wake forest
City

NC
State

27587
Postal Code

joelhhh@gmail.com
Email Address

Mobile: (919) 522-4894
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Diesel Mechanic
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

Total ~ 25years. Continuous ~5 years.

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Unwillingness to compromise on the best choices for the town's growth. Familiarity with legal/contractual documents, procedures and meetings - Elected shop steward in automotive division. Local Union is part of the negotiation committee for the national master agreement. Will be able to quickly learn and reference UDO and advise with brevity.

Question applies to multiple boards

Joel_Hubacheck_resume.docx
Upload Resume

Question applies to multiple boards

Personal_statement.docx
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Fitness, sports. Foreign languages. Gardening Anything DIY home crafts - woodworking, ect.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

I will attend the 10/10 meeting.

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Joel Hubacheck

How did you learn about the town's advisory board openings?

- [x] E-News

JOEL HUBACHECK

Diesel Mechanic

PROFILE

Focused professional versed in commercial transportation systems both maintenance and operations. Demonstrated ability to identify, diagnose, and repair vehicles without guidance or supervision. A reliable and organized individual who quickly learns and masters new fields with a passion and drive for excellence.

CONTACT

PHONE:
(919)-522-4894

EMAIL:
joelhhh@gmail.com

HOBBIES

Fitness, lifting, flag football ect
History
Foreign languages (currently Italian)
Any DIY home crafts.

EDUCATION

Wake Forest High
Graduation Class of 2010

Guilford Technical Community College
2013-2014
Associates in Heavy Equipment and Transportation Technology
Part of a co-op apprenticeship program for school and employer

Wake Technical Community College
2023-Present
Associate in Engineering (AE)

WORK EXPERIENCE

Texas RoadHouse: Cook
2010–2013
Quickly learned and worked all positions in the “back of house”. Gained a fundamental understanding of operations in the restaurant business ranging from: Labor vs projected customer load to: Maintaining a “just in time” stock to prevent waste product.

EPES Transport Systems: Apprentice Technician
2013–2015
Worked in conjunction with Guilford Tech to provide real work experience and schooling on various equipment in the transportation industry.

United Parcel Service: Mechanic
2015–Present
Maintains a fleet of 60 various assigned vehicles such as, electric, hybrid, gas, diesel, non-power, propane, and compressed natural gas. Responsibilities also include: Parts socking, handling breakdowns/road calls, warranty work, workload scheduling, and coordination with operations personnel to keep the fleet in service.

Growing up on North White Street, I experienced the rapid change of Wake Forest firsthand. Though I've moved throughout the state for work and school, I always found myself drawn back to our town. Now I've bought a home here, I'm raising a family, and want to contribute to this community that I love so much. As a member of the planning board, I'll bring an understanding of the people that are from here coupled with a vision that accommodates the growth and investment that Wake Forest needs to thrive.

Profile

Deanna
First Name

C
Middle Initial

Kabler
Last Name

521 Elm Avenue
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

alcrsn10@gmail.com
Email Address

Home: (919) 671-7288
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

University Evaluator
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

6 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I am a skilled administrator and project manager with excellent organizational skills. I have served on HOA boards and other special interest planning boards previously.

Question applies to multiple boards

2023_Resume.pdf
Upload Resume

Question applies to multiple boards

Planning_Board_Statement_2023.docx
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Dance, Painting, Reading, Gardening, NC Beaches

Question applies to Planning Board,Board of Adjustment

I participated in the following:

- [x] Citizen's Academy

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Please Agree with the Following Statement

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- [x] I Agree

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Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

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☑ I Agree

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

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- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Deanna Kabler

How did you learn about the town's advisory board openings?

- [x] Town website

DEANNA KABLER, Ed.D.

EDUCATOR – WRITER - ADVOCATE

521 Elm Avenue, Wake Forest, NC 27587

(919) 671-7288

alcrsn10@gmail.com

OBJECTIVE

A dependable manager applies excellent relationship-building, communication, and project management to garner attention for significant reform and social justice reform efforts. Talented leader experienced in fundraising, building grass-roots support, and advocacy.

EDUCATION —

Doctor of Education, 2022

Master of Arts – Professional Writing, 2019

Bachelor of Arts – Global Studies, 2018

REFERENCES —

Provided upon request

EXPERIENCE

April 2023 - Present
Part-Time Composition Evaluator • Western Governors University

March 2023 - Present
Adjunct Professor • Prison Education Program • Adams State University

2019 - 2022
Associate Director • Prison Programs • Southeastern Baptist Theological Seminary

2011 - 2017
Field Project Manager • Community Development • Global Hope Services

1996 - 2004
E-5 • Hospital Corpsman • United States Navy

Managed various teams, overseeing hiring, training, and professional growth of employees. Prepared annual budgets with controls to prevent overages and reports for grantors. Implemented process improvement to shape organizational culture, optimize procedures for higher efficiency, and help programmatic evolution. Reduced process bottlenecks by training and coaching employees on practices, policies, and performance strategies. Planned and resourced personnel and logistics for operational exercises resulting in highly trained personnel and faculty ready to act quickly in critical roles. Identified and resolved unauthorized, unsafe, or ineffective practices. Spearheaded departmental training to enhance employee performance and boost employee productivity. Directed initiatives to improve the educational environment and organizational culture. Facilitated formative and summative assessments. Developed MOU and various partnership agreements.

Specific Work Experience

- Responsible for all Prison Programs accreditation assessments and program effectiveness.
- Directed initiatives to improve the educational environment, student culture, or overall program strategy.
- Managed 100+ incarcerated adult learners' educational development and student success.
- Improved student performance by defining clear goals and communicating performance metrics.
- Created and implemented course agendas, lesson plans, and activities to successfully meet course objectives.
- Developed and implemented English Composition, Cross-Cultural Communication, and Race and Social Justice curriculum for improved learning and student performance.
- Managed the development of the Prison program for use in the expansion of curriculum delivery options for entry-level students.
- Aided in the migration of technological options and course materials for Moodle Learning
- Management software to add better functionality for students and faculty members.
- Facilitated academic and cognitive assessments to provide resource referrals according to individualized needs.
- Conducted academic advisement services for students reoccurring to maintain the educational progression.
- Mentored and supervised 100 students within the Naval Training Command, providing positive professional and personal development guidance.
- Handled administrative requirements, maintained records, and submitted operational reports.
- Oversaw teams planning, implementing, and realigning education and hospital specialty operational strategies.
- Prepared and delivered investigative reports and briefings as Paralegal for Naval Hospital Portsmouth.
- Managed all administrative and personnel needs of hospital training command education operations.
- Resolved problems, improved operations, and provided leadership, delegation, and exceptional legal services in high-pressure situations.
- Assisted 4 Staff Attorneys in processing medical malpractice cases.

October 6, 2023

Board of Commissioners,

Thank you for allowing me to introduce myself. I am an educator, focusing on adult education and a lifelong learner myself. I am a strategic planner and apply these skills across various contexts and fields. I have high emotional intelligence and am an excellent critical thinker. I am passionate about maintaining the diversity of our wonderful town and ensuring everyone has a seat at the table. Building relational equity is the cornerstone of ethos. I would be honored to serve on the WF Planning Board.

I appreciate your consideration.

Deanna Kabler, Ed.D.

521 Elm Avenue

Wake Forest, NC 27587

Profile

Keith
First Name

Middle Initial

Meadors
Last Name

409 Hawks Bluff Ct, Wake
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

keith.meadors@gmail.com
Email Address

Mobile: (984) 318-3772
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Sales and Marketing Executive in Healthcare
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

10 months

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Through my sales and marketing leadership experience in the Healthcare industry, I've developed the skills to execute plans accurately, do precise work with a careful eye, and see patterns and connections. Furthermore, I realized that collaborating motivates me to provide valuable support and persuade others to build support for critical objectives. I am looking for the opportunity to connect these pieces to create real value for the Town of Wake Forest.

Question applies to multiple boards

2023_Keith_Meadors_resume.pdf
Upload Resume

Question applies to multiple boards

Keith_Meadors_-_Personal_Statement.pdf
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Photography, Car restoration, Volunteering

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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Keith Meadors

How did you learn about the town's advisory board openings?

- [x] Town website

KEITH S. MEADORS, MBA, MT (ASCP)
409 Hawks Bluff Ct, Wake Forest, NC 27587
984-318-3772
Keith.Meadors@gmail.com

SUMMARY

An extremely motivated and results-driven Senior Management Leader with a successful track record in a variety of industries (Medical Devices, Diagnostics, and Pharmaceuticals), demonstrating capabilities across multiple functional areas of expertise, including General Management and Sales Account Management, Marketing, Product Launch, P&L Ownership, Business Development, Product Life Cycle Management, OEM Development, and Portfolio Development with significant contributions to growing profits and improving productivity in each position held.

- Skilled in the allocation of resources, leadership of people, and growing the competency of teams
- Leadership in developing vision and strategic planning, resulting in programs to drive growth, market share, and profit
- Experienced in transformational leadership and driving sustainable organizational change
- Successful history of leading internal cross-functional teams, building superior customer and business-to-business relationships with a broad base of key customer segments that generate consistent revenue growth: IDNs, GPOs, Health Plans, Medicare and Medicaid, PBM's, DOD/VA/IHS/OGA Federal Government customer segment and Specialty Pharmacies.

PROFESSIONAL EXPERIENCE

PRECIPIO INC., NEW HAVEN, CT
SENIOR VICE PRESIDENT **(**06/2022 – 06/2023)
Executive Commercial leader of Molecular Diagnostics Hematology Oncology Products Division business responsible for overseeing the Sales, Marketing, and Clinical Support team's P&L, operations, and strategies within the US and Canada. Researched market trends and conducted competitor analysis to develop and implement sales strategies. Led all business development activities and reported directly to the Chief Executive Officer.

- Completed signed agreements with key distribution partners
- Managed key customer partnerships to include GPOs (Premier & ION), AON, and One Oncology
- Developed and Implemented sales & marketing plans to identify and create new customer opportunities
- Optimized Products Division organizational structure and expanded team to ensure ongoing growth and achievement of market share for each product.
- HemeScreen sales growth of 300% achieved in Q2 2023 vs 2022

FRESENIUS KABI, LAKE ZURICH, IL **04/2014 – 06/2022**
VICE PRESIDENT**, SALES & MARKETING (**04/2016 – 06/2022)
Executive Commercial leader of Infusion Delivery Solutions business (Pharma and Medical Device products) for the U.S. market (Hospital, Oncology, Alt Site & Animal Healthcare), leading product launch and development requirements, business development, P&L responsibility, market access, upstream and downstream marketing, manufacturing forecasting, reporting directly to Senior Vice President, IV Therapy.

- Developed and implemented a cohesive annual marketing plan to lead to revenue growth and increased market share, as well as oversaw product management of IV Solutions, CSTD, freeflex premixes, and Infusion Technology products (Infusion pumps, IV Sets, Pain Management (PCA) and Medication Management Software)
- Led all NAM future pipeline efforts working closely with R&D and Manufacturing teams to ensure U.S. product requirements, regulatory, quality, and manufacturing specifications were met
- Led business development for marketing unit for 6 M&A projects resulting in 3 partnerships or acquisitions
- Negotiated and managed infusion device National contracts with key IDNs and GPOs
- Developed commercial strategy to bridge the business until the launch of a competitive market portfolio; achieved 119% device plan and 108% sales plan resulting in 99.2% customer experience with 100% customer satisfaction in 2020.
- Led NAM team working with Global Business R&D and Manufacturing to ensure U.S. product requirements, regulatory, quality, and manufacturing were met
- Negotiated and secured a 5-year contract with a large dialysis organization resulting in $6M in sales

Keith S. Meadors, MBA, MT (ASCP)

***SENIOR DIRECTOR*, SALES & MARKETING (**04/2014 – 04/2016)
Senior Commercial leader of Infusion Device start-up business for the U.S. market (leading the Agilia Infusion device product launch and development requirements, P&L responsibility, sales management, upstream and downstream marketing, reporting directly to President, Medical Devices

- Accessed current org structure and expanded the marketing, sales, and clinical support teams to support better the Infusion Device market for Hospitals, Oncology Practices, Infusion Clinics & Animal Healthcare),
- Collaborated with Global R&D and Manufacturing teams to ensure NAM product requirements, regulatory, quality, and manufacturing specifications were met on the product pipeline
- Developed the sales territories and built out CRM modules to support sales activities
- Managed the partnership with IDNs/GPOs for business reviews with Vizient (MedAssets & Intalere), HPG and Premier
- Negotiated distribution agreements with three key alternate site distributors to support nonhospital customers

HOSPIRA, Inc., LAKE FOREST, IL **(PFIZER)** **11/2008 – 04/2014**
MANAGER, TRADING PARTNER MANAGEMENT (11/2013 – 04/2014), LAKE FOREST, I.L.
Reported directly to the Director of Government Contracting. Led simplification of distribution contracting strategy and management of distribution partnerships.

- Reduced the number of distributors from 32 to 10, improving EDI throughput and processing times
- Managed partnership and distribution agreements with Oncology Supply, Cardinal Healthcare, O&M, and Medline

MANAGER, STRATEGIC PRICING AND CONTRACTING (01/2012 – 11/2013), LAKE FOREST, I.L.
Reported directly to the V.P., National Accounts & Contracting, and managed seven contracting analysts. Responsible for developing Injectable Pharma and infusion pricing and contract strategy supporting analytics and acted as liaison to marketing, sales, and other functions to create field bases sales strategy and supporting tools. Supported all IDN and GPO RFPs.

- Created a field-based sales quote tool for sales reps, increasing the in-house efficiency of Contracting teams
- Led efforts to convert the largest customer contract from operating to capital lease; $10M revenue
- Responsible for supporting East Region Sales Districts for all customer Pharma & Medical Device contracting needs

DISTRICT SALES MANAGER (11/2008 – 01/2012), NASHVILLE, TN
Reported directly to Area Sales Director and now managed eight Drug Delivery Systems Account Managers covering T.N. & K.Y. hospitals. Promoted Injectable Pharma products, Premixes, Standard Solutions, Oncolytic drugs, Medical Devices (Infusion Pumps (LVP, Ambulatory, and PCA)), and DERS and Interoperability Software

- 2010 National Circle of Excellence Award; Ranking 4 of 25; territory sales $75M – Injectable Pharma Business
- 2011 Area Circle of Excellence Award; Ranking 3 of 25; territory sales $82M – Injectable Pharma Business

BECTON, DICKINSON, AND COMPANY (B.D.), SPARKS, MD **03/1999 – 11/2008**
GLOBAL MARKETING MANAGER (01/2006 – 11/2008), SPARKS, MD
Reported directly to the Marketing Director of Global Product Development and was responsible for upstream and downstream of Core Microbiology products; annual U.S. sales of $70M

- Led new MRSA product launch to market in 2006, resulting in incremental U.S. sales of $3M
- Created Global Product Development Plan to be the standard policy; reduced complexity and time to market
- Achieved U.S. sales at 111.13% (2006), 105.92% (2007), and 115.09% (2008) over the prior year

FIELD DEVELOPMENT MANAGER (11/2002-01/2006), DALLAS, TX
Reported directly to the National Sales Training Manager. Developed and implemented a new employee sales training program. Responsible for the training and development of 20 Account Business Managers (ABMs) and eight Instrument Specialists (ISs) within three sales regions (West, Midwest & South)

ACCOUNT BUSINESS MANAGER (03/1999 – 11/2002), RALEIGH, NC
Reported directly to Regional Business Manager and managed $4.5M sales of diagnostic products covering the North Carolina territory for Hospitals, Physician offices, and Reference Labs

- Awarded Sales Leadership Club 2001 & 2002

Keith S. Meadors, MBA, MT (ASCP)

ADDITIONAL SALES EXPERIENCE

TRIANGLE DIAGNOSTIX, INC., DURHAM, NC
REGIONAL SALES MANAGER
Reported directly to Vice-President Sales and Marketing responsible for U.S. Sales operations promoting Employee Drug Testing and Environmental testing.

A&E MEDICAL CORPORATION, DURHAM, NC
DIRECT SALES MANAGER
Reported directly to Vice-President Sales and Marketing and was responsible for U.S. sales of the company's electrosurgical product line.

- Achieved sales at 200% & 167% over the prior year, two years in a row

LABORATORY DIAGNOSTICS TECHNICAL EXPERIENCE

REX HEALTHCARE, RALEIGH, NC
CLINICAL SUPPORT MANAGER
Reported directly to Lab Director and managed five direct reports and 60 lab professionals covering three shifts for Phlebotomy, Front Office, and Specimen Processing.

AML (AMERICAN MEDICAL LABORATORIES, INC.), RALEIGH, NC
LABORATORY MANAGER
Reported directly to Vice-President Field Operations and was responsible for sales and operations for three laboratory locations providing general laboratory services (Hematology, Chemistry, and Microbiology) for physician offices.

KAISER PERMANENTE, RALEIGH, NC
MEDICAL TECHNOLOGIST II
Reported directly to Lab Director and was responsible for completing general laboratory tests (Hematology, Chemistry)

REX HEALTHCARE, RALEIGH, NC
MEDICAL TECHNOLOGIST
Reported directly to Hematology Manager and was responsible for completing all Hematology tests, including CBC tests, Differential counts, Urinalysis, Bone Marrow, Esoteric tests, Coagulation tests, and Phlebotomy.

CERTIFICATION

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, CHICAGO, IL
MT(ASCP) ID 148493 NO EXPIRATION

EDUCATION

NORTHWESTERN UNIVERSITY, KELLOGG SCHOOL OF MANAGEMENT, EVANSTON, IL
KELLOGG EXECUTIVE SCHOLAR CERTIFICATES: MARKETING, SALES MANAGEMENT & LEADERSHIP

TEXAS CHRISTIAN UNIVERSITY, NEELEY SCHOOL OF BUSINESS, FORT WORTH, TX
MASTER OF BUSINESS ADMINISTRATION

REX HOSPITAL SCHOOL OF MEDICAL TECHNOLOGY, RALEIGH, NC
CERTIFICATE OF ACHIEVEMENT: MEDICAL TECHNOLOGY

NORTH CAROLINA STATE UNIVERSITY, COLLEGE OF AGRICULTURE AND LIFE SCIENCES, RALEIGH, NC
BACHELOR OF SCIENCE
CHEMISTRY & ZOOLOGY

Wake Forest is a fast-growing community with a historic downtown, providing excellent shopping, dining, and professional services. It has an excellent reputation in North Carolina and is one of the reasons my wife and I purchased a home here when we returned to Wake County last year. We left North Carolina in 2003, living in 5 states over the past 20 years, witnessing the changes these states have made, both good and bad. With numerous new neighborhoods in development, I am looking for the opportunity to assist others with a vision to make sure the right changes are in the right places to continue to provide the best quality of life for Wake Forest residents.

Profile

Laurence
First Name

J
Middle Initial

Pearlman
Last Name

1008 Goldfinch Nest Ct
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

larry.j.pearlman@gmail.com
Email Address

Home: (984) 920-7550
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Business Owner - Consultancy
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

4 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I have over thirty years of industry experience, which includes strategy consulting, non-profit and for-profit board experience. One of the experiences I have is being a part of "Transform Rockford." Transform Rockford was a group of citizen stakeholders that organized to advance the City of Rockford (Illinois) from number 300 of all US cities to a top quartile location. This involved complex planning, organizing, communications and research. By tackling problems like "making downtown more attractive" to reducing "food deserts" and "improving mobility" this leadership role was instrumental for rapidly learning about complex urban planning. While I still work full time, I now have flexibility to give back to my community. I see many places to help our town grow in population, revenue, services and lifestyle.

Question applies to multiple boards

Pearlman_Resume_Board_Member.pdf
Upload Resume

Question applies to multiple boards

Pearlman_Satement_on_Board_Candidacy_2023.docx

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Adjunct Professor Photography Model Railroading Religious Participation

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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Laurence Pearlman

How did you learn about the town's advisory board openings?

- [x] E-News

LAURENCE J. PEARLMAN

1008 Goldfinch Nest Ct. • Wake Forest, NC • 984.920.7550 • larry.j.pearlman@gmail.com

EXPERIENCED BOARD MEMBER & EXECUTIVE

Board member and executive with expertise in risk management, safety, transformational change, and leadership. Business leader who drives employee engagement, client satisfaction, utilization, and sales growth. Experience across a broad range of industries including energy, manufacturing, and transportation. A driven, highenergy leader who applies sound judgment in complex organizations to drive results. Maintains a collaborative work style.

SKILLS

BOARD LEADERSHIP

- PROFIT AND NON-PROFIT BOARD MEMBER
- LEAD STRATEGIC PLANNING PROCESS
- HUMAN RESOURCES AND COMPENSATION
- BOARD ROLES AND ALIGNMENT
- BOARD SECRETARY

RISK EXPERTISE

- RISK IDENTIFICATION & MITIGATION
- RISK & SAFETY STRATEGY
- SAFETY LEADERSHIP
- SAFETY MANAGEMENT SYSTEMS

INDUSTRY EXPERTISE

- Utilities and utility service companies (Generation & Distribution)
- Manufacturing (Automotive, Cable & Wire, Electrical Components, Pharmaceutical, Plastics)
- Energy (Oil, gas, refining and renewable energy)
- Transportation (Airline, Package Delivery, Rail & Trucking)

RISK & SAFETY EXPERIENCE

- Implemented safety management systems in high hazard industries, including energy firms.
- Supported safety culture transformation efforts resulting in injury reductions of up to 40%.
- Recognized thought leader and frequent speaker on a variety of energy industry risk topics.
- Coached executives on risk and safety leadership across a variety of issues and industries.
- Designed and delivered safety leadership programs for Fortune 100 firms.
- Designed risk matrices, registers and capital allocation processes to reduce Total Cost of Risk.
- Supported creation of enterprise-wide safety strategies that address critical business needs.
- Improved contractor safety performance and reduced contractor incidents by 35%.
- Supported the organization redesign of multiple safety, health and environmental functions.
- Led due diligence and post-merger integrations for the safety function.
- Designed and delivered process safety programs reducing tier I & II incidents by 40% in 18 months.

STRATEGIC CHANGE LEADER

- Change management content expert and strategic advisor to clients.
- Improved customer satisfaction by 10% and reduced error rates by 80% through Lean implementation.
- Implemented an Operational Excellence strategy to improve ROCE by 100% for a $23B fuels business.
- Served as CHRO during the creation of two new businesses (Elemica, Inc. & Jet-A.com).
- Change management content expert and strategic advisor to clients.
- Improved customer satisfaction by 10% and reduced error rates by 80% through implementation of Lean.
- Implemented an Operational Excellence strategy to improve ROCE by 100% for a $23B fuels business.
- Served as CHRO during the creation of two new businesses (Elemica, Inc. & Jet-A.com).

LAURENCE J. PEARLMAN

1008 Goldfinch Nest Ct. • Wake Forest, NC • 984.920.7550 • larry.j.pearlman@gmail.com

WORK EXPERIENCE

SAFETYand Consulting Associates – Wake Forest, NC. 2023 to present – Founder.
● Founder of a boutique risk and safety consulting firm serving manufacturing, transport and energy clients.

JMJ Associates - Austin, TX. 2022 to 2023 - Managing Director.
● Responsible for annual sales of $15M and delivering high quality safety consulting services to clients.
● Introduced new service offerings including technical, fleet and process safety to enable 15% growth.

Marsh & McLennan Companies – Chicago, IL. 2006 to 2022 - Managing Director/Partner.
● Responsible for annual sales of $13M and delivering high quality safety consulting services to global clients.
● Provide day-to-day leadership to drive operations and achieve utilization and cost targets.

BP America & Amoco Corporation – Naperville, IL. 1989 to1996 and 2000 to 2003.
Director, Process Improvement. Director, Human Resources. Led multiple cultural transformation initiatives.
● Multiple and progressive roles, including local, regional and global accountabilities.

Diageo (The Pillsbury Company) – Minneapolis, MN. 1999 to 2000 Regional Human Resource Manager.
● Managed a team of HR generalists with an employee population of 3,500 across the US and Canada.
● Accountable for multiple acquisitions, union avoidance strategies and tactical plans.

Pfizer (Warner-Lambert) – Rockford, IL. 1996 to 1999 Manager, Organization Effectiveness.
● Reorganized the facility to create a successful 'center of innovation' while upskilling the workforce.

EDUCATION
The University of Illinois, Champaign, Illinois. M.A., Labor and Industrial Relations.

The University of Iowa, Iowa City, Iowa. B.B.A., Economics (Honors) and Industrial Relations.

Northwestern University, Evanston, Illinois.
- Sales & Marketing Leadership Executive Program.
- Northwestern University Non-Profit Leadership Program.

BOARD MEMBERSHIPS
Board Member & Secretary – Technology Publishing Company, 2021 to present.
Board Member – East Troy Electric Railroad Museum, Inc., 2020 to present.
Executive Board Member - Big Brothers/Big Sisters of Metro Chicago, 2006 to 2008.
President, University of Illinois ILIR Alumni Board of Directors, 2002 to 2006.

AFFILIATIONS
Adjunct professor, University of Illinois at Urbana-Champaign Graduate School of Labor & Employment Relations 2010 to present. Guest lecturer, China University of Geoscience, Beijing, China.

HONORS & ORGANIZATIONS
Frequent author and speaker on topics including safety culture, change management and leadership.
University of Illinois School of Labor & Employment Relations - Distinguished Alumni Award, 2016.
University of Illinois, I.L.I.R. Commencement Speaker, 1989, 2009 and 2021.
University of Illinois Alumni Constituent Leadership Award: 2006.

Laurence Pearlman

Advisory Board Candidacy Statement

My experience includes Human Resources, Process Improvement, Safety and Strategy Consulting. I have always given back to my community through volunteerism and board memberships. I am an Adjunct Professor at The University of Illinois.

My most relevant was my work at Transform Rockford where I was part of the operations board. This group aimed to take Rockford, Illinois from fourth quarter to first by 2025.

This was a crash course in urban planning. I providing counsel on over 14 different workstreams. These included accessible internet, transportation planning, reducing obesity, access to healthcare and safety. I also helped create the organization's Scorecard – Transform Rockford.

I can envision greatness for Wake Forest. We can be among the best cities in America. I've lived in one of them (Naperville, IL). I'd like to be a part of that journey.

Profile

Nick
First Name

H
Middle Initial

Spencer
Last Name

1500 heritage reserve court
Street Address

Suite or Apt

Wake forest
City

NC
State

27587
Postal Code

nickspencer1500@icloud.com
Email Address

Home: (919) 508-7865
Primary Phone

Home: (919) 508-7865
Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

11th grade student @heritage high school
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

7 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I'm a high school student, interested in serving my community .I am interested in studying civil engineering in college, and would like the opportunity to experience how the planning board operates in Wake Forest.

Question applies to multiple boards

Upload Resume

Question applies to multiple boards

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Playing basketball with friends, playing sports outdoor, hiking, enjoying the outdoors.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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If the advisory board or council member believes he/she has a conflict of interest then that member should ask the advisory board or commission to be recused from voting. The advisory board or council should then vote on the question on whether or not to excuse the member making the request. In cases where the individual member or the advisory board or council establishes a conflict of interest, then the advisory board or council member shall remove themselves from the voting area.

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Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

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☑ I Agree

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

Please Agree with the Following Statement

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☑ I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Nick

How did you learn about the town's advisory board openings?

☑ E-News

Profile

Lasonda
First Name

R
Middle Initial

Stasinopoulos
Last Name

5988 Jones Farm Rd
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

lasondahas3@gmail.com
Email Address

Home: (919) 608-8386
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

HR Recruiter and Real Estate Broker
Occupation

Question applies to multiple boards

Are you a high school student seeking a Youth term? (11th or 12th grades only)

○ Yes ◉ No

Do you live within the town's limits or ETJ?

◉ Yes ○ No

Length of residency in Wake County

45 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Leadership, customer service, Sales, Management, local Real Estate Broker, Launch WF Alumni, HR Professional, local business owner (home based).

Question applies to multiple boards

7.2_Resume.docx
Upload Resume

Question applies to multiple boards

Boozie_Bake_Proposal_copy.docx

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Community service, baking, cooking, reading self development books

Question applies to Planning Board,Board of Adjustment

I participated in the following:

- [x] Citizen's Planning Academy

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Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

Please Agree with the Following Statement

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- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

LaSonda Stasinopoulos

How did you learn about the town's advisory board openings?

- [x] Nextdoor

La Sonda R. Stasinopoulos

(919) 608-8386 | lasondas@icloud.com

PROFESSIONAL SUMMARY

Human Resources professional who drives results by building partnerships and creating collaboration opportunities. A strong recruiting background, successfully partnering with leaders and managers to find quality and diverse candidates. Works with leaders on performance issues and behavior/workplace concerns and provides coaching at all stages of employee matters. Advises on formal processes in accordance with policies and appropriate regulatory guidelines. Highly skilled with investigations and able to work effectively with a diverse population. Exercises discretion, sound judgment, and a high level of confidentiality in managing sensitive matters.

PROFESSIONAL EXPERIENCE

Right Sourcing/Children's Health, Dallas, TX (Feb 2022 – present)

Recruiter

- Heavy sourcing on critical and complex requisitions
- Sourcing candidates, screening applicants, referring qualified candidates to managers
- Negotiating, preparing, and extending offers
- Guide and complete candidates through pre-hires screening steps to start date
- Consult with managers to conduct intake sessions for a new position
- Develop of sourcing and recruitment plan
- Assist managers in identifying qualifications and competencies required for quality hire and cultural fit
- Interpret employment policies and advise employees and managers
- Ensure hiring practices comply with state and federal regulations and Children's policies
- Utilize sales training techniques and problem-solving skills
- Relationship management, building solid partnerships with hiring Managers and Senior Leadership
- Work on special projects as assigned
- Monitor and track requisition requests in Lawson, and update with the appropriate approval documentation.
- Conduct weekly meetings with the ERC Leadership team to review backfill req requests and new addition req requests and work with the S2E Leadership team to approve new addition requests.
- Handle day-to-day management of various processes to help identify open issues.
- First-level responder to inquiries regarding the TA processes and best practices.
- Produce and maintain detailed reports and tracking for requisition and non-employee approvals.
- Aid Talent Acquisition Manager with preparing reports, databases, and other projects.
- Run ad-hoc reports for the Leadership team

Catering Works (High-end Catering), Raleigh, NC (2022-2022)
Human Resources Manager

- Identify talent needs and capability gaps to influence, shape, and drive effective recruiting strategies tailored to departments' most crucial talent needs.
- Conducted sensitive investigations ranging from complex harassment to policy violations.
- Ensured all parties understood the newly created investigation process and their roles and responsibilities while overcoming objections and creating buy-in.

- Conduct and coordinate recruiting and selection activities, sourcing, screening applicants, interviewing, administering assessments, negotiating, preparing offer letters, pre-hire screenings, and onboarding.
- Interpreted employment policies and advised managers on best hiring practices.
- Assisted the Operation Manager with forecasting, employee record keeping, and management training.
- Processed biweekly payroll, edited/corrected payroll discrepancies, partnered with the VP to assist with workforce planning strategies and stayed current with current markets.
- Updated employee handbook, policies and procedures, and job descriptions
- Hosted onsite job fairs
- Networked with local culinary schools and developed an internship program for culinary/baker students

Belk, Raleigh, NC (2019-2022)
Human Resources Lead / Manager

- Worked closely with the leadership team supporting the business needs and employee concerns.
- Tasked with streamlining HR functions, reported HR metrics, enhanced workforce retention by predicting staffing needs, managed termination processes, and managing risk by ensuring compliance with regulations. Managed the employee grievance process, including intake, investigation, and response.
- Subject matter expert at the store level on HR practices, policies and procedures, and full-life recruiting, including sourcing, screening, interviewing, offers, negotiations, and onboarding, and worked with Regional HRBP on Store leadership positions.
- Managed candidate pipelines.

Skanska (Contractor with Ajilon) Raleigh, NC (2019-2019)
Human Resources Associate

- Assisted the organization with transitioning from paper documents to cloud base document systems.
- Audited I-9s to ensure compliance with governing regulations.
- Uploaded confidential employee files into the company's cloud base and created folders for appropriate departments to create the organized departmental system.

Lennar Homes –Raleigh, NC **2015-2016**
New Home Sales Consultant

Peachtree Homes Inc., Raleigh, NC **2012-2015**
New Home Community Manager

Lenovo, Durham, NC **(2009)**
Talent Acquisition Administrator/University Relations Recruiter

Bayer Crop Science (2008)
HRIS Analyst

Fidelity Investments (2007)
Human Resources Associate

EDUCATION AND CREDENTIALS

Western Carolina, Cullowhee, NC
Innovation Leadership and Entrepreneurship

Human Resource Management Certification-SHRM/Duke University

PROFESSIONAL AFFILIATIONS

Active North Carolina Real Estate License (2000-current)

TECHNICAL SUMMARY

Microsoft Office Suite, Workday, Infor/Lawson, PeopleSoft, Reflexis, ADP, SAP, Oracle

I feel would be great addition to the Planning Committee in Wake Forest. As, a Real Estate Broker I have enjoyed seeing the growth in Wake Forest. I know with my understanding of business, permit process, real estate among other skillsets, would compliment the other board members skill sets

Profile

Matthew
First Name

Middle Initial

Wittl
Last Name

725 Lakeview Ave
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

mwittl1985@gmail.com
Email Address

Mobile: (540) 521-6635
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Finance Director
Occupation

Do you live within the town's limits or ETJ?

- (•) Yes
- ( ) No

Length of residency in Wake County

7 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Finance professional with experience planning for Multi billion dollar organizations

Question applies to multiple boards

Matthew_Wittl_-_Finance_Professional.pdf
Upload Resume

Question applies to multiple boards

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

A creator at heart many of my hobbies include building, creating, or improving whether that be my home, yard, car, or anything else I can tinker with.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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Matthew Wittl

How did you learn about the town's advisory board openings?

- [x] E-News

Matthew Wittl

Wake Forest, NC, US MWittl1985@gmail.com 540-521-6635 LinkedIn

Skills

- Budgeting
- Forecasting
- Financial Modeling
- Weekly, Monthly, Quarterly and Ad Hoc Reporting
- Cross-departmental collaboration
- Written and verbal communication
- Critical thinking and problem solving
- Microsoft Office Suite (Advance Excel)
- PowerBI
- Hyperion / Essbase / Smartview
- SAP Business Object
- Oracle Answers
- SQL

Experience

Finance Director

Victra | Verizon Authorized Retailer **June 2022 - Present, Raleigh, NC, US**

- Leading a team of finance professionals dedicated to delivering comprehensive financial support to the field leadership team and corporate store operations functions. This includes strategic financial analysis, budgeting, forecasting, and financial guidance, enabling informed decision-making and driving financial success.
- Responsible for the development, maintenance, and continuous improvement of enterprise-wide reporting systems, leveraging PowerBI dashboards, and Excel-based reports. These reporting tools provide critical insights for data-driven decision-making across the organization, contributing to improved efficiency and strategic planning.
- Collaborate closely with executive leadership to identify and capitalize on opportunities, orchestrating the design of tests and measurement of results to steer financial outcomes.

Senior Finance Manager

Advance Auto Parts **April 2016 - June 2022, Raleigh, NC, US**

- Managed a team of eight professionals, including four senior financial analysts based in Raleigh and four analysts located in our Global Capabilities Center in Hyderabad, India. This involved coordinating cross-border collaboration, overseeing projects, and ensuring the team's productivity and efficiency.
- Pioneered the development and implementation of a store peer grouping model in the 2023 planning process. This model effectively assessed the performance of similar stores, identifying underperforming stores within their peer group and providing actionable insights to boost profitability. The model was instrumental in setting store margin expectations and optimizing store performance.
- Spearheaded enterprise-level gross profit forecasting and planning, overseeing revenue and cost of goods sold for a diverse portfolio of 90+ product lines. This critical role involved intricate financial analysis, strategic decision-making, and collaboration with cross-functional teams to ensure accurate and profitable business outcomes.
- Developed and introduced the Price, Volume, Mix (PVM) model, a powerful tool that effectively dissected the key drivers of gross margin performance across various product lines. This model gained broad adoption within the organization, becoming an integral part of the weekly executive team update, ultimately contributing to data-driven decision-making and improved profitability.
- Conducted independent store profitability analysis for a diverse portfolio of 1,200 customers, pinpointing unprofitable partnerships. Collaborated closely with the sales team to develop and implement action plans aimed at enhancing profitability.

Senior Financial Analyst

Advance Auto Parts **August 2014 - April 2016, Raleigh, NC, US**

- Developed and delivered critical reporting for Quarterly Business Reviews (QBRs) that served as a catalyst for strategic discussions between field leadership and executive leadership. These reports provided actionable insights and contributed to informed decision-making, ultimately driving growth and performance improvements.
- Conducted a comprehensive review of store labor standards for a portfolio of 4,800 stores, resulting in the identification of $50-$80 million cost savings. This initiative demonstrated a keen eye for efficiency, a willingness to challenge the status quo, and contributed to substantial cost optimization.
- Led the analytical initiative to assess the performance of the AAP store portfolio. Through this analysis, identified 50 underperforming stores for closure, strategically contributing to bottom-line profit improvements and portfolio optimization.

Financial Analyst

Advance Auto Parts **November 2012 - August 2014, Roanoke, VA, US**

- Compiled and manipulated complex data, transforming it into comprehensive reports that played a pivotal role in guiding decision-making processes related to store labor and professional strategies. These reports provided critical insights and contributed to informed, data-driven business decisions.
- Developed key reporting crucial for guiding senior leadership during the integration of B.W.P Distributors, a 100-store chain with approximately $180 million in revenue. This reporting played a pivotal role in ensuring a smooth and successful integration.

Education

Masters of Business Administration

Old Dominion University **2010 - 2012, Norfolk, VA, US**

Bachelors of Science in Finance & Accounting

Old Dominion University **2007- 2010, Norfolk, VA, US**

Profile

James
First Name

F
Middle Initial

Barber
Last Name

712 Holding Ridge Court
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

jfbarber60@gmail.com
Email Address

Mobile: (434) 960-4362
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Retired
Occupation

Do you live within the town's limits or ETJ?

○ Yes ◉ No

Length of residency in Wake County

9 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I am a retired fire marshal (from Virginia) and I am familiar with the plan review process. I am interested in being a positive influence and voice in our community.

Question applies to multiple boards

Upload Resume

Question applies to multiple boards

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Golf

Question applies to Planning Board,Board of Adjustment

I participated in the following:

- [x] Citizen's Planning Academy

Ethics Guidelines for Town Advisory Boards and Councils

Please Agree with the Following Statement

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- [x] I Agree

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Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

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☑ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

Please Agree with the Following Statement

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- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

James F. Barber

How did you learn about the town's advisory board openings?

- [x] E-News

Profile

Joshua
First Name

Middle Initial

Epperson
Last Name

2833 Carriage Meadows Drive
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

joshua.epperson95@gmail.com
Email Address

Home: (706) 691-6469
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Analytics Manager
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

3 months

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Experience with Supply Chains and Data Analytics. Additionally, I am pursuing my MBA through NC State starting in the fall.

Question applies to multiple boards

Epperson_Joshua.pdf
Upload Resume

Question applies to multiple boards

Epperson_Joshua_Personal_Statement.docx
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Disc Golf, Golf, Reading, Kayaking,

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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☑ I Agree

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○ Yes ◉ No

If so, what date did you attend a meeting?

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- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Joshua Epperson

How did you learn about the town's advisory board openings?

- [x] Town website

Joshua Epperson

(706) 691-6469 | Joshua.Epperson95@gmail.com | www.linkedin.com/in/joshua-epperson

CAREER OBJECTIVE

Analytics professional experienced in developing and leading Analytics teams. Interested in improving customer experience and service through the use of advanced analytic models, language processing systems, and big data systems .

EXPERIENCE

Global Process Manager/ Global SC Digitalization Manager July 2022 – Present
McCormick & Company, Hunt Valley, MD

- Lead a team of 7 Analysts and Managers in the development of new-to-McCormick analytics, automations, and technologies
- Developed the Supply Chain Analytics strategy based on a new enterprise-wide ERP system, including data exposure plans, visualization tools available to users, and security structure
- Created a Site Readiness process to evaluate the performance of the Go Live process through every step of implementation
- Supported a user-centric Power BI group that trained people across Supply Chain, Sales, Marketing, and Finance on how to get started with Power BI and maximize its potential

Data Scientist I/II, Global Supply Chain Dec 2019 – July 2022

- Started and lead a Supply Chain Automation Hub using coding languages and Microsoft Power Suite to drive efficiency and reduce errors – completed 48 automations, saving 13,000 hours in the first year
- Tested and implemented 5+ enterprise-wide technologies, including Azure, HoloLens, and Microsoft Power Suite, to achieve McCormick's "Supply Chain of the Future" vision
- Expanded utility of data analyses by coaching 6 data scientists and analysts to interpret the results in explorative and transformative ways leading to the generation of 20+ new analytic projects
- Implemented and expanded a Risk Model in Python for 25 sites using machine learning to identify sources of risk based upon monthly results, leveraging natural language generation to produce auto-generated comments
- Devised a Repetitive Tasks Tool to better understand a team's repeated tasks, calculate value lost, and identify projects that maximize return on investment

Process Engineer July 2018 – Nov 2019

- Trained technicians across 3 shifts on enhanced operational, cleaning, and safety practices – leading to a 4.7% increase in process reliability gains
- Created an overtime and capacity modeling tool for Department and Operations Managers to assess forecasted costs and combine Business, Operational, and Yield Loss projections at the production line level

EDUCATION

Bachelor of Science in Chemical Engineering May 2018
The Ohio State University, Columbus, OH GPA: 3.4/4.0

- Minors: Computer Science, Music

Masters Business Administration - Online Graduating 2025
North Carolina State University, Raleigh, NC

ACHIEVEMENTS & ADDITIONAL SKILLS

- Advanced in Power BI, Tableau; Microsoft Power Suite, RPA, SQL Server; Python, SQL, VBA, R
- Adept at quickly learning new systems and technologies and summarizing their opportunities and risks to leadership
- Commercial Multiple Management Board Chair, completed projects in Sales/Marketing business, including assessing fermented products and packaging cost-savings measures
- Completed MicroMasters in SC Management through MIT edX, as well as certifications in Python, machine learning, Tableau, and Power BI

While I do not have much experience with local government, or Wake Forest. I have had the opportunity to live in a variety of home locations (urban, residential, semi-residential) in a variety of cities (older, college-town, well-designed). These experiences have let me see the impact that a proper planning board can have on the community and those in the surrounding areas. I would love the opportunity to be a part of that process as we look towards what can set up Wake Forest for success in future years.

Profile

Daniel
First Name

S
Middle Initial

Gardiner
Last Name

508 RAYBURN AVE
Street Address

Suite or Apt

WAKE FOREST
City

NC
State

27587
Postal Code

gardiner_ds@yahoo.com
Email Address

Home: (919) 724-5918
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Vice President
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

15

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

As a resident of Wake Forest for 15 years on Rayburn Ave, I have consistently been a cheerleader for Wake Forest. I have admired what the town has done over the years and I believe I have also have experience and skills that will compliment the Boards and Commissions. Within Wake Forest I have been a Cub Scout leader for Pack 5 and more recently have been a coach for the Wake Forest Recreational baseball program. In my career, I have provided leadership to various technology companies in the greater Raleigh area.

Question applies to multiple boards

Dan_Gardiner_Resume_June_2023.docx
Upload Resume

Question applies to multiple boards

Wake_Forest_Statement.docx
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Jogging, Cycling, Woodworking, Hiking with our dog Olive, Baseball coaching, Gardening, Cooking.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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Dan Gardiner

How did you learn about the town's advisory board openings?

- [x] E-News

Dan Gardiner

P: (919) 724 5918

E: gardiner_ds@yahoo.com

LI: linkedin.com/in/danielgardiner

Product Development Leader

Results driven professional with a record of delivering best in class products to growth markets including Scientific Instrumentation, Robotics, Automotive & Industrial Components, and Aerospace at both Start-Ups and Fortune 500 companies. A reputation of developing strong teams, empowering them, and consistently delivering exemplary returns.

Core Competencies

- Technology Development
- Commercialization
- Team Building
- Intellectual Property
- Ideation Methodologies
- Change Management
- Workflow Solutions
- Competitive Analysis
- Operational Leadership
- Compliance
- Robotics & Automation
- Quality Systems
- Problem Solving
- Product Life Cycle

Professional Experience

PROTOCHIPS, Morrisville, NC - Leader in *Scientific instruments for the electron microscopy market*

1/2017 – Present

Vice President Of Engineering - Focused on growing our market by developing products including integrated electro-mechanical systems, software & MEMS consumables. In 2018 & 2019, we launched three next-gen products and revolutionary electron microscope software creating a great gap over our competition. Also responsible for managing our IP Portfolio, leading our Product introduction Process and Corporate Quality Initiatives.

9/2011 – 1/2017

Director Of Engineering – Through the start-up stage of Protochips I was given the mission to build an engineering group to transition early prototypes into high quality products. This included productizing the hardware, electronics & software for three product lines: Fusion, Poseidon and Atmosphere. Market acceptance led to rapid company growth, at which point I established other departments including Customer Service, Planning and Quality. While experiencing high manufacturing growth, I became Interim Director of Operations from 2016 to 2017 while still overseeing Engineering. Within this role I executed a global outsourcing strategy, institutionalized key processes and led our ERP implementation.

INSIGHT PRODUCT DEVELOPMENT, Raleigh, NC - *Design consultancy out of Chicago, IL. (closed NC office 9/2011)*

5/2011 – 9/2011

Director Of Engineering – In this position, I directed a group of multi-disciplined engineers focusing primarily on early stage product development for clients in a range of markets. During this time, my team worked closely with our market research experts and industrial designers to deliver results to our customers. In this environment, I learned effective ways to produce data driven market requirements via ideation, prototyping, and story boarding necessary to attain actionable market feedback.

PARATA SYSTEMS, Durham, NC - *Leading producer of pharmacy automation robotic systems*

11/2009 – 5/2011

Director of Research & Development -_Upon successful launch of Parata Max® and Mini®, my team was re-chartered to develop technologies to break into new markets. One success was adapting the core technologies of the Parata Max to the needs of high volume mail order pharmacies,

displacing older technology. We also prototyped and validated numerous product advancements including a significantly quieter and cleaner robotic system.

4/2007 – 11/2009

Engineering Manager - Shortly after joining Parata, I was asked to take over the development activities of the next-gen pill dispensing modules. At this time, the design had major technical challenges and was behind schedule. By making adjustments to the team, aligning priorities, and clearly communicating progress across the organization, the team under my direction caught up with the other subsystems and met the Beta and Launch deadlines. The final commercial product met all requirements, and the "HPAC" cell is still the fastest and most accurate drug counting cell in the world. I also led Parata's Research Pharmacy operations, a team responsible for researching and influencing state and federal pharmacy regulations and determining drug cell settings.

HARGRAVES, Mooresville, NC - *Producer of pumps and solenoid valves. Acquired by Parker Hannifin in 2008*

3/2006 – 4/2007

Engineering Manager - Developed an engineering team responsible for expanding and improving a line of diaphragm pumps while launching a first generation solenoid valve in 2006. A major focus was bringing Hargraves to a higher level of engineering discipline by implementing project management structure, design controls, & problem solving methods. These were successfully deployed to remedy wide spread quality problems and establish safe launch plans for new products.

TEXAS INSTRUMENTS, Attleboro, MA - Sensors *division - purchased and named Sensata Technologies in 2006*

6/2003 – 3/2006

Design Supervisor - Led the development of TI's leading pressure sensor product line (MSG), supervising a team of 19 engineers & technicians responsible for expanding the technology to more vehicle models and systems. During this time we launched 17 new products resulting in a 3-fold revenue increase. I also facilitated a global cross-functional cost reduction think-tank team, and realized $3M in yearly savings through design changes, process improvements and supplier development activities.

9/2000 - 6/2003

Design Engineer / Team Lead - Hired during a transfer of manufacturing to Mexico and Malaysia, my responsibilities were split between supporting the ongoing design activities and helping overcome significant quality problems during start-up at the Mexico plant. I successfully led the problem solving activities as well as the communication of recovery plans to the critical OEMS.

BE AEROSPACE, Miami, FL - *(now Rockwell Collins) is the leading supplier of private & commercial aircraft interiors*

1/1996 – 9/2000

Design Engineer / Team Lead
Designed and launched a variety of FAA approved seating products. While most acceptance testing was destructive, I established methods of using FEA to attain approvals of certain structures. Promoted after 2 years, I led a team of design engineers and drafters responsible for all executive aircraft seating. During this time I continued to contribute as a lead design engineer including the first fully programmable robotic seats into VIP aircraft.

Dan Gardiner – continued

Education & Training

- B.S. Mechanical Engineering - UNIVERSITY OF MAINE
- Executive Business Coaching – SMART STATE LLC, 2015 - 2021
- Various Engineering, Management, Manufacturing & Quality Courses – 1996-Present

Memberships

- T.A.B. Advisory Board Member, 2015 to Present
- Member, Product Development Management Association, 2008-2011
- Member, NORTH CAROLINA TECHNOLOGY ASSOCIATION, 2007-2010

Awards & Publications

- Inventor on 22 issued patents and over a dozen pending patents
- Microscopy Innovation Award for Atmosphere™ Catalysis System - PROTOCHIPS, 2019
- R&D 100 Award Winner – Poseidon™ 500 Electrochemistry System – PROTOCHIPS, 2013
- Temperature Measurement by a Nanoscale Electron Probe Using Energy Gain and Loss Spectroscopy – APS PHYSICS, 2018
- EBSD Analysis of Materials Utilizing High Temperature System in FE-SEM – M&M, 2013

Volunteer & Outreach

- Baseball Coach – Town of Wake Forest – 2021 to Present
- Cub Scouts Den Leader, BSA, 2017 to 2020
- Engineering Project Sponsor/Coordinator – UNC, 2006-2007
- Volunteer – UNITED WAY OF GREATER ATTLEBORO, 2001-2006

Dear Wake Forest Planning Board,

I am applying to this position is an effort to give back to the town I have lived in for the last 15 years. My wife Sarah and I have raised our children here and now that they are teenagers (13,15&18) I would like to offer my time and attention to our town in a fashion that can make a positive impact. Although my professional experience is in the private sector, perhaps my skills, experiences, volunteerism, and love of the Town of Wake Forest will serve the board to the best level possible.

Sincerely,

-Dan

Profile

Jennifer
First Name

A
Middle Initial

Haley
Last Name

213 Artisan Park Dr.
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

jenhaley@ymail.com
Email Address

Mobile: (732) 236-7358
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Pharmacist
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

We moved to town in January and would love to get involved.

Question applies to multiple boards

Jennifer_Haley_2022_NC.docx
Upload Resume

Question applies to multiple boards

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Exercise

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

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- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Jennifer Haley

How did you learn about the town's advisory board openings?

- [x] Other

Jennifer Haley, Pharm D, CCP **213 Artisan Park Dr.,**
Wake Forest, NC 27587
732-236-7355 **Jenhaley@ymail.com**

Profile

Clinical Pharmacist
Qualifications:

- Jennifer Haley, Pharm D, CCP is a licensed pharmacist in New Jersey (Pending NC) with Pharm D. degree and more two decades of experience providing top-notch, high volume, pharmacy services in retail and clinical settings. Many years of experience cohesive and at times spent with several different companies concurrently.
- Jennifer is a motivated Pharmacy professional with outstanding interpersonal skills, a track record of establishing positive relationships with customers, medical professionals, healthcare organizations and insurance providers. Respected leader, able to train and manage diverse teams to deliver optimal performance. Exceptional critical thinking abilities: managerial experience to include implementing policies and procedures to ensure compliance (Compliance Officer) managing inventory, assisting with employee scheduling and maintaining relationships with internal and external stakeholders.
- Jennifer has broad therapeutic and clinical experience within Population Health Management, and managed care.
- Skillset includes: Evidence based clinical decision support, pharmacy/clinical analytics, and drug information.

Skills

- Prescription Dispensing/Compounding
- Drug Utilization Review
- Disease State Module Template Formation
- Inventory Control,
- AphA certified Immunizer
- CPR for Health Professionals
- White Belt Certification

Experience

Clinical Pharmacist , VBC Contracting Management Medical Affairs
March 2017-Present
Aetna- Remote

- Serves as a practice extension to support Value Based Contracting provider groups and drive engagement.
- Serves a Population Health Pharmacist: Value-Based Contracting, social determinants of health and using population health management strategies for optimal outcomes.
- An integral member of the Medical Affairs Team that aids in identifying high risk Medicare members.
- Reviews and evaluates pharmacy reports, clinical systems and member claims data to identify members and prescribers requiring clinical pharmacy interventions

- Works with the practices to identify opportunities to enhance the quality of care provided by the practice through practice re-design suggestions as it relates to appropriate prescribing of medication.
- Recommends services for Aetna Medicare members utilizing alternatives available within the community and nationally, as it relates to medication Utilization
- Provides support for joint Aetna-provider group clinical initiatives as they relate to medication management and patient access. Project management focus.
- Conducts accurate and comprehensive medication reviews on complex members; develop therapeutic plans and interventions; close the contact loop with the corresponding member, care manager and or provider with outreach as necessary
- Participates in clinical meetings and multidisciplinary case rounds
- Assists providers and members with optimizing pharmacy benefits.
- Collaborates with Aetna pharmacists dedicated to post-discharge medication reconciliation, Stars quality measures, readmission avoidance and complex medical case management on initiatives to provide the best patient outcomes

Clinical Contract PBM Pharmacist, Remote (March 2020 -December 2020) Part time

- As a Clinical Pharmacist I completed assigned operational tasks using standard appropriate tools (Siebel, BA, Clinical Rules Platform, Criteria, Coverage Benefits, etc.) and provided support to client requests under the direction of the Managers and other team members. Responsibilities include (but were not limited to) support of service transactions associated with business needs including but not limited to business partner support and internal team support, handling daily request tracking, researching operational issues and running reports for internal and external clients upon request; provide documentation related to completion of assigned tasks.
- Provided support to the team and escalated issues, risks, concerns as needed.

Clinical Infusion Pharmacist
September 2003- March 2017
American Outcomes Management, New York, NY September 2004 – July 2006; January 2015 –August 2016
Prompt Care Companies, Clark NJ September 2016 – March 2017
Home Care Services, Edison, NJ April 2013- November 2014
University Medical Center at Princeton, Princeton, NJ August 2006- October 2008

- Assessed patient’s general pharmaceutical needs
- Planned for the pharmaceutical services needed

- Participated in the overall plan of care as part of the multidisciplinary team. Completed an individual Care Plan for each member and updating it as goals are achieved.
- Documented treatment goals and when the patient reaches the goals.
- Evaluated the appropriateness of the: dosage, drug choice, potential drug interactions, route of administration and stability.
- Maintained a routine of scheduled inspections of medical records
- Ensured that pertinent information contained within the database is completely filled out with patient's; height, weight, current and past medical history, clinical laboratory results, and concurrent medications (including over-the-counter or home remedy medications).
- Assisted in the maintenance and upkeep of all necessary paperwork required by state and federal agencies as well as the Joint Commission and ACHC.
- Ensured that when necessary, laboratory tests have been ordered and the results are obtained and discussed with the physician.
- Competent in IV, TPN, and home-pump preparation.
- Proficient in Pump programming.
- Participate in the process of drug therapy instructions to the patient.
- Participate in inter-disciplinary patient care conferences.

Supervising Pharmacist
March 2009- March 2013
Quick Rx Corp., New York

- Ensured the accuracy and appropriateness of all prescriptions filled
- Contributed to the growth of a profitable business by increasing new script growth and maintaining prescription adherence.
- Implemented recommended clinical programs including MTM (Medication Therapy Management) and adherence programs.
- Provided excellent customer service by assisting customers with medical-related issues and providing healthcare counseling.
- Supervised the work completed by Pharmacy Technicians and support staff while on duty.
- Performed all duties of Staff Pharmacist.
- Participates in NYS ESAP program.
- Participated in Pharmlink and PATlink studies, a project to evaluate health service expansion through ESAP.

Clinical Consultant Pharmacist
January 2008-June 2012
Integrated Healthcare Consultants, Remote

- Work independently as a consultant pharmacist.
- Provide education and process consultation to the client.
- Assist in the development of member and provider facing tools, resources, and educational outreach materials (disease state modules)

Clinical Coordinator
March 2003- August 2004
Peninsula Hospital, Far Rockaway, NY

- Participate in interdisciplinary patient care rounds and communicate follow-up with clinical pharmacist.
- Prevent, detect, and resolve medication-related problems and to make appropriate evidence-based,
- patient-centered medication therapy recommendations as part of the interdisciplinary team.
- Determine and resolve any medication therapy problems
- Appropriately documented clinical interventions.
- Provided concise, applicable, comprehensive, and timely responses to requests for drug information from patients and health care providers.
- Provide discharge medication teaching upon request and document teaching as appropriate.

Education

Pharm D
Albany College of Pharmacy and Health Sciences

MS Health Data Science 2022
Jefferson College of Population Health

Profile

Kevin
First Name

Middle Initial

Haynes
Last Name

1436 Reservoir View Ln
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

kch.haynes@gmail.com
Email Address

Home: (919) 455-8074
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Project Executive, EC Build (Commercial Construction Company)
Occupation

Do you live within the town's limits or ETJ?

- (•) Yes
- ( ) No

Length of residency in Wake County

3 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

After graduating from Duke in 2003, I lived in the mill on North Main Street while completing my two year commitment for Teach for America at Cedar Creek Middle School. We moved away and then back to Wake Forest in 2020. I have seen the town evolve and grow tremendously during that time. Since completing my teaching assignment, I spent 15 years as a management consultant assisting design and construction companies with strategy. My primary assignment included assessing the current status of the business and planning for its next 3-5 years. More recently I have assisted two construction companies with growing their businesses, one based in Atlanta and one based in DFW (local office in Raleigh). While opening the Raleigh office I spent a year working out of the Loading Dock in Wake Forest, and this intensified my interest in Downtown and its growth trajectory. I am now in talks with several stakeholders regarding the opening of a restaurant in the area. I have a passion for planning and development, specifically historic revitalization. While traveling across the state for baseball with my three sons, I have seen numerous towns do it the "right" way and others that have struggled. I would enjoy using this experience in a more formal/structured fashion. I am a promoter of Wake Forest and believe that there are a lot of exciting things on the horizon for the community and its inhabitants. I would enjoy being a part of assisting in this effort. (This is also my personal statement).

Question applies to multiple boards

Kevin_Haynes_Resume_03.2023__2_.pdf

Upload Resume

Question applies to multiple boards

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Running - Run 200+ miles per month Baseball - have coached all three of my sons, most recently at the Factory

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

Ethics Guidelines for Town Advisory Boards and Councils

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Kevin Haynes

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○ Yes ◉ No

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Kevin Haynes

How did you learn about the town's advisory board openings?

☑ Town website

KEVIN HAYNES

GOAL

To assist an organization reach its potential for exceptional performance, long-term business growth and success. To drive toward championing a high quality of work and trusting relationships with clients and team members while maintaining a strong personal standard of integrity.

CORE & ROLE-BASED COMPETENCIES

- **Relationship Building**- 18 years of industry relationships and the development of trust and respect with a large network of architects, engineers, contractors and project owners.
- **Business Acumen**- have a thorough understanding of how AEC businesses work; very familiar with the various financial and organizational models commonly seen within the industry.
- **Perspective**- have built significant understanding of how decisions, actions and stakeholders influence and interact with one another, look toward the widest possible perspective of an issue, knowledgeable about all the encompassing facets of an organization's working.
- **Strategic Agility**- able to succeed by helping others arrive at desired outcomes, able to see what's ahead and can forecast future consequences and trends accurately.
- **Sell, Lead & Manage Projects**- able to drive an engagement from start to finish, can assemble resources to carry project through to completion and clearly assign responsibility for tasks and decisions according to the strengths of the team members.
- **Mental Flexibility**- able to pivot in a course of thought/action according to evolving needs of a situation, can see many ways to address a client need based on the unique context.

ACADEMIC HISTORY

DUKE UNIVERSITY

Bachelor of Science in Sociology, 1999-2003

- Certificate of Markets and Management.
- Cum Laude Graduate, Graduate with distinction for honors thesis on organizational culture and performance.

CAREER HISTORY

PROJECT EXECUTIVE

EC Build 2022-Present

- Oversee all day-to-day construction operations including staffing assignments, project planning and development, cost and schedule analysis, and owner and subcontractor communications and interface.
- Promotes company's core values and communicates, oversees and reports the safety, quality and financial goals and objectives established by the President and Board of Directors.
- Responsible for creating and maintaining client relations, establishing project leads and preparing project pursuit submissions.

VICE PRESIDENT - CLIENT ACQUISITION

Cloud Construction & Facilities Management, 2020-2022

- Lead all "Get Work" activities (business development, marketing and pre-construction) and initiatives specific to the company's construction and facilities maintenance services.
- Develop and execute a comprehensive business development and implementation strategy specific to the company's growth objectives.
- Create and maintain actual and forecasted financial models for the company.
- Manage routine tracking mechanisms with respect to prospective and actual business activity.
- Oversee recruiting, onboarding, training and development of team members.
- Work collaboratively with department heads and team members, including operations, to execute day to day functions of the company.

SENIOR CONSULTANT

FMI Corporation, 2006-2020

- Generated leads and built deep relationships with key contacts within the industry; maintained client relationships as a trusted advisor and extended our work opportunities to meet their ongoing needs.
- Gained insight of owner procurement practices and preferences through personal interviews with 1000+ stakeholders across all construction segments.
- Managed the full project engagement to meet high standards and assumed ultimate accountability for quality and client expectations.
- Successful completion, with positive customer feedback, of 500+ engagements, totaling approximately $9M in consulting revenue.
- Became a sought-after source of expertise for industry publications and presentations (SMPS, ABC, CMAA, AFSA, ASCE).

KEVIN HAYNES | 919.455.8074 | KCH.HAYNES@GMAIL.COM | LINKEDIN: @KEVINHAYNES33

Profile

Benny
First Name

A
Middle Initial

Jenkins
Last Name

413 N Main Street
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

allen.jenkins0@gmail.com
Email Address

Home: (919) 426-6759
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Sales Manager
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

40 Years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I'm a life long resident of Wake Forest and have seen it grow from a small town with a volunteer Fire Dept. and one High School to a place where people from all over the country want to come live and experience the sense of community. I have been in multiple leadership roles over my career, in differing capacities. I work well in group and team settings and enjoy the collaborative process of constructive deliberation, while always striving for the best possible outcome. I believe my personal and career experience would be well suited and of value on the planning board.

Question applies to multiple boards

Personal_Statement.docx
Upload Resume

Question applies to multiple boards

Resume-Updated_2023.doc
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

I enjoy all outside activities including fishing, skeet shooting, golfing and canoeing. I have three children and am involved in their multitude of sport and church activities as much as possible. I love working in our yard with my wife and cultivating flowers and vegetables in our small backyard garden. I have very close friendships from childhood to college and always find avenues to spend valuable time with them.

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

◉ Yes ○ No

If so, what date did you attend a meeting?

Fall of 2022

Please Agree with the Following Statement

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- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Allen Jenkins

How did you learn about the town's advisory board openings?

- [x] Other

Personal Statement

I am a third generation Wake Forest resident and other than a few years after college I have lived here. I knew when I got married I wanted Wake Forest to be where my kids grew up. I wanted them to have the same wonderful experiences I had as a child. My wife and I purchased and restored a historic house on North Main Street in 2009 and began raising our three kids. Wake Forest has been such a defining aspect of my life and success that I want to give something back. I'm friends with Chris Joyner and would often discuss his planning board experiences. While I have no specific experience in town planning, I believe my career, resume and positions held can contribute. Ultimately, I have been truly blessed to spend my life in Wake Forest and I want to give back to a place that has so positively influenced me and defined who I am as a person.

B. Allen Jenkins

413 North Main St. ■ Wake Forest, NC 27587 ■ 919.426.6759 ■ allen.jenkins0@gmail.com

Profit Growth ■ Customer Satisfaction ■ Market Penetration ■ Team Development

Selected Sales Achievements

…Boost Mobile Prepaid Group Top Performer 2016, 2017

…Led and motivated high-achieving teams through multiple mergers and acquisitions…

…Awarded "Alltel Crest of Excellence" for 2008, honored as #1 producing Director nationwide…

…Chosen for the Alltel Accelerated Development Program, reserved for top 2% of all employees…

…Fueled $1.3M in sales with 31 new National Accounts in less than a year for 360° Communications…

Professional Experience

Willscot Corporation, Durham, NC
01/23 to Pres.

Sales Manager

Responsible for new acquisition growth, market penetration, revenue and profitability increase and customer retention in NC market. Support corporate and local market team strategies to ensure company objectives are met. Grow and cultivate relationships with large key accounts to promote additional project opportunities within market. Oversee and function as product manager on large, complex projects incorporating multiple teams and logistic control. Responsible for strategic forecasting and market plan creation to drive Key Performance Market Initiatives.

Dish, Raleigh, NC **01/14 to 10/22**

04/14 to 09/22

Indirect Account Manager
Responsible for Branded Retailer Distribution Points in the Dish-Boost Prepaid space for Raleigh, NC including metric attainment in gross activations, revenue, profitability and customer retention targets for Dish-Boost Prepaid's brand. Support organizational sales and service strategies by developing tools and resources to ensure objectives are met. Communicate and oversee cross functional and companywide initiatives to include training and sales development for the dealer representatives, function as a liaison between the Boost Prepaid Group and the Dealer Principals communicating promotional offers, branding, compensation, local marketing strategies, and KPI\Revenue forecasting.

Verizon Wireless, Raleigh, NC **01/09 to 12/13**
Chosen as the only retained Alltel Director in the region to provide leadership, strategic guidance, and a seamless transition experience for customers and employees during the complex acquisition.

Business Sales Manager
Collaborate with Verizon partners in the realignment and integration of staff, customers, and territories during multiphase reorganization. Oversaw training in new systems and processes without sacrificing service. Grew and retained Central and Eastern NC business market, Manage and coach 10-member Vertical sales team, including Healthcare, Life Sciences and Government instilling unified vision and dedication to excellence as change agent and advocate for success in driving KPI's and functioning as a project leader on 3rd party software and solution providers.

- Maintained key enterprise accounts and grew business despite longer ramp up curve created by restructuring the territory both horizontally and vertically, only 1 of 2 markets out of 15 required to do so.
- Captured 101% wireless achievement for 2010 and won Business Sales Manager of the month for June\July and September with 134%, 127% and 121% of wireless targets.
- Target Achievements: 2011-114% of gross targets, 2012-149% of gross targets, 2013 122% of gross targets (YTD)

Alltel Communications, Raleigh, NC **09/98 to 12/08**
Targeted for fast-track potential and promoted through the ranks to head the central NC region. Over-achieved all goals for revenue, wireless units, and data sales, driving market to top 5 in country.

Director – Wireless Business Solutions (06/05 to 12/08)
Challenged to boost the Raleigh Market from top 10 performer into the top 5. Strategically analyzed territory and initiated changes to execute rapid-results. Retrained sales force to encourage a "hunter" sales mentality, replacing 50% of team within first 8 months. Managed 13 staff members, 6 statewide business agents, and $1M budget. Consistently secured top 5 status nationwide, the only middle market represented.

- Honored with the "Alltel Crest of Excellence Award" for 2008, reserved for the top producing Director nationwide out of 28 peers. Also earned 2008 top-producing Director for the East Region.
- Chosen for the Alltel Accelerated Development Program by board of company executives. Passed strict selection criteria as a top 2% achiever, and slated for rapid succession into upper management.
- Exceeded or met every key performance sales indicator month after month, during entire 3-year tenure. Recognized as the most consistent and best performing market in the region.
- Surpassed 2008 targets for wireless units (121%), revenue (132%), and captured an overall 191% increase in revenue achievement from 2005 to 2008. Raised market penetration 9% year over year.

Director – Wireless Business Solutions continued…

- Stabilized a committed team, lowering employee turnover to 5%, well below regional average of 11-15%.
- Developed State of NC account 21% year over year to a top 5 customer for Alltel nationwide. Assigned a primary sales representative that cultivated stronger relationship with key stakeholders.
- Closed premier accounts including Duke University Hospital, Salix, BioVentus and Wake Medical Center.
- Restructured sales team and territory in support of aggressive, profitable growth and deeper penetration.
  - Piloted the dedicated account representative model, allowing team to obtain subject matter expertise.
  - Welcomed business agents as partners instead of competitors, garnering untapped opportunities.
  - Changed mix of activity from predominantly account management to new business acquisition.

Director – Wireless Business Solutions (05/03 to 06/05), Wilmington, NC
Headed daily operations and management of a business sales, customer service, and sales support group covering a tier 2 market. Hired, coached, and developed the business sales team and business agent team to promote and sell solution-based products to the existing customer base and prospective business customers.

- Earned the "Alltel Crest of Excellence Award" for 200? as the nationwide top producing Director.
- Expanded market penetration 6% and produced 118% of revenue and 112% of wireless unit goals.

Business Sales Manager (08/98 to 05/03), Rocky Mount, NC
Facilitated the wireless and business long distance sales objectives for the corporate environment in Northeast NC, including bid and contract preparation. Drove revenue and wireless unit targets through new account acquisition, penetration, and retention. Coached and mentored the sales team.

Held National Accounts Marketing Analyst and Key Account Representative positions from 01/95 to 03/97

Building Business Acumen

The 5 Elements of Business

Axiom Professional Sales Process Certificate in Solution Sales

United Arts Council Raleigh Board of Directors

Proficient in utilization of Salesforce.com and MS Office Products

BA in Business Management, Major: Marketing, North Carolina State University, Raleigh, NC,

Profile

John
First Name

Middle Initial

Mann
Last Name

517 Brooks St
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

johnmann5319@gmail.com
Email Address

Mobile: (919) 757-5319
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Executive vice president of NA operations
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

27 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

HOA President at retreat at renaissance. He worked as a professional for the last 25 years in project management. Lived in the town of Wake Forest since 1998. Built several houses within this area.

Question applies to multiple boards

John_Mann_CV_Jan_2023.docx
Upload Resume

Question applies to multiple boards

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

HOA president, play with CASL for a long time , working out, bike riding with North Carolina cycle. On a classic 1969 car and part of car club in the Raleigh area. Hiking and cooking.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

Ethics Guidelines for Town Advisory Boards and Councils

Please Agree with the Following Statement

If appointed, I pledge to comply with the following ethics guidelines for advisory boards and commissions as adopted by the Wake Forest Board of Commissioners

☑ I Agree

Members of advisory boards and councils shall not discuss, advocate or vote on any matter in which they have a conflict of interest or an interest which reasonably might appear to be in conflict with the concept of fairness in dealing with public business. A conflict of interest or a potential conflict occurs if a member has a separate, private or monetary interest, either direct or indirect, in any issue or transaction under consideration. Any member who violates this provision may be subject to removal from the board or council.

If the advisory board or council member believes he/she has a conflict of interest then that member should ask the advisory board or commission to be recused from voting. The advisory board or council should then vote on the question on whether or not to excuse the member making the request. In cases where the individual member or the advisory board or council establishes a conflict of interest, then the advisory board or council member shall remove themselves from the voting area.

Any advisory board or council member may seek counsel of the Town Attorney on questions regarding the interpretation of these ethics guidelines or other conflict of interest matters. The interpretation may include a recommendation on whether or not the advisory board or council member should excuse himself/herself from voting. The advisory board or council member may request that the Town Attorney respond in writing.

Prior to being appointed to an advisory board/council, it is recommended that you attend a meeting of the advisory board/council in which you have an interest. This helps each applicant to be more aware of the work of the advisory board/council. If you have attended a meeting of an advisory board/council, please indicate the date:

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Per NCGS 160C-109, members of appointed boards shall not vote on any advisory or legislative decision regarding a development regulation adopted where the outcome of the matter being considered is reasonably likely to have a direct, substantial, and readily identifiable financial impact on the member. An appointed board member shall not vote on any zoning amendment if the landowner of the property subject to a rezoning petition or the applicant for a text amendment is a person with whom the member has a close familial, business, or other associational relationship. A member of any board exercising quasi-judicial functions shall not participate in or vote on any quasi-judicial matter in a manner that would violate affected persons' constitutional rights to an impartial decision maker. Impermissible violations of due process include, but are not limited to, a member having a fixed opinion prior to hearing the matter that is not susceptible to change, undisclosed ex parte communications, a close familial, business, or other associational relationship with an affected person, or a financial interest in the outcome of the matter. A "close familial relationship" means a spouse, parent, child, brother, sister, grandparent, or grandchild. The term includes the step, half, and in-law relationships.

☑ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Code of Conduct: When participating in a meeting or conducting Town business (whether in person, via email, or other communication method), board and commission members shall conduct themselves in an ethical and professional manner. Any board or commission member who engages in inflammatory, hostile or threatening language or behavior toward others, including but not limited to elected officials, staff or another board or commission member, will be removed from the meeting. Any member who engages in the aforementioned behavior is also subject to dismissal from the Board. I understand that that board and commission appointments serve at the pleasure of Board of Commissioners and may be removed from an appointed board or commission at the discretion of Board of Commissioners. Meeting Preparedness to successfully prepare for a meeting, then you will be provided agenda materials in advance. An unprepared board or commission member reflects poorly on the Town of Wake Forest as well as fellow board or commission members since questions asked are often found in the staff report. Any member who continually comes unprepared to meetings is subject to dismissal from the Board. Dress Code Board members are expected to be well groomed, cleaned, and dressed in business casual attire. Shorts, t-shirts, and jeans are not permitted. If a Planning Board member is dressed or groomed inappropriately for a meeting, work session, or a Comprehensive Plan workshop, they will be prevented from participating and counted as absent

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

◉ Yes ○ No

If so, what date did you attend a meeting?

Several years ago, when the loading dock was being planned

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

John Mann

How did you learn about the town's advisory board openings?

- [x] E-News

John R. Mann
517 Brooks St.
Wake Forest, NC 27587
Mobile – 919-757-5319
johnmann5319@gmail.com

Professional Experience

I have over 24 years of experience in clinical operations, project management, operations finance, and alliance management. During that time, I've managed business lines with up to 400 staff and client portfolios up to 300 million dollars in value. As an experienced professional I have certifications in project management, change management, and process engineering. Additionally, I started my career in software development and throughout my career I have been a company Business System Owner (BSO) in multiple organizations and as a result I have significant experience in technology management, implementations, and software development and implementation processes. After taking time for family matters and the holidays I am eager and ready to be a strong asset to a new organization.

Vault health*. **Feb 2022–Sep 2022**
Vice President, Project Management Clinical Operations.

Responsible for the creation of a new decentralized clinical research organization and developing, supporting, and training the Vault Health organization on clinical research and decentralized trial operations. Establish all procedures and processes for a new clinical research organization utilizing decentralized site model. Established and led project management organization and responsible for writing, reviewing and providing input on 30+ SOPs, Work Instructions, and templates. Led all project management staff and providing operations leadership reporting to President of Clinical Research.

* Vault Health discontinued all clinical research operations as a board decision to focus on other business lines

ICON (Formerly PRA Heath Sciences) **Feb 2020 – Feb 2022**
Vice President, Global Decentralized Clinical Trial Operations (DCT)

Responsible for the creation of new global DCT business unit and developing, supporting, and training the ICON organization on decentralized trial operations. Lead global initiative to process engineer all operational global SOPs, Work Instructions, and Templates to incorporate a DCT model into normal practices within organization. Review all global RFPs daily to evaluate protocols for DCT opportunities. Assist in building an operational strategy with project teams on any proposals and provide operational support and DCT expertise for any awarded or ongoing studies. Assist department head in tracking department metrics and providing updates to senior management.

ICON (Formerly PRA Heath Sciences) **Nov 2012 – Jan 2020**
Vice President Project Management–Emerging Biotech/Rare Disease

Executive Director 2012 – 2015, Responsible for multiple levels of project management staff including PMs, PD's, and (Sr and Executive) Directors of Project Delivery (DPDs) reporting directly to the head of Project Management for the Americas. Managed and supervised up to 350+ employees with 9 direct reports while simultaneously managing a portfolio of 65+ global projects and programs being executed in all regions of the world with sponsor located in the Americas, Europe, and Asia Pacific regions. Line management for staff located in North, South, and Central America and responsibilities include management of performance and training needs, personnel evaluations and development, promotions, salary, and annual performance reviews, hiring forecasting against department PnL growth, turnover, career management. Global Project Management representative as Business System Owner (BSO) for 4 IT systems.

Perform duties as a Senior Project Management global representative within PRA/ICON. Duties included leading a corporate level initiative to develop a standard project management methodology/process for running projects within PRA/ICON, interface with other company organization/departments as a project management expert on multiple company initiatives and process improvement projects. Example projects include (but not limited to); a corporate project management reporting dashboard, standardization of project management metrics, a recruitment process for interviewing project management employees, development of corporate level risk management templates and process, bid defense standardization, an end-to-end timeline and critical path project management system, Project and site portals, and a global subject recruitment model.

Responsible for the oversight, management, and the operational execution of assigned projects and portfolios as an executive global project reviewer. This includes providing direction, motivation, and leadership to project teams, ensuring studies are maintaining GCP and regulatory compliance, serve as a senior representative for both internal and external departments, affiliates, and steering committees, assist in the development of project risk management and mitigation strategies, oversee timelines and resource management, and ensure that project teams implement best practices and lessons learned across portfolios which includes up to 75 projects.

Syneos (Formerly INC Research) Jul 2007 – Nov 2012
Senior / Exec Director of Global Project Management, Cardiovascular, Endocrinology, and Rare Disease

Responsible for developing new business units within INC Research. As Senrior Director was responsible for developing the General Medicine business unit following the acquisition of Advanced Biologics. After significant growth, the business lines were split into more dedicated business lines and took ownership of the CV, Immunology, and Rare Disease business unit. As an Executive Director and upon the acquisition of Kendle Research moved to grow a new combined business unit in Rare Disease, Cardiovascular and Metabolic. During these leadership positions, responsibilities included managing and supervised department PM and Clinical operations staff consisting of up to 50 global employees (NA, SA, EU) with eight direct reports (Sr. Directors, Directors, Clinical Team Leads, CRAs, and Project Mangers) while simultaneously managing a portfolio of projects and programs. Developed multiple business units from the ground up including Rare Disease, Cardiovascular, and the General Medicine business unit.

CRO acquisition responsibilities - Directly involved with leading, onboarding, and transitioning the Advanced Biologic CRO staff and projects into INC Research's culture, structure, processes, and procedures. Additionally responsible for the primary leadership role in transitioning all projects into the assigned INC Research therapeutic areas following the MDS Pharma acquisition. For both transition roles, evaluated all projects for the organization in the areas of risk, finance, scope, performance, and quality.

Instructed business unit and company resources on project management methodologies including but not limited to; project scope and finance management, resource, risk, time, and quality management. Interfaced within the INC organization as a Project Management expert on many company initiatives including but not limited to; Quality Finish™, MS Project, global Project Resource Management (PRM), international revenue recognition tool, NA recruitment process for new employees, creating the risk management templates

and process for PM staff, and developing bid defense standardization and optimization initiatives. Responsibilities also included oversight and management of all operational projects within department.

Quintiles **2003 - July 2007**
Associate Director of Project Management, Cardiovascular, Quintiles Inc.

Duties included leading large global clinical trial projects (up to 100M in Labor) and project teams (domestic and international) with responsibilities for coordinating the efforts of project team members for contracted full service clinical trial services. Line Management responsibilities include managing up to six (6) direct reports ranging from Senior Project Managers to Project Coordinators

Quintiles **2001- 2003**
Associate Director of Project Management, IVR Services, Quintiles Inc.

Quintiles **1998 – 2001**
Project Manager / Sr Project Manager, IVR Services, Quintiles Inc.

Triangle Labs, Inc **1998 – 1998**
Pharmaceutical Team Leader

Lab supervisor over LCMS/Mass Spec instrumentation laboratory

North Carolina State University **1996 – 1998**
Graduate Research Assistant

Conduct graduate research under grant

University of South Carolina – Coastal Carolina **1994 – 1996**
Adjunct Professor of Chemistry

Instruct general chemistry classes and laboratories

US Army **1987 - 2002**
Infantry soldier - enlisted and officer

Fifteen years in the active and National Guard components of the US Army. Rank ranged from enlisted (staff sergeant) through 1st lieutenant. Attended multiple leadership schools and held positions including, but not limited to, squad/section leader, platoon leader, and Company Executive Officer.

Therapeutic Summary

- 20+ years in project management and clinical research with 25+ years management and leadership experience
- Worked on Clinical studies in over 50 countries conducting Phase I through IV studies (primarily I-III, non EDS) including all service areas
- 13+ years of pediatric and rare disease experience in global studies
- Therapeutic experience;
    - **Women's health** – Osteoporosis, Oral Contraceptive, Hormone Replacement, Breast cancer, Endometrial safety, Female Sexual Dysfunction, Vasomotor
    - **Endocrine/Metabolic/NeuroMuscular** - Diabetes– Type I and II, MPS-IV (Morquio syndrome), LAL Deficiency, Precocious Puberty, GVHD, Pompe's Disease, Spinal Muscular Atrophy (SMA), Phenylketonuria (PKU), Limm Girdle MD,
    - **Immunology** – Osteoarthritis, Rheumatoid Arthritis, Ménière's disease
    - **Dermatology** – Head Lice, Acne, Psoriasis, Epidermolysis Bullosa

- **Cardiovascular** – Pulmonary Arterial Hypertension (PAH), Hypertension, Coronary Artery Disease, Cardiac Imaging, Fibrin Sealant
- **Respiratory** – Asthma, seasonal allergy
- **GI/ Inflammatory** – eosinophilic esophagitis, Ulcerative Colitis, Crohns Disease
- **Infectious Disease** – HIV, CDAD, Traveler's Diarrhea, Flu, complicated intraabdominal infection
- **CNS** - Post herpetic neuralgia, Bi-Polar Disorder, Schizophrenia, Stroke
- **Oncology** – Acute Myelogenous Leukemia (AML), Pancreatic Cancer, Breast Cancer, Myelofibrosis, NHL, Diff B Cell, Follicular Lymphoma, CLL

Publications

The Effects of Irrigation and Fertilization on the Wood Quality of Loblolly Pine (Pinus taeda L.), NC State University 1998

Education and Certifications

- B.S. Biology, minor chemistry, University of South Carolina, Conway, SC.-1994
- M.S. Forest Biology, North Carolina State University, Raleigh, N.C. - 1998
- Project Management Professional (PMP) Certification, PMI institute
- Change Management Certification, PROSCI
- Six Sigma Green Belt certification, NC State University

Profile

Shipman
First Name

Middle Initial

Northcutt
Last Name

304 Capellan Street
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

shipnorth@gmail.com
Email Address

Home: (919) 271-7504
Primary Phone

Home: (919) 271-7504
Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Sales
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

22 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Extensive background in Strategy planning I hold a North Carolina RE license. I am a Wake Forest Rotary member. President Elect, Rotaring of the year I volunteer my time serving small business owners. I serve on the Boys Scouts fund raising committee.

Question applies to multiple boards

Shipman_Northcutt_Resume072019v3.docx
Upload Resume

Question applies to multiple boards

Shipman_Northcutt_SNGv2.pdf
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Golf, Reading, Skiing, Yoga,

Question applies to Planning Board,Board of Adjustment

I participated in the following:

- [x] Citizen's Planning Academy

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Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

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☑ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

◉ Yes ○ No

If so, what date did you attend a meeting?

I completed the Planning board Academy in April of 2019. I attended two live meetings following my completion

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

☑ I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Shipman northcutt

How did you learn about the town's advisory board openings?

☑ Newspaper

Shipman Northcutt
LEADER

SALES/MARKETING & BUSINESS DEVELOPMENT

Raleigh-Durham, NC 919.271.7504 shipnorth@gmail.com Linkedin.com/in/shipman-northcutt/

PROFESSIONAL QUALIFICATIONS PROFILE

Senior level sales and leadership professional with 25 years' experience and proven track record in business development and consulting. Primary focus is B2B development with an emphasis on Sales and Marketing. Challenges conventional thinking. Considered a leader of people specializing in directly managing multiple high-performing teams. Led company in creating new, powerful customer relationships and market opportunities that have "transcended the industry norm". Seeking to utilize my vast experience and expertise to be an integral part of a successful, forward-looking organization.

- **B2B Development:** Built a powerful, high revenue Market Development Program and field team in 2014 for the Carquest Brand. Created the Value proposition that led to complete brand/business differentiation. Traveled the United States market and hired critical staff. This work resulted in doubling new business production in 24 months (select numbers confidential). Innovations included blending the Market Development staff into each region. In 2018, this led to the largest new business growth in the history of the brand and 2019 will exceed 2018.
- **Sales & Marketing Process Innovations:** Created and enhanced the Partnership Selling Model then implemented sales process focused on these proven principles. Adapted a Six-Step Process specific to industry and taught it across all teams. This is the core framework for Advance's sector sales activity. Process has become business building tool for company – short and long-term.
- **Mergers & Acquisitions:** Led multiple teams in the acquisitions of many small to medium size business. The typical range was $1m to $2M annual revenue business. Our business model from 1995 to 2013 was to purchase many of our customers and roll them into corporate stores. Typically, they were Asset Value Acquisitions. Success includes work with the seller to legally minimize or delay the tax for both parties. Small business leadership includes purchasing a 6-store group in western North Carolina.
- **P&L Management:** Managed a P&L for 30 years. Understand small and large operations and financials for any successful company, division or small business. Experience includes approving annually company sponsored bank loans. Multiple customers use current financing. During my approval process I work closely with finance staff to put packages and approvals together with detailed financial including a P&L projection, including expert advice and preparation/analysis of balance sheet.
- **Product Development/Marketing/Vendor/Store Owner Connections:** Currently significantly involved with merchant staff to support Advance's network. Help lead the company's four brands and four associated supply chains. Work closely with all for availability and pricing, successfully channeling input comes from Carquest store owners. Created critical, original input from store owners that has directly led to highly effective and improved sales, products and pricing throughout the entire US operations. Create and nurture the powerful vendor initiatives associated with all store owner and business interactions.

CORE COMPETENCIES THAT CREATE COMPETITIVE ADVANTAGE

- Budget/P&L / Fiscal Management
- Strategic Partnerships & Stakeholder Relationships
- New Business Development / Sales Growth
- Customer Service Relationship Management
- Solution Oriented Problem Solving
- Mergers & Acquisitions
- Strategic Business Planning & Organization
- Merchandising / Inventory Management
- Start-Ups / Entrepreneurship
- Leadership / Training / Team Building

Certifications & Training

Northwood University and CARQUEST School of Business
Executive Program in Entrepreneurial Excellence: Independent Store Cogr

Professional Experience & Notable Contributions

Multiple Partnerships | Raleigh-Durham, NC 05/2016 – Present
Equity Partner

Scope: Equity Partner in Fulton Funds LLC, South Loop Properties and Northcutt Investments LLC.

- *Fulton Fund 1 LLC* is a California company with three partners. Company buys existing small to medium size multi-unit apartment buildings in select markets. Refine buildings and supervise commercial upfit changes within the facility; this work raises the income streams to market value then the partnership decides to keep the property or sell it depending on the CAP rate and/or Cash flow.
- *South loop Properties LLC* is a Georgia based company. This company maintains one commercial income producing property. Personally, serve as one of two partners. The purpose of this separate LLC is primarily established for estate planning.
- *Northcutt Investments LLC* is a Georgia based company. Serve as one of two partners in this property. Collaboratively worked and found an A class tenant and entered a long-term lease. Located the land, built/project managed the building, and secured the financing for the property in 2014.
- *Henderson Nevada*: personally own this residential property for income and long term appreciation.

Carquest Auto Parts | Raleigh-Durham, NC 05/2016 – Present
Vice President Sales

Scope: Serve as a Division Vice President (DVP) focused on growing the sales both organically and bring new clients into the program. Advance measures role success by an established sales plan and O/I plan created prior to the operating calendar year. Accomplish objectives through working with 30 US staff.

- Lead team of 6 direct report, 5 Sales Directors (IDS) and one Market Development Director (MDD). Each of these direct reports manage, on average, 5 Account Executives (AE's). The MDD has two Market Development Managers (MDM). Book of business is approximately $190M, IDS $40M, AE $8m. MDD team is tasked with bringing in nearly $7M (all measured as annual numbers). The $130 BM Industry grows on average 2.5% per year and our budgets are built to on a 3.5% lift YOY. 2018 - personal region produced a 4.5% lift YOY and 2019 are on pace for a 7% lift.
- Exceeded O/I plan for 2018 and are on pace in 2019 to exceed O/I plan by 15%. Assigned regions serve approximately 350 stores owned by individual owner (some have multiple locations) with an average annual purchase rate of $600K annually and very low churn rate in our customer base. The lifetime value of the customer is and averages $10M+ per store.
- Lead DC level team in teaching, coaching store owners to focus on the customer. Focused on the health of network beyond the sale; this deep relationship and commitment to their business has allowed organization to troubleshoot all issues that may arise in the owner's store. These include but not limited to: AR, Margin, Expense Management, Payroll, Capitol needs and expenditures.
- Provide a full IT package that is aligned with the marketing programs provided.
- Serve and considered B2B expert, both with the existing customer and even more with new accounts. Led team in every major KPI with in the company and brought more new accounts in than any other division. Key Featured Example - landed a new customer in NJ which was the largest independent customer in the 50 years' history of Carquest ($12M annual account that owns 9 stores) through 2019.
- Successfully anticipate and prevent problems and crises, including: slow or late payment of their COGS, general irritability and/or change in the owner's perspective and owner disengagement. Established a powerful team and created new market focused approach that has directly resulted in 87% of my team making and exceeding 2018 plan. In 2019 now 90% of my team are on course to exceed plan.
- Net New Membership Results – over last 13 rolling periods (New Members - Member Cancellations) by VP of Professional Sales and our Independent Store Sales VP. Corporate Statement: *Shipman Northcutt's team is leading the Tech Net new membership results: 59 new Tech Net stores.*

Advance Auto Parts | Raleigh, NC 01/2012 – 03/2015

VICE PRESIDENT MARKET DEVELOPMENT

SCOPE: Held total responsibility for planning and directing marketing, communication and business development activities in alignment with and in support of company's mission, vision and goals in an endeavor to advance the reputation and overall whole of the organization.

- Provided vision and leadership for Carquest Auto Parts integrated selling and communication operations.

OWNERSHIP EXPERIENCE & NOTABLE CONTRIBUTIONS CONTINUED

- Developed a comprehensive and proactive company-wide selling, communication and stigmatization strategy to supports the strategic goals, plans, and aspirations of the organization.
- Produced selling, communication and stigmatization methods that maximized demand for the company's products and services. Partnered with leadership to develop innovative concepts and solutions.
- Set strategy for selling, communication, advertising, and promotions to confirm that each one message emanating from the company square measured correct, consistent and gift a coherent image of the establishment and its interests.
- Supported various team of internet producers, graphic designers, project managers, selling and editorial writers, media specialists, and videographers. Offered mentorship to employees, each in terms of division strategy and skilled development.

IFIXANDREPAIR | Raleigh-Durham, NC 01/2010 – 11/2016

MANAGING PRINCIPAL

SCOPE: Performed as strategic thought leader for the organization and clients. Held responsibility for all PS function aspects for designated responsibility area. Served as trusted advisor with and to main customers. Provided strategic guidance and entire account responsibility for PS engagements. Grew company and successfully sold equity position in 2016. Refined and adopted the operations manual, Federal Trademarks and the FDD.

- Designed and established the sales teams and entire sales process among other business needs.
- Completed store operational requirements by scheduling and managing employee hours.
- Maintained operations by coordinating and enforcing operational, and personnel policies/procedures.
- Ensured availability of merchandise and services by maintaining and ordering inventory process.
- Created powerful customers and trained business to create a customer-centric professional atmosphere; provided recommendations for problem resolution and estimates to customer for repair, replacement according to problem diagnosis and repair/replacement recommendation.
- Identified new growth and business opportunities inclusive of varied company offerings. Worked in close collaborations with Area Sales Vice President to determine and win main growth opportunities.

GORILLA GAMES FRANCHISE, LLC | Wake Forest, NC 01/2006 – 11/2016

CO-OWNER

SCOPE: Started the highly successful Gorilla Game franchise Partner in Memphis, TN. Created model and franchise. This model included writing an original SOP manual, getting the Federal Trademarks established, and established the FDD (Federal Disclosure Document), all critical in the success of the company.

- Operated autonomously in all facets of business, i.e., strategic planning, operations, merchandising, and marketing for online community; proficient in customer relations, brand positioning, revenue growth, financial management, driving operational excellence, business development, price negotiations.
- Ensured and checked the profitability of the business by operating within established guidelines and requirements for sales growth, inventory, labor and controllable costs.
- Led strong focus on customer satisfaction ratings, loyalty, and follow up; established customer-centric culture of communication and accountability resulting in top tier performance and rave industry reviews.
- Coordinated and implemented current operations game plans and company initiatives and store marketing in a profitable and timely manner.
- Conducted and provided proper staffing of the business; facilitated trainings/development of personnel.

- Ensured and checked all required programs, reports and legal documents were accurate and complete.

AIRTIME WIRELESS, LLC, Raleigh-Durham, NC 06/2004 – 12/2007
FRANCHISE OWNER

SCOPE: Established own business, negotiated the rights to the AT&T brand for North Carolina. Established vendor/marketing relationship with AT&T. Sold highly profitable ownership stake in January 2008.

- Opened 14 stores across NC identified the sites, gained approval from AT&T and negotiated multiple leases.
- Identified and purchased an operating IT system that supported all functions of the business.
- Designed store core concepts and developed the buildouts; constructed businesses on budget in each area and placed the staff. Added key levels of management with an east and west division.

EARLIER CAREER ENGAGEMENTS

VICE PRESIDENT SALES | CARQUEST, Raleigh, NC

SHIPMAN NORTHCUTT

EXECUTIVE NETWORKING BRIEF

SALES/MARKETING & BUSINESS DEVELOPMENT LEADER

Senior level sales and leadership professional with 25 years' experience and proven track record in business development and consulting. Primary focus is B2B development with an emphasis on Sales and Marketing. Challenges conventional thinking. Considered a leader of people specializing in directly managing multiple high-performing teams. Led company in creating new, powerful customer relationships and market opportunities that have "transcended the industry norm" for the company. Seeking to utilize my vast experience and expertise to be an integral part of a successful, forward-looking organization.

- **B2B Development:** Built a powerful, high revenue Market Development Program and field team in 2014 for the Carquest Brand. Created the Value proposition that led to completebrand and business differentiation. Traveled the entire U.S. market, hired critical staff. This work resulted in doubling new business production both in 28 months (select numbers confidential). Innovations included blending the Market Development staff into each region. In 2018, this led to the largest new business growth in the history of the brand and 2019 will exceed 2018.
- **Sales & Marketing Process Innovations:** Created enhanced the Partnership Selling Model then implemented sales process focused on these proven principles. Adapted a Six-Step Process specific to industry and taught it across all teams. This is the core framework for Advance's sector sale activity. Process has become business building tool for company – short and long-term.
- **Mergers & Acquisitions:** Led multiple teams in the acquisitions of many small to medium size business. The typical range was $1m to $2M annual revenue business. Business model from 1995 - 2013 was to purchase many of our customers and roll them into corporate stores. Typically, they were Asset Value Acquisitions. Success - work with the seller to legally minimize or delay the tax for both parties. Small business leadership includes purchasing a 6-store group in western North Carolina.
- **P&L Management:** Managed a P&L for 30 years. Understand small and large operations and financials for any successful company, division or small business. Experience includes approving annually company sponsored bank loans. Multiple customers use current financing. During my approval process work closely with finance staff to put packages and approvals together with detailed financial including a P&L projection, including expert advice and preparation/analysis of balance sheet.
- **Diverse Industry Consulting Including Real Estate:** Equity Partner in Fulton Funds LLC, South Loop Properties and Northcutt Investments LLC. and personnally own residential property in Henderson NV. Fulton Fund 1 LLC is a CA company with 3 partners. Company buys existing small to medium size multi-unit apartment buildings in select markets. Refine buildings and supervise commercial upfit changes within the facility; this work raises income streams to market value then the partnership decides to keep the property or sell it depending on the CAP rate and/or Cash flow.

MULTI-DIMENSIONAL CAPABILITIES

Budget/P&L / Fiscal Management
Strategic Partnerships & Stakeholder Relationships
New Business Development / Sales Growth
Customer Service Relationship Management
Solution Oriented Problem Solving
Mergers & Acquisitions
Strategic Business Planning & Organization
Merchandising / Inventory Management
Leadership / Training / Team Building

SAMPLE RESULTS

Exceeded O/I plan for 2018 and are on pace in 2019 to exceed O/I plan by 40%. Assigned regions serve approximately 350 stores owned by individual owner (some have multiple locations) with an average annual purchase rate of $600K annually and very low churn rate in our customer base. The lifetime value of the customer is and averages $10M+ per store.

Landed a new customer in NJ which was the largest independent customer in the 50 years' history of Carquest ($12M annual account that owns 9 stores) through 2019.

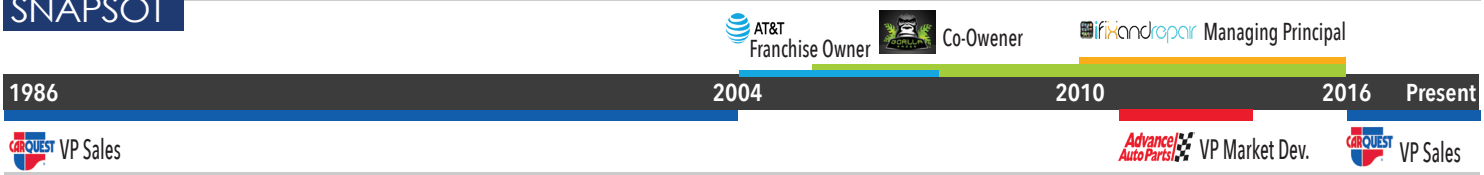
Manage book of business of approximately $190M annualy.

PROFESSIONAL DEVELOPMENT

NORTHWOOD UNIVERSITY CARQUEST SCHOOL OF BUSINESS

Executive Program in Entrepreneurial Excellence: Independent Store Cognate

CAREER SNAPSOT



Raleigh-Durham, NC ■ 919.271.7504 ■ shipnorth@gmail.com ■ Linkedin.com/in/shipman-northcutt/

Profile

Anthony
First Name

Middle Initial

Skubic
Last Name

812 Trinity Park Dr
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

anthonyskubic@gmail.com
Email Address

Mobile: (919) 339-3121
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Project Manager
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

< 1 year

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Construction management professional with several years of experience with current project completion portfolio of ~ $120,000,000. Experienced in handling and planning complex projects from public projects such as education, to private projects including healthcare and research laboratories.

Question applies to multiple boards

Anthony_Skubic_Jr_with_Project_Experience__2___1_.pdf
Upload Resume

Question applies to multiple boards

Wake_Forest_Planning_Board_-_Skubic.pdf
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

Ethics Guidelines for Town Advisory Boards and Councils

Please Agree with the Following Statement

If appointed, I pledge to comply with the following ethics guidelines for advisory boards and commissions as adopted by the Wake Forest Board of Commissioners

☑ I Agree

Members of advisory boards and councils shall not discuss, advocate or vote on any matter in which they have a conflict of interest or an interest which reasonably might appear to be in conflict with the concept of fairness in dealing with public business. A conflict of interest or a potential conflict occurs if a member has a separate, private or monetary interest, either direct or indirect, in any issue or transaction under consideration. Any member who violates this provision may be subject to removal from the board or council.

If the advisory board or council member believes he/she has a conflict of interest then that member should ask the advisory board or commission to be recused from voting. The advisory board or council should then vote on the question on whether or not to excuse the member making the request. In cases where the individual member or the advisory board or council establishes a conflict of interest, then the advisory board or council member shall remove themselves from the voting area.

Any advisory board or council member may seek counsel of the Town Attorney on questions regarding the interpretation of these ethics guidelines or other conflict of interest matters. The interpretation may include a recommendation on whether or not the advisory board or council member should excuse himself/herself from voting. The advisory board or council member may request that the Town Attorney respond in writing.

Prior to being appointed to an advisory board/council, it is recommended that you attend a meeting of the advisory board/council in which you have an interest. This helps each applicant to be more aware of the work of the advisory board/council. If you have attended a meeting of an advisory board/council, please indicate the date:

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Per NCGS 160C-109, members of appointed boards shall not vote on any advisory or legislative decision regarding a development regulation adopted where the outcome of the matter being considered is reasonably likely to have a direct, substantial, and readily identifiable financial impact on the member. An appointed board member shall not vote on any zoning amendment if the landowner of the property subject to a rezoning petition or the applicant for a text amendment is a person with whom the member has a close familial, business, or other associational relationship. A member of any board exercising quasi-judicial functions shall not participate in or vote on any quasi-judicial matter in a manner that would violate affected persons' constitutional rights to an impartial decision maker. Impermissible violations of due process include, but are not limited to, a member having a fixed opinion prior to hearing the matter that is not susceptible to change, undisclosed ex parte communications, a close familial, business, or other associational relationship with an affected person, or a financial interest in the outcome of the matter. A "close familial relationship" means a spouse, parent, child, brother, sister, grandparent, or grandchild. The term includes the step, half, and in-law relationships.

☑ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Code of Conduct: When participating in a meeting or conducting Town business (whether in person, via email, or other communication method), board and commission members shall conduct themselves in an ethical and professional manner. Any board or commission member who engages in inflammatory, hostile or threatening language or behavior toward others, including but not limited to elected officials, staff or another board or commission member, will be removed from the meeting. Any member who engages in the aforementioned behavior is also subject to dismissal from the Board. I understand that that board and commission appointments serve at the pleasure of Board of Commissioners and may be removed from an appointed board or commission at the discretion of Board of Commissioners. Meeting Preparedness to successfully prepare for a meeting, then you will be provided agenda materials in advance. An unprepared board or commission member reflects poorly on the Town of Wake Forest as well as fellow board or commission members since questions asked are often found in the staff report. Any member who continually comes unprepared to meetings is subject to dismissal from the Board. Dress Code Board members are expected to be well groomed, cleaned, and dressed in business casual attire. Shorts, t-shirts, and jeans are not permitted. If a Planning Board member is dressed or groomed inappropriately for a meeting, work session, or a Comprehensive Plan workshop, they will be prevented from participating and counted as absent

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

☑ I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Anthony Skubic

How did you learn about the town's advisory board openings?

☑ Town website

Anthony Skubic Jr

Project Manager

PROFILE

Currently positioned as a Project Manager with BE&K Building Group managing a vivarium project for Duke Health and serving as an AH-64D/E Attack Helicopter Maintainer in the North Carolina Army National Guard.

I value challenging environments where I can face new and pressing problems. I am eager to learn, assist, and lead on any team.

CONTACT

PHONE:
919-339-3121

WEBSITE:
https://www.linkedin.com/in/anthonyskubic/

EMAIL:
anthonyskubic@gmail.com

SKILLS AND CERTIFICATIONS

SolidWorks
CATIA v5
AutoCAD
Procore
BIM 360
Bluebeam
CFC EPA Certified
OSHA 10 Hour
OSHA 30 Hour
OSHA Trenching & Excavation
First Aid, CPR & CLS
CDL Class B

HOBBIES

Recreational Flying – Private Pilot
Motorcycling
Hiking

EDUCATION

Wake Technical Community College
September 2019 - Present
Associate in Engineering

Northeastern University
September 2012 – June 2015
Candidate for Bachelor of Science in Mechanical Engineering

WORK EXPERIENCE

BE&K Building Group
Project Manager
October 2022 - Present

- Tracked and executed change order proposals for the DLAR Vivarium project. building and client owner requirements outside of scope.
- Assumed complete control of the DLAR Vivarium project, reporting to Director of Operations.
- Created monthly cost project reports for company executive leadership.
- Interfaced with the client on a consistent basis to ensure implementation of requests, requirements, and out of scope work.

Assistant Project Manager
April 2022 – October 2022

- Tracked and executed change order proposals for the DLAR Vivarium project. building and client owner requirements outside of scope.
- Led commissioning, punchlist, and validation of the BSL3 project for Duke SoM.
- Assisted Project Manager and Project Executive in preparing monthly cost reports, project status reports, and executing subcontracts post bid.

Project Engineer II
March 2021 – March 2022

- Assisted in coordinating BIM modeling efforts while integrating 3rd party equipment, providing on site feedback to the modelers.
- Drove substantial completion items to finish and completed additional work to meet building and client owner requirements outside of scope.
- Processed and reviewed submittals, RFIs, and SOVs.

Barnhill Contracting Company
Project Engineer
July 2019 – March 2021

- Assisted the Project Manager in executing change order proposals.
- Directed several different trades in the field to complete their scope of work including building foundations.
- Processed and reviewed submittals to include shop drawings.
- Delivered RFI's to the design team and coordinated changes in the field.
- Performed constructability review during preconstruction and lead other preconstruction efforts in anticipation of bidding.

U.S. Army, North Carolina Army National Guard
AH-64D/E Helicopter Maintainer
October 2018 – Present

- Replaced mechanical components on the AH-64D/E including engine swaps, main rotor head replacements, and blade swaps.
- Completed write ups for all work performed on the aircraft includ PMS's, component replacement, and special inspection

Project Experience

Trask Middle School Renovation

Wilmington, NC July 2019 – April 2020

$11MM Project Value, Project Engineer Role

- 92,000 sqft renovation project for New Hanover County Public Schools. Project highlights included the addition of a clerestory spanning 10 classrooms, new landscaped courtyard, new AHUs, switchgear, transformers, TPO roof, storefront, windows, VCT, paint, and CMU walls.

Port of Wilmington, South Gate Complex

Wilmington, NC May 2020 – March 2021

$21MM Project Value, Project Engineer Role

- 11-acre site expansion project complete with heavy duty concrete and asphalt paving, extensive underground utilities to include electrical, sanitary/sewer, water. Infrastructure to support 3rd party installation of RFID technology, OCR portals, radiation monitors, and GC installed weigh in motion scales.
- New 8,200 sqft office building constructed with steel on concrete slab, cold formed metal framing with structural marine grade plywood. Building exterior included polish faced CMU, pre-engineered metal wall panels, storefront, and a torch applied roof.

Duke Health, CIVICS Project

Raleigh-Durham (RTP), NC March 2021 – July 2021

$10MM Project Value, Project Engineer II Role

- Laboratory renovation project spanning roughly 100,000 sqft complete with new/reused laboratory casework, bio-safety cabinets, LN2, RODI, CO2, DCW, DHW, and laboratory waste piping. Provided new utility services for several freezer farm areas with industrial epoxy flooring. Additionally, renovated four floors of office space for clinical staff to interface with Duke clients.

Duke Health, Denny Labs Project

Raleigh-Durham (RTP), NC April 2021 – September 2021

$10MM Project Value, Project Engineer II Role

- Laboratory renovation project spanning roughly 80,000 sqft complete with new/reused laboratory casework, bio-safety cabinets, LN2, RODI, CO2, DCW, DHW, and laboratory waste piping. Provided new utility services for several freezer farm areas with industrial epoxy flooring.

Duke Health, BSL3 Project

Raleigh-Durham (RTP), NC March 2021 – Present

$5MM Project Value, Project Engineer II, APM, and PM Role

- BSL3 renovation project spanning roughly 3,000 sqft complete wit

hardware interlocks. Select demolition of above ceiling areas included reuse of existing phoenix valves while adding numerous bubble tight dampers and new phoenix valves. Industrial epoxy flooring throughout. BSL3 renovation project spanning 3,000 sqft complete with new/reused laboratory casework, DPI sensors, decon switches and hardware interlocks. Select demolition of above ceiling areas included reuse of existing phoenix valves while adding numerous bubble tight dampers and new phoenix valves. Industrial epoxy flooring throughout.

- Validation of the space to ensure compliance with FDA and other governing body requirements.

Duke Health, DLAR/Vivarium Project

Raleigh-Durham (RTP), NC May 2021 – Present

$29MM Project Value, Project Engineer II, APM, and PM Role

- Six story Vivarium renovation project including replacement of existing AHUs in basement, select floor demolition to erect steel supporting cage wash equipment and bedding disposal systems. Providing utilities for laboratory chemical fume hoods, bio-safety cabinets, autoclaves, and sterilizers. Exterior improvements include expansion of the existing loading dock with new dock levelers, fiber cement and metal wall panels.
- Project value had been increased by approximately 25% through the change order process, adding to the complexity and duration of the project.

July 21, 2023

To the Wake Forest Planning Board and the Residents of Wake Forest,

My name is Anthony Skubic, and while I may be a relative newcomer to the wonderful town of Wake Forest, I am no stranger to North Carolina or service to the people of this state. After establishing North Carolina as my new home in 2017, I enlisted in the North Carolina Army National Guard as an AH-64D/E Attack Helicopter Mechanic in 2018. Upon returning from basic training and advanced individual training, I started my construction management career with Barnhill Contracting as a project engineer in Wilmington, NC. I completed two landmark projects for New Hanover County and the North Carolina State Ports Authority, specifically the Emma B. Trask Middle School renovation project, and the NCSPA South Gate Expansion project. Worthy of note, the South Gate project was a critical component to positioning North Carolina as the fastest growing port on the United States' eastern seaboard. Following my tenure at Barnhill Contracting, I moved to Durham, NC to work with BE&K Building Group. I was immediately tasked on the Duke Health projects at AREE's newly acquired Alexandria/Parmer campus. In short order, through superior work, I was promoted to Assistant Project Manager and subsequently Project Manager. While those projects have all but wrapped up, I was then placed at Syngenta's expansion project in Greensboro, NC to bring the project up to standard.

While my fledgling construction career has certainly been an atmospheric ride, my commitment to the people of NC has remained as I approach my fifth year in the National Guard with plans to continue for many more. My goal of joining the Wake Forest Planning Board is to leverage my construction experience with my call to service. I would seek to ensure Wake Forest remains a premier town, expanding our parks system, diversifying our businesses, and ensuring that we are ready for the next several decades of growth. My interest in the town extends beyond my own desires, as I want to make this town the best it can be for my own kids and future generations of Carolinians.

I look forward to the opportunity to continue to serve in any way that the people would see fit.

Sincerely,

Anthony Skubic

Profile

Matt
First Name

Middle Initial

Davis
Last Name

229 Woodstaff Ave
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

mattdavis@gmail.com
Email Address

Mobile: (919) 986-4366
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Sales Manager
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

7 years, 10 months

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I was the HOA president for my former neighborhood in Wake County (127 homes between Raleigh and Knightdale), and have been elected to the HOA board of my neighborhood in Wake Forest (approximately 125 homes) because of my care for neighbors as well as my leadership skills. More importantly, I love this town and want to give something back to help it continue to grow more beautiful.

Question applies to multiple boards

MatthewDavis_Resume_2023_v2.docx
Upload Resume

Question applies to multiple boards

Matt_Davis_Personal_Statement.docx
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Youth baseball coach (Town of Wake Forest Rec League), active in our church, MBA candidate at NC State University, weekend golfer, and coin collector.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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☑ I Agree

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

◉ Yes ○ No

If so, what date did you attend a meeting?

7/11/2023

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Matthew Davis

How did you learn about the town's advisory board openings?

- [x] Other

MATT DAVIS

mdavis27@ncsu.edu • (919) 986-4366 • https://www.linkedin.com/in/mattdavis530/

SALES AND BUSINESS DEVELOPMENT LEADER WHO GROWS TEAMS, PARTNERS, AND REVENUE

Technology Sales Leadership, Development, and Coaching

Leader extraordinaire, sales manager, and NC State MBA candidate with over 15 years of experience across multiple industries and roles. Process oriented people leader who has grown business year-over-year in multiple organizations and fields with a primary focus in technology organizations. Also pursuing a shift into management consulting.

- Progressive and consistent business growth at multiple firms
- Bullets quickly draw reader's eyes to important skills and expertise
- Attempt to match qualifications with employer's needs, especially if you have job description; do not attempt if qualifications do not match employer's needs

EXPERIENCE

CISCO SYSTEMS, Research Triangle Park, NC Mar. 2018 – Current
Cisco is the market leader in enterprise networks, data center solutions, collaboration systems, and IT security
Sales Manager, Data Center and Cloud Infrastructure (Mar. 2021 – Present)

Key Achievements:

- Led team to $250M in revenue, representing 130% against quota for FY2022, including 21% YoY growth, outpacing over three years of prior results
- Mentored and coached two employees to Chairman's Club (top 1% performers), and two more to Sales Champion (top 10%)
- Managed team of 11 architectural specialist sellers, covering Global Enterprise, Service Provider, and US Public Sector segments
- Earned 102% attainment in first fiscal half-year as leader

Virtual Sales Specialist – Data Center, Global Enterprise Segment (Aug. 2019 – Feb. 2021)
Product specialist, responsible for selling Cisco's Data Center solutions to a set group of Enterprise customers in the Southeast

Key Achievements:

- Established self as leader from creation of this pilot team, developing virtual sales motion and proving efficacy in a business segment that hadn't used virtual sales previously
- First Virtual Sales Specialist to cover a full patch of Enterprise accounts without field support, delivered 3x pipeline multiple with a list of accounts hard-hit by COVID-19 pandemic
- Uncovered and developed new buying centers with large accounts that had not previously purchased this architecture from Cisco

Virtual Account Manager, US Public Sector (Mar. 2018 – July 2019)
Account Manager for ~450 Local Government customers in Northern California

Key Achievements:

- Achieved over 20% YoY growth while taking on segment of underserved customers
- Developed key plays and indicators to grow business and relevancy with local government customers, including solution positioning to match their unique needs
- Opened new key relationships with regional channel partners to land new collaboration solution sales, led all of Western US Public Sector in collaboration sales for Fiscal Year 2019

mdavis27@ncsu.edu • (919) 986-4366 • https://www.linkedin.com/in/mattdavis530/

CITRIX SYSTEMS, Raleigh, NC Oct. 2015 – Mar. 2018
Citrix Systems delivers technology that makes the workplace run smoother for IT and front line employees. This includes virtual desktop infrastructure, SD-WAN, and productivity collaboration solutions such as ShareFile.
Territory Account Manager, (Oct 2015 – Mar 2018)
Seller with a focus on productivity collaboration software, responsible for growing business in previously untouched 100-500 employee SMB market, first in Northeast in CY 2016, then in Pacific Northwest in CY 2017.

Key Achievements:
- Grew ShareFile bookings in SMB space for Northeast by over 100% in CY 2016, leading to Achiever's Club recognition
- Recognized as Team Lead in CY17, developed multiple new hires while achieving 115 – 125% attainment consistently throughout the year

BIXLY, Fresno, CA Jan. 2012 – Sep. 2015
Bixly provides custom web and app development services as well as developer outsourcing for business customers.
General Manager, (Jan 2012 – Sep 2015)

Key Achievements:
- Developed end-to-end business strategy and go-to-market resulting in multiple years of consistent 25 – 40% YoY revenue growth.
- Successfully instituted proper HR controls, legal contract review for company protection with client services, and navigated multiple client disputes at zero to minimal cost to company
- Shifted hiring strategy to focus on local US-based developers, grew local headcount by 50%, which became a significant contributor to firm's consistent revenue growth

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EDUCATION AND CREDENTIALS

NORTH CAROLINA STATE UNIVERSITY, JENKINS GRADUATE SCHOOL OF MANAGEMENT,
Raleigh, NC (ant.) Jun. 2026
Master of Business Administration (MBA), STEM MBA
Current student

UNIVERSITY OF CALIFORNIA – SANTA CRUZ, Santa Cruz, CA Jun. 2006
Bachelor of Arts, Politics

PROFESSIONAL DEVELOPMENT AND TRAINING
- Executive Presentation and Delivery coaching, Cisco 2022
- FUEL – Fostering Unique and Emerging Leaders, Cisco 2019
- Force Management Sales, Citrix 2016

ADDITIONAL INFORMATION

Computer Skills: MS Office, Salesforce

Interests: Youth baseball coach, 49ers football, Giants baseball, Wolfpack sports, USA coin collector, Active in local church, HOA Board for neighborhood

I have always been service-oriented and civic-minded, and I love this town. I understand the challenge involved in this role because I have been HOA President in my former neighborhood, and have been elected to the Board in my neighborhood here in Wake Forest. I will work diligently to apply the UDO and also consider citizen feedback in recommendations to the Board of Commissioners. I believe in responsible, beautiful, and continued growth for our town, with a focus on service for our citizens.

I hope to join the Planning Board and serve as Wake Forest continues to grow beautifully.

Profile

Jarrett
First Name

Middle Initial

Lane
Last Name

1024 Shasta Daisy Drive
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

jmlane3@gmail.com
Email Address

Home: (386) 873-8073
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Entrepreneur & Business Development Executive
Occupation

Do you live within the town's limits or ETJ?

- (•) Yes
- ( ) No

Length of residency in Wake County

~1 year

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I have experience as a public policy professional and as a business executive, enabling me to understand the importance of government and industry coming together to solve hard problems. For example, I launched and led new business units within Amazon, including the unit responsible for distributing free COVID-19 tests throughout the State of North Carolina as part of the Say Yes Covid Test! and Project ACT programs. I was directly responsible for contractual negotiations, operational planning, and cross-functional coordination required to ensure a successful launch and subsequent scaling of the program. I led a small, fast-moving team to launch the program, which gave me an appreciation for how to truly accomplish "more with less" and think creatively about how to use limited resources to take on enormous challenges. I am also experienced at navigating complex political dynamics and working to find common ground among groups with competing priorities. For example, I previously served as Chief of Staff on a research panel stood up by the U.S. Congress to help reform the U.S. military's acquisition system. Serving in that role required me to quickly learn how to balance the interests of legacy stakeholders with the need to modernize how business is done. I suspect there are many parallels to the experiences I describe above to the roles and responsibilities of the Planning Board. The Board has the critical job of helping usher development of this community in a manner that (1) reflects the values of longstanding residents and businesses, and (2) promotes sustainable, healthy development.

Question applies to multiple boards

Jarrett_Lane_Resume_April_2023_Generic_v2.docx

Upload Resume

Question applies to multiple boards

Jarrett_Lane_Personal_Statement_Wake_Forest_Planning_Board.docx

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Gardening & Landscaping Fishing Reading -- Biographies & Non-Fiction Jogging Grilling

Question applies to Planning Board,Board of Adjustment

I participated in the following:

- [x] Neither

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Jarrett Lane

How did you learn about the town's advisory board openings?

☑ Town website

Jarrett Lane

Raleigh-Durham Area, North Carolina • 386.873.8073 • jmlane3@gmail.com

Strategy & Operations | Business Development | Partnerships

Cross-functional business leader and expert political strategist with direct experience building and managing new lines of business. Solves complex problems for organizations and customers by applying diverse experience ranging from business development to government relations across multiple industries including artificial intelligence, emerging technology, supply chain, healthcare, and defense. Excels at leading challenging organization-wide initiatives at the CEO level. Effective strategist with a proven ability to dive into the details and deliver results. Select achievements include:

- Designed, built, and led teams to launch 2 new Amazon business units in supply chain and healthcare, directly driving $45M revenue within two years and the launch of Amazon's first FDA-authorized COVID test.
- Created AWS's policy portfolio on artificial intelligence and emerging technologies. Highlights include leading AWS through intense political and media scrutiny regarding facial recognition technology by redefining the company's policy positions, advising and influencing CEO-level decisions, building strategic partnerships with industry groups and think tanks, and securing cross-organizational alignment to institute guardrails on the sale of facial recognition to law enforcement.
- Cleared new pathways for the U.S. military to acquire emerging technologies and for small businesses to sell to the government by successfully advocating for federal policy and legislative changes.

PROFESSIONAL EXPERIENCE

GOVINI – Remote (Arlington, VA) 2023-Present
Vice President, Defense

- Lead business development, sales, and partnerships for large greenfield Department of Defense accounts, including Office of the Secretary of Defense, Defense Logistics Agency, Transportation Command, and Special Operations Command.

AMAZON SUPPLY CHAIN – Washington, DC 2020-2023
Principal, Business Development, Healthcare & Regulated Industries

- Envisioned and started a new business unit offering supply chain and logistics solutions to government agencies and highly regulated industries. Co-authored the proposal, gathered and analyzed market data, and produced financial models to secure resourcing from Amazon.com's CEO to launch the business.
- Delivered outsized sales results by developing a strategy, recruiting and leading a team of sales representatives and customer success managers, and building force-multiplying partnerships. Year-one results included exceeding year-one annual revenue goal by 20% and goal for new customers onboarded by 10%. My team's year-two results included beating our annual revenue goal by end of Q2 and driving 250% of our annual revenue goal by end-of-year.
- Defined strategic goals and KPIs to evaluate the business's health, growth, and sales pipeline. Led an initiative across sales, business operations, and data analytics teams to establish mechanisms, SOPs, and Salesforce reporting to enable audits of our business's progress and barriers.
- Led complex negotiations with customers and partners. Collaborated with finance, legal, and operations to close strategic deals and make high-judgment decisions on business opportunities.

AMAZON WEB SERVICES – Washington, DC 2018-2020
Business Development Manager, Emerging Space Technologies 2020

- Launched AWS's first space technology accelerator, which yielded 4 'all-in' commitments from leading space startups to AWS, 3 enterprise-level agreements, 2 migrations from competitor clouds, 60+ joint go-to-market opportunities, and $340M+ raised by participating startups following the accelerator.
- Developed AWS's sales and partnership strategy for aerospace & satellite startups focused on automation, edge computing, networking, robotics, and quantum.

Chief of Staff & Regulatory Advisor, Science Team, COVID Testing Program 2020

- Led foundational work for releasing Amazon's first PCR test and creating a new business unit, Amazon Diagnostics. Liaised with legal counsel, scientists, and government relations to develop documentation and secure an EUA for Amazon's test.

- Identified promising research on COVID testing and engaged researchers globally to gather data and inform product development for sample collection tools, protocols, laboratory configuration, and test assay.

Public Policy Manager, Artificial Intelligence & Emerging Technologies 2018-2020

- Redefined AWS's position on facial recognition and sales to law enforcement. Gained alignment across sales, product, legal, public relations, and government relations executives to present a compelling business case to AWS's CEO and influence C-Suite leaders to institute a moratorium on facial recognition sales to police.
- Created and drove implementation of AWS's global artificial intelligence policy strategy, providing the global policy team clear direction and messaging guidance to enable consistent, proactive shaping of artificial intelligence regulations globally.
- Shaped policies to support AWS's customers and business objectives by leading engagements with the U.S. Congress, White House, and U.S. federal agencies regarding artificial intelligence, quantum computing, and high-performance compute.

DEPARTMENT OF DEFENSE, SECTION 809 PANEL – Rosslyn, VA 2017-2018
Chief of Staff & Senior Researcher

- Developed and drove implementation of organization-wide mechanisms including project plans and content reviews to ensure cohesiveness in products and timely submission of deliverables to Congress.
- Successfully advocated for legislative changes to improve Defense Department acquisition of emerging tech. Briefed Congressional staff, guest-lectured in universities, presented publicly, and published opinion editorials to advocate for defense acquisition reform.

BOOZ ALLEN HAMILTON – Arlington, VA & Doha, Qatar 2014-2017
Associate, General Management Consultant (2015-2017)
Senior Consultant, General Management Consultant (2014-2015)

UNITED STATES SOUTHERN COMMAND – Doral, FL 2010-2012
Political-Military Affairs Analyst, Strategy, Policy, and Plans Division

EDUCATION

DUKE UNIVERSITY – Durham, NC
Master of Public Policy

UNIVERSITY OF MIAMI – Coral Gables, FL
Bachelor of Arts, International Relations and Political Science

AWARDS & CERTIFICATIONS

- Active Top Secret/SCI Clearance
- Change Management Advanced Practitioner (via Georgetown University, McDonough School of Business)
- Department of Defense Joint Service Achievement Medal

ACTIVITIES & AFFILIATIONS

- Raleigh-Durham Startup Week, Track Captain 2023-Present
- Amazon Diversity Equity & Inclusion Team Member 2020-2022
- Center for Strategic & International Studies, Adjunct Fellow 2019-2021

SKILLS

- **Leadership & Management:** Strategic Planning, Operational Excellence, Performance Metrics, Organizational Design, Team-Building, Cultural Leadership, Problem-Solving
- **Industry Expertise:** Defense, Healthcare, Emerging Technologies, Supply Chain, Strategic Partnerships, Cloud, Government Relations

- **Functional:** Quantitative Analysis, Market Intelligence, Writing, Executive Communications, Strategic Communications, Public Relations, Policy Analysis, Advocacy

Jarrett Lane Personal Statement: Wake Forest Planning Board

Submitted 12 June 2023

I am seeking a position on the Wake Forest Planning Board for two key reasons:

1) **Long-term commitment to the community.** My family and I are relatively new to Wake Forest, having moved here in July 2022. However, we've committed to making this our home, and I'm invested in its future.
2) **Growth-driven opportunities and challenges.** The pace of development within Wake Forest is incredible. I aim to apply my experiences in novel ways to help Wake Forest capitalize on the opportunities and get ahead of the challenges created by rapid growth.

Profile

Phillip
First Name

J
Middle Initial

Martin
Last Name

243 Capellan St.
Street Address

Suite or Apt

Wake Forest
City

NC
State

27857
Postal Code

thephillipjmartin@gmail.com
Email Address

Home: (919) 601-1135
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Real Estate Development Manager/Urban Planner
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

10 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

Member of Urban Land Institute on the Transportation and Land Use Board, Former member of NC Association of Planners and North Carolina Association of Zoning Officials.

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List any hobbies

Fishing, golf, spending time with family, sporting events and community events

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Phillip Martin

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- [x] Our Town Newsletter

Phillip J. Martin

Raleigh, NC 27614 | (919) 601-1135

thephillipjmartin@gmail.com | www.linkedin.com/in/phillip-j-martin/

Results-driven professional with extensive experience in real estate, project management, stakeholder engagement, economic development, renewable energy, land entitlements, land use planning, zoning, and due diligence activities. Self-motivated, strategic thinker with proven execution in creating value within organizations based on technical expertise and resourcefulness. Inspires teammates and stakeholders to reach common goals through the ability to communicate effectively, build partnerships, and demonstrate passion.

KEY SKILLS

- Project Management
- Strategic Planning
- Regulatory Compliance
- Stakeholder Engagement
- Land Planning and Zoning
- Economic Development
- Budgeting/Forecasting
- Public Speaking
- Team Motivation

TECHNICAL SKILLS

- Microsoft Office Suite
- Sketch Up
- ArcGIS

EMPLOMENT

HHHunt, Raleigh NC **2021-Present**
Real Estate Development Manager

Primary role is to manage developments through the Southeast by overseeing the successful acquisition of all necessary zoning entitlements and agency permits.

Ecoplexus, Durham, NC **2019 – 2021**
Director of Community Engagement

Currently, manage a team of three employees dedicated to improving economically stronger, smarter, and cleaner communities through partnerships and strategic investments in solar energy facilities. Primary role is to manage utility-scale solar developments through the United States by overseeing the successful acquisition of all necessary zoning entitlements and agency permits.

- Oversee community engagement activities to educate stakeholders about clean energy.
- Serve as a liaison to industry associations with a focus on the development of clean energy policies, business development, and political advocacy.
- Plan, promote, and execute partner events, such as ground-breaking and ribbon cutting events, to create a sense of belonging among partners and the community.
- Primary point of contact for all media inquiries and preparation of all public relation pieces.

Cypress Creek Renewables, Durham, NC **2016 – 2019**

Senior Community and Economic Development Manager

Senior community engagement manager primarily engaged in managing community relations efforts to effectively support and promote the development of utility-scale solar projects by engaging, facilitating, and garnering the support of stakeholders throughout the Southeastern United States. Nurtured future employees by independently developing a summer intern engagement program.

- Lead a team of 10 community engagement managers throughout the country.
- Responsible for budgeting and developing strategic partnerships for the organization.
- Oversaw a 3-gigawatt (GW) portfolio through land use and zoning entitlements, and permitting approvals.
- Industry group representative advocating for political and public policy for clean energy.
- Established a strong network of regional leaders to promote the firm's community engagement models while developing key processes and communications that facilitate program development, outreach, and execution.
- Brought partners together through public events to create ownership in projects.
- Performed necessary entitlement due diligence for prospective and acquired projects.
- Engaged experts needed to successfully maneuver the entitlement process.
- Routinely prepared and managed contracts and scope, scheduling, and payments.

Cary Keisler, Inc., Cary, NC **2014 – 2015**
Facilities and Construction Manager

Served as Project Manager for all repairs, new construction and capital improvements for a North Carolina restaurant chain.

- Negotiated and managed contracts, budgets, and payments to contractors.
- Maintained relationships with all general managers and contractors.
- Coordinated plan approvals, entitlements, and permitting to meet project schedules.
- Attended and participated in construction and due diligence meetings with municipalities and other stakeholders regarding site selection and project feasibility.

City of Raleigh, Raleigh, NC **2013 – 2014**
Planner/Zoning Inspector

Enforced all City Zoning Ordinances and Unified Development Ordinances through reviews and inspections. Served as technical expert before appointed and elected boards.

- Oversaw all zoning inspections, review of site plans, assessment of field work done by others, and the issuance of zoning compliance and development permits.
- Streamlined all permitting processes and facilitated due diligence meetings.

Town of Williamston, Williamston, NC **2008 – 2013**
Planning, Zoning, Subdivision, and Watershed Protection Administrator

Supervised the Town's two-person Code Enforcement Department. Provided technical expertise to staff and elected/appointed boards. Performed grant writing with an emphasis toward economic development opportunities.

- Collaborated with Martin County Economic Development Council for economic development activities such as site selection, market research, and job creation.
- Performed grant writing for a wide range of third-party funding opportunities.
- Facilitated project advisory committee meetings, public meetings, and design charettes.
- Managed daily operations of Williamston Downtown Incorporated, a 501(c)(3) Non-Profit Organization focusing on downtown revitalization and grant-making for businesses.
- Administered the Town's GIS data layers for hydrology, topography and planning.

RE/MAX Preferred Realty, Greenville, NC **2006 – 2008**
Prudential Prime Properties
Licensed Broker/Client Care Specialist

Real estate professional with a strong emphasis on client service.

- Assisted clients with buying and selling residential and commercial real estate.
- Collaborated with builders on market analysis, site selection, and site acquisition.
- Oversaw advertising and marketing of company real estate listing, including the preparation of advertisements via various software programs and communication with publications, television, and local real estate magazines.
- Maintained property listing database, prepared brochures for clients considering relations to the area and answered all public inquiries.

EDUCATION

East Carolina University, Greenville, NC
Bachelor of Science in Urban and Regional Planning
Minor in Security Studies and Certificate in urban Design

JY Monk Real Estate School, Greenville, NC
Licensed North Carolina real Estate Broker

As a member of the Planning Board, it is an opportunity to give back to my community. I will work to ensure that Board continues to play a central role in decisions about land use. I bring an energetic perspective of an active, engaged professional to the board. The challenges to Wake Forest come largely from the world around us—changes to demographics, the economics of retail, the cost of public infrastructure, massive development in towns around us that impact our residents without benefiting them. I want to make our town an even better place to live, work and play.

Profile

Phillip
First Name

J
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Currently, manage a team of three employees dedicated to improving economically stronger, smarter, and cleaner communities through partnerships and strategic investments in solar energy facilities. Primary role is to manage utility-scale solar developments through the United States by overseeing the successful acquisition of all necessary zoning entitlements and agency permits.

- Oversee community engagement activities to educate stakeholders about clean energy.
- Serve as a liaison to industry associations with a focus on the development of clean energy policies, business development, and political advocacy.
- Plan, promote, and execute partner events, such as ground-breaking and ribbon cutting events, to create a sense of belonging among partners and the community.
- Primary point of contact for all media inquiries and preparation of all public relation pieces.

Cypress Creek Renewables, Durham, NC **2016 – 2019**

Senior Community and Economic Development Manager

Senior community engagement manager primarily engaged in managing community relations efforts to effectively support and promote the development of utility-scale solar projects by engaging, facilitating, and garnering the support of stakeholders throughout the Southeastern United States. Nurtured future employees by independently developing a summer intern engagement program.

- Lead a team of 10 community engagement managers throughout the country.
- Responsible for budgeting and developing strategic partnerships for the organization.
- Oversaw a 3-gigawatt (GW) portfolio through land use and zoning entitlements, and permitting approvals.
- Industry group representative advocating for political and public policy for clean energy.
- Established a strong network of regional leaders to promote the firm's community engagement models while developing key processes and communications that facilitate program development, outreach, and execution.
- Brought partners together through public events to create ownership in projects.
- Performed necessary entitlement due diligence for prospective and acquired projects.
- Engaged experts needed to successfully maneuver the entitlement process.
- Routinely prepared and managed contracts and scope, scheduling, and payments.

Cary Keisler, Inc., Cary, NC **2014 – 2015**
Facilities and Construction Manager

Served as Project Manager for all repairs, new construction and capital improvements for a North Carolina restaurant chain.

- Negotiated and managed contracts, budgets, and payments to contractors.
- Maintained relationships with all general managers and contractors.
- Coordinated plan approvals, entitlements, and permitting to meet project schedules.
- Attended and participated in construction and due diligence meetings with municipalities and other stakeholders regarding site selection and project feasibility.

City of Raleigh, Raleigh, NC **2013 – 2014**
Planner/Zoning Inspector

Enforced all City Zoning Ordinances and Unified Development Ordinances through reviews and inspections. Served as technical expert before appointed and elected boards.

- Oversaw all zoning inspections, review of site plans, assessment of field work done by others, and the issuance of zoning compliance and development permits.
- Streamlined all permitting processes and facilitated due diligence meetings.

Town of Williamston, Williamston, NC **2008 – 2013**
Planning, Zoning, Subdivision, and Watershed Protection Administrator

Supervised the Town's two-person Code Enforcement Department. Provided technical expertise to staff and elected/appointed boards. Performed grant writing with an emphasis toward economic development opportunities.

- Collaborated with Martin County Economic Development Council for economic development activities such as site selection, market research, and job creation.
- Performed grant writing for a wide range of third-party funding opportunities.
- Facilitated project advisory committee meetings, public meetings, and design charettes.
- Managed daily operations of Williamston Downtown Incorporated, a 501(c)(3) Non-Profit Organization focusing on downtown revitalization and grant-making for businesses.
- Administered the Town's GIS data layers for hydrology, topography and planning.

RE/MAX Preferred Realty, Greenville, NC **2006 – 2008**
Prudential Prime Properties
Licensed Broker/Client Care Specialist

Real estate professional with a strong emphasis on client service.

- Assisted clients with buying and selling residential and commercial real estate.
- Collaborated with builders on market analysis, site selection, and site acquisition.
- Oversaw advertising and marketing of company real estate listing, including the preparation of advertisements via various software programs and communication with publications, television, and local real estate magazines.
- Maintained property listing database, prepared brochures for clients considering relations to the area and answered all public inquiries.

EDUCATION

East Carolina University, Greenville, NC
Bachelor of Science in Urban and Regional Planning
Minor in Security Studies and Certificate in urban Design

JY Monk Real Estate School, Greenville, NC
Licensed North Carolina real Estate Broker

As a member of the Planning Board, it is an opportunity to give back to my community. I will work to ensure that Board continues to play a central role in decisions about land use. I bring an energetic perspective of an active, engaged professional to the board. The challenges to Wake Forest come largely from the world around us—changes to demographics, the economics of retail, the cost of public infrastructure, massive development in towns around us that impact our residents without benefiting them. I want to make our town an even better place to live, work and play.

Profile

Sarah
First Name

Middle Initial

Mobraten
Last Name

112 Tenbridge Ct
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

sarahmobraten@ls3p.com
Email Address

Home: (781) 254-8301
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Architect
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

8 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I am a commercial architect in Wake County and have had some interaction with the City of Raleigh Planning Commission and Appearance Commission on previous projects. I feel that my experience in the architecture and engineering industry gives me a good basis of understanding from which to start.

Question applies to multiple boards

Sarah_Mobraten_Resume.pdf
Upload Resume

Question applies to multiple boards

Mobraten_Statement.pdf
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Gardening, cooking, reading, spending time with family

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

Ethics Guidelines for Town Advisory Boards and Councils

Please Agree with the Following Statement

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If the advisory board or council member believes he/she has a conflict of interest then that member should ask the advisory board or commission to be recused from voting. The advisory board or council should then vote on the question on whether or not to excuse the member making the request. In cases where the individual member or the advisory board or council establishes a conflict of interest, then the advisory board or council member shall remove themselves from the voting area.

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Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

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☑ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

◉ Yes ○ No

If so, what date did you attend a meeting?

7/11/2023 - Virtual attendance

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Sarah Mobraten

How did you learn about the town's advisory board openings?

- [x] Our Town Newsletter

SARAH MOBRATEN AIA, LEED AP BD+C

Associate Principal/ Project Manager

LS3P Associate Principal Sarah Mobraten serves as the Operations & Finance Manager for LS3P's Raleigh office and brings over 15 years of commercial experience in a variety of project types. She has developed a significant portfolio of renovation work and frequently collaborates with partner interior design consultants to incorporate their conceptual designs. Sarah's previous work at a Boston firm includes the Mirbeau Inn & Spa, which was one of Travel & Leisure's top 20 small resorts in New England in 2017 and has been recognized with a Conde Nast Traveler's Reader's Choice Award each year since its 2014 opening.

Sarah is well-versed at managing projects at all stages of design and construction, and her work encompasses diverse practice areas such as hospitality, multifamily residential, office, K-12, mixed-use, and masterplanning. She is also active in community service, volunteering at events such as We Care and the 9/11 Day of Service.

REGISTRATION(S)

Registered Architect: NC, MA

EDUCATION

Clemson University,
Master of Architecture

Furman University,
Bachelor of Arts in English

COMMUNITY INVOLVEMENT & PROFESSIONAL AFFILIATIONS

American Institute of Architects

USGBC LEED Accredited Professional

RELEVANT PROJECT EXPERIENCE

NC Education Campus
Raleigh, NC

DHHS - Phase 1 Campus
Raleigh, NC

Albemarle Building Renovation
Raleigh, NC

Tidal - Wilmington Street Multifamily
Raleigh, NC

Raleigh Convention Center - Interior Enhancements
Raleigh, NC

Inn at Elon
Elon, NC

Cary Academy - Multiple Projects
Cary, NC

Umstead Hotel Renovation
Cary, NC

Perimeter Park Office Buidings
Raleigh, NC

Honeycutt Farm Amenity Buildings
Holly Springs, NC

Sheraton Boston North Tower*
Boston, MA

Mirbeau Inn & Spa *
Plymouth, MA

Harvard Square Hotel*
Cambridge, MA

Andover Inn*
Andover, MA

* Denotes previous firm experience

Sarah Mobraten Personal Statement

As an Architect and Project Manager for the commercial architectural firm LS3P, I have worked across multiple jurisdictions in Wake County and have experience with the planning departments in many of those. I have been a resident of Wake Forest for two years and am interested in expanding my own knowledge and expertise, as well as sharing my experience and supporting the growth of the town in which I live.

Profile

Veronica
First Name

J
Middle Initial

Roanhouse
Last Name

365 Jorpaul Dr
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

veronicaroanhouse@gmail.com
Email Address

Mobile: (602) 469-6529
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Real Estate Agent
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

4 Weeks

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I ran a neighborhood group because we did not have an HOA. I created monthly events designed to make everyone in our neighborhood felt that they belonged. My goal was to create a family feel in our community. I sent mailer invitations and posted signs in the neighborhood to create engagement. One of the years, I started a Wednesday night walking club. The result of all of these efforts was that my neighborhood became extremely friendly and folks new their neighbors. I come from Peoria Arizona. In extreme temperatures, people don't go outside too often and live next door to strangers for 15 years. Not in my neighborhood. We had a Christmas parade that started and ended at my house. When the city came out to look at property across from our neighborhood, my neighbors all called me to find out what was going on. My 12 year old son and I went to the city meeting and held a Facebook Live event on our neighborhood Facebook group. I love bringing people together. It's my superpower.

Question applies to multiple boards

Upload Resume

Question applies to multiple boards

Veronica_s_Resume_7162023.pdf

Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

I make Kombucha from scratch. I make elderberry syrup from scratch. I sometimes make paperweights when I'm trying to make bread. :) I'm taking Yoga, Zoomba and Hiphop dance at E Carrol Joyner Park. I play the drums. I am a gardener. I love growing my own food and teaching people about superfoods. I LOVE boogie boarding and attempting to surf. I'm not great at Pickleball, but my husband is, so we play a bit. I love fundraising and supporting my kid's sport teams.

Question applies to Planning Board,Board of Adjustment

I participated in the following:

- [x] Neither

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☑ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ◉ No

If so, what date did you attend a meeting?

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☑ I Agree

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Veronica Roanhouse

How did you learn about the town's advisory board openings?

☑ Our Town Newsletter

VERONICA ROANHOUSE

CONTACT

602.469.6529

veronicaroanhouse@gmail.com

365 Jorpaul Dr., Wake Forest, NC 27587

SKILLS

Social Media Content

Communication

Drummer

Hairstylist

EDUCATION

Pre-licensing

AZ Real Estate and Business

2019

AZREB Offers Pre-licensing courses for the Real Estate Exam

Cosmetology Certificate

Scott Cole Academy

2000

Internationally Acclaimed Cosmetology School

LANGUAGES

English ♦♦♦♦♦

Spanish ♦♦♦◊◊

PROFILE

My family and I just moved to Wake Forest 5 weeks ago. We moved here for the weather and the trees. We are super gardeners and Arizona's heat offered too great a challenge to keep the soil damp. We are in love with the humidity. My 24 year career in hairstyling came to a finish last November as my real estate career began to thrive. Luckily, the interpersonal skills crossover. I am a wanna be drummer and dancer. Life keeps getting better and better the older I get.

WORK EXPERIENCE

Real Estate Agent

Realty One Group, Greener Side — 2023

- Social Media content creating, to generate leads.
- Event planning and executing, for person to person engagement.
- Neighborhood outreach, focused area region marketing (FARMing).
- Online Lead followup, for digital FARMing.
- Conduction listing and buyers presentations for potential clients.
- Team participant and leader
- Constant learner, audio books are my jam.

Hairstylist

Veronica Roanhouse Hair LLC — 2000-2022

- Communication- Thorough consultations to make sure that my client and I are expecting the same outcome.
- Educating each client on the lates products and trends.
- Point of Sale
- Social Media Advertising

Salon Owner

Pistols N Polish — 2012-2015

- Hiring and training staff
- Developing Systems and methods
- Payroll
- Advertising and Marketing
- Daily Operations

Salon and Cosmetology Teacher

Various schools and Salons — 2003-2017

- Kerastase in Salon Representative, Fred Segal- Teaching treatment techniques
- Axis Cosmo School- Develop curriculum and teach classes
- Axis Salon- Train Assistants
- Aquage- Updo Education Team
- Paul Mitchel the School Phoenix- Teach Business Classes, Head of Social Media and Enrollment

VERONICA ROANHOUSE

CONTACT

602.469.6529

veronicaroanhouse@gmail.com

365 Jorpaul Dr., Wake Forest, NC 27587

SKILLS

Social Media Content

Communication

Drummer

Hairstylist

EDUCATION

Pre-licensing

AZ Real Estate and Business

2019

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2000

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LANGUAGES

English ♦♦♦♦♦

Spanish ♦♦♦◇◇

PROFILE

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Profile

Elaine
First Name

Middle Initial

Sheppard
Last Name

341 Simwood Avenue
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

ensheppard26@gmail.com
Email Address

Mobile: (714) 232-2954
Primary Phone

Home: (984) 235-4462
Alternate Phone

Which Boards would you like to apply for?

Planning Board: Submitted

Retired
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

3 years

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I have helped my neighborhood understand the new developments being proposed around us for that past 2 years. I have interacted with various Town entities to gain additional information and clarification. I have participated in neighborhood meetings and spoken before the Planning Board and Board of Commissioners at public hearings. Through this involvement I have learned about the Town planning process and gained some familiarity with the Community Plan and UDO. I will be attending the Citizens Academy this fall.

Question applies to multiple boards

Elaine_Sheppard_Resume_2023_PDF.pdf
Upload Resume

Question applies to multiple boards

Elaine_Sheppard_Personal_Statement_PB_Application_PDF.pdf
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Travel Gardening Walking / Biking Reading Cross stitch

Question applies to Planning Board,Board of Adjustment

I participated in the following:

☑ Neither

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---

☑ I Agree

Have you attended a meeting for the board in which you are applying?

◉ Yes ○ No

If so, what date did you attend a meeting?

July 11, 2023

Please Agree with the Following Statement

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- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Elaine N Sheppard

How did you learn about the town's advisory board openings?

- [x] Town website

ELAINE SHEPPARD

714-232-2954
ensheppard26@gmail.com

341 Simwood Avenue
Wake Forest, NC 27587

PROFILE

I am dedicated, organized, personable professional eager to become more involved in my community. I enjoy many aspects of life in Wake Forest, including community events, shopping on White Street, and pounding the pavement on the greenways. I would like to give back to Wake Forest and feel that my talents and experience are a great fit for the Planning Board.

EXPERIENCE

KUBOTA TRACTOR CORPORATION; TORRANCE, CA

Consultant — 2015-2016

Interviewed and gave input for my replacement as Wholegoods Purchasing Manager, trained replacement; took on special projects for Purchasing Department; assisted with department activities related to corporate move to Texas

Wholegoods Purchasing Manager — 2009-2015

Oversaw wholegoods purchases for all US warehouses exceeding $1 billion annually; managed relationships with over 35 vendor including supply contract negotiations; member of cross-functional teams to introduce new products and set up ordering system for dealers; managed purchasing department of 9 employees, reported to Director of Product Resources

Assistant Manager Purchasing / Assistant Manager Planning — 1997-2009

Responsible for purchases valued at $50 million annually and allocations from primary vendors; oversaw inventory balance between US warehouses; helped create and implement several direct ship programs to move product directly from vendor to dealers; created and modified Business Warehouse queries to support purchasing activities; member of cross functional team to implement SAP

Purchasing Specialist — 1995-1997

Updated excel spreadsheets to support purchasing planning activities; entered and maintained purchase orders in online system; followed up with vendors to move up product shipments as needed; handled inventory requests from sister companies; interpreted for KTC president and guests as needed

KUBOTA AMERICA CORPORATION; LOS ANGELES, CA

Sales Assistant — 1992-1995

Handled orders from order contract through invoicing and payment; visited customers in Los Angeles and Silicon Valley regions; coordinated shipment of fog systems from supplier in LA to Kubota Japan; assisted sales managers as needed

EDUCATION

Washington University, St. Louis, MO — BA Japanese, 1988

University of Michigan, Ann Arbor, MI — MA Japanese Studies, 1992

COMMUNITY INVOLVEMENT

Member, Wake Forest Garden Club; Wake Forest, NC — 2023-Present

Member, North Wake Senior Center; Wake Forest, NC — 2022-Present

Arts Ambassador, Cerritos Center for Performing Arts; Cerritos, CA 2018-2020

Girl Scout Co-Leader — 2006-2009

ELAINE SHEPPARD
PLANNING BOARD APPLICATION

PERSONAL STATEMENT

The Town planning process has captured my interest. Through my involvement in proposed developments surrounding my neighborhood I have learned a lot about the planning process and the role the Community Plan and UDO play in that process. In my professional life I was very attentive to detail and regularly made decisions that were in the best interest of the business. I feel that my professional experiences and interest would be a good fit for the Planning Board, and would give me a great opportunity to give back to Wake Forest.

Profile

Michael
First Name

D
Middle Initial

Siderio
Last Name

1205 Hartsfield Forest Dr.
Street Address

Suite or Apt

Wake Forest
City

NC
State

27587
Postal Code

sideriom@gmail.com
Email Address

Mobile: (919) 500-0142
Primary Phone

Alternate Phone

Which Boards would you like to apply for?

Planning Board: Appointed

Healthcare Construction Management
Occupation

Do you live within the town's limits or ETJ?

(•) Yes ( ) No

Length of residency in Wake County

17

Interests & Experiences

Question applies to multiple boards

Please list any experience and/or other factors supporting your candidacy

I've been a resident of Wake Forest for 17 years and have had the opportunity to watch our Town grow. Some of our growth has been needed and some of it has been questioned. I believe my 29 years of construction management, specifically in healthcare construction, has afforded me the experience and opportunity to plan, manage, and execute some very difficult projects involving challenging situations, difficult team members, and stretched financial budgets.

Question applies to multiple boards

MDS_Resume_2020_-_Condensed_Version__REV_2_.pdf
Upload Resume

Question applies to multiple boards

ToWF_Planning_Board_Letter.pdf
Upload a Personal Statement (no more than 100 words) outlining why you wish to serve of the board(s) or council you indicated

List any hobbies

Question applies to Planning Board,Board of Adjustment

I participated in the following:

None Selected

Ethics Guidelines for Town Advisory Boards and Councils

Please Agree with the Following Statement

If appointed, I pledge to comply with the following ethics guidelines for advisory boards and commissions as adopted by the Wake Forest Board of Commissioners

☑ I Agree

Members of advisory boards and councils shall not discuss, advocate or vote on any matter in which they have a conflict of interest or an interest which reasonably might appear to be in conflict with the concept of fairness in dealing with public business. A conflict of interest or a potential conflict occurs if a member has a separate, private or monetary interest, either direct or indirect, in any issue or transaction under consideration. Any member who violates this provision may be subject to removal from the board or council.

If the advisory board or council member believes he/she has a conflict of interest then that member should ask the advisory board or commission to be recused from voting. The advisory board or council should then vote on the question on whether or not to excuse the member making the request. In cases where the individual member or the advisory board or council establishes a conflict of interest, then the advisory board or council member shall remove themselves from the voting area.

Any advisory board or council member may seek counsel of the Town Attorney on questions regarding the interpretation of these ethics guidelines or other conflict of interest matters. The interpretation may include a recommendation on whether or not the advisory board or council member should excuse himself/herself from voting. The advisory board or council member may request that the Town Attorney respond in writing.

Prior to being appointed to an advisory board/council, it is recommended that you attend a meeting of the advisory board/council in which you have an interest. This helps each applicant to be more aware of the work of the advisory board/council. If you have attended a meeting of an advisory board/council, please indicate the date:

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Per NCGS 160C-109, members of appointed boards shall not vote on any advisory or legislative decision regarding a development regulation adopted where the outcome of the matter being considered is reasonably likely to have a direct, substantial, and readily identifiable financial impact on the member. An appointed board member shall not vote on any zoning amendment if the landowner of the property subject to a rezoning petition or the applicant for a text amendment is a person with whom the member has a close familial, business, or other associational relationship. A member of any board exercising quasi-judicial functions shall not participate in or vote on any quasi-judicial matter in a manner that would violate affected persons' constitutional rights to an impartial decision maker. Impermissible violations of due process include, but are not limited to, a member having a fixed opinion prior to hearing the matter that is not susceptible to change, undisclosed ex parte communications, a close familial, business, or other associational relationship with an affected person, or a financial interest in the outcome of the matter. A "close familial relationship" means a spouse, parent, child, brother, sister, grandparent, or grandchild. The term includes the step, half, and in-law relationships.

☐ I Agree

Question applies to Planning Board,Historic Preservation Commission,Board of Adjustment

Please Agree with the Following Statement

Code of Conduct: When participating in a meeting or conducting Town business (whether in person, via email, or other communication method), board and commission members shall conduct themselves in an ethical and professional manner. Any board or commission member who engages in inflammatory, hostile or threatening language or behavior toward others, including but not limited to elected officials, staff or another board or commission member, will be removed from the meeting. Any member who engages in the aforementioned behavior is also subject to dismissal from the Board. I understand that that board and commission appointments serve at the pleasure of Board of Commissioners and may be removed from an appointed board or commission at the discretion of Board of Commissioners. Meeting Preparedness to successfully prepare for a meeting, then you will be provided agenda materials in advance. An unprepared board or commission member reflects poorly on the Town of Wake Forest as well as fellow board or commission members since questions asked are often found in the staff report. Any member who continually comes unprepared to meetings is subject to dismissal from the Board. Dress Code Board members are expected to be well groomed, cleaned, and dressed in business casual attire. Shorts, t-shirts, and jeans are not permitted. If a Planning Board member is dressed or groomed inappropriately for a meeting, work session, or a Comprehensive Plan workshop, they will be prevented from participating and counted as absent

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☐ I Agree

Have you attended a meeting for the board in which you are applying?

○ Yes ○ No

If so, what date did you attend a meeting?

Several years ago, as I've been working out of town since 2017

Please Agree with the Following Statement

I understand this application, including any information provided therein, may be considered a public record and as such portions may be subject to release under North Carolina General Statute Chapter 132, Public Records.

- [x] I Agree

I understand that by agreeing to the above statement and typing my name below, that I am signing this application electronically.

Michael D. Siderio

How did you learn about the town's advisory board openings?

- [x] Town website

Michael D. Siderio

Wake Forest, NC 27587 | 919-500-0142

Email: sideriom@gmail.com | https://www.linkedin.com/in/mike-siderio-4b43514

Summary

Dynamic and charismatic leader with 29 years' experience delivering Construction Management services, who has successfully led teams to safely complete over $382M in complex and challenging projects and desires to be associated with a progressive firm looking to grow their business.

My focus and passion has always been developing teams with a "Win-Win" attitude and positive approach to operational excellence based on Fairness and Accountability, while maintaining the highest degree of Integrity, Trust, and Humbleness.

My objective is to bring value to an organization where my leadership style can be utilized to drive profitable business results while developing high performance employees and project teams who are focused on safely delivering projects that yield positive internal & external customer results.

Responsibility Overview

Leadership:

1. Primary liaison between Key Stakeholders (Owners, User Groups, Design Professionals, Subcontractors)
2. Responsible for the overall construction process, including:
   - Selling & presentation preparation
   - Preconstruction
   - Construction
   - Occupancy
3. Mentored, managed, and oversaw the performance of teams ranging from 5-25 staff members
4. Ensured a positive company culture was being fostered
5. Promoted environment of PDCA (Plan | Do | Check | Act)
6. Developed high performance project teams through training opportunities and programs
7. Developed and facilitated company training program for employees to "sharpen their skills"
8. Mentored and trained entry level staff and new employees on company policies & processes
9. Recruited college graduates and seasoned professionals
10. Developed and enhanced relationships with subcontractors to provide competitive advantages on future pursuits
11. Co-developed and promoted an environment that encouraged responsible minority participation and mentoring

Business Results:

1. Fostered a mindset of "Safety First" resulting in a reduction of our Experience Modification Rating from >.85 to <.48 in an eight (8) year period
2. Implemented process to reduce active accounts receivables by 50%
3. Proactive decision making | win-win results, evidenced by multiple AGC Pinnacle Awards for Best Partnering Project
4. Increased minority participation on private projects from <5% to an average of 15%
5. Streamlined contract procurement procedure to reduce subcontract turnaround time from >60 days to <20 days
6. Collaborated with marketing department to compile qualifications response and presentation materials for healthcare projects, which led to an 85% short list success rate for pursuits I led.
7. Organized and led project teams through mock-client interview rehearsals which resulted in 65% win-rate for pursuits I led

Operations:

1. Responsible for profit & loss of projects under my direct supervision
2. Negotiated Owner and Subcontractor contracts and purchase orders
3. Oversight of logistics plans developed by Project Teams
4. Monitored the development of project safety plan with Project Teams
5. General oversight of the preconstruction process from project award through buyout

Michael D. Siderio

Wake Forest, NC 27587 | 919-500-0142

Email: sideriom@gmail.com | https://www.linkedin.com/in/mike-siderio-4b43514

Experience

Hourigan Construction, Richmond, VA, 7/2017 - 4/20/2020, Position Held: **Project Executive**
Position Highlights:

- Oversaw operations for a design-build assignment for a 212,000 sf, 144-bed inpatient rehabilitation hospital
- Coordinated the preconstruction & site logistic efforts for a multi-area, multi-phased major hospital expansion program. consisting of: (1.) 2-story surgery addition, (2.) 3-story vertical expansion over occupied space, (3.) cancer center addition, (4.) central utility plant expansion, (5.) interior renovations of the existing mother-baby & ICU units.

The KOR Group, Raleigh, NC, 12/2015 - 12/2018*,* Position Held: **Principal**
Position Highlights:

- Contracted by VA based GC to lead efforts for hospital project pursuit, which led to a successful win and full time employment
- Successfully negotiated commercial lease agreement for client (as Real Estate Broker), then sold services as Owner's Representative to oversee tenant upfit of office & laboratory space

Fonville Morisey Realty Raleigh, NC, 6/2014 - 9/2018*,* Positions Held: **Real Estate Broker | REALTOR**
Position Highlights:

- Achieved "Director's Club" sales level my second year for sales in excess of $2M

BEK | KBR Building Group, Inc., Raleigh, NC, 2/2006 - 4/2014, Position Held: **Project Executive**
Position Highlights:

- Continued to hone Leadership skills by managing diverse project teams and company training teams
- Member of Healthcare Leadership team.
- Successfully and safely completed $64M worth of healthcare projects

Bovis Lend Lease, Charlotte and Raleigh, NC, 10/1993 - 2/2006*,* Last Positions Held: **Senior Project Manager**
Position Highlights:

- Established my "Foundation of Excellence" through company culture, training, and mentoring
- Led two project teams to win the Carolinas AGC Pinnacle Award for Best Partnering projects
- Successfully and safely completed $163M worth of healthcare projects

Licenses

North Carolina Real Estate License #279710

Skills and Proficiencies

Project Controls: Pro-Core | Prolog | CMiC | Bluebeam
Scheduling Software: P6 | Phoenix
Accounting Software: JD Edwards | CMiC
Microsoft: Word | Excel | PowerPoint | Outlook |Project

Community Involvement

Wake Forest Planning Board Academy	2014
Hope Lutheran Church - Misc. Positions	2012 - 2017
Logistics Leader for Cow Parade NC	2012

Education

Purdue University,	West Lafayette, IN
Bachelor of Science:	Building Construction Management

My desire to be a part of the Planning Board stems from my love of the Town and wanting to be a part of its continued growth. I believe my experience will allow me to bring a thought process to the Planning Board to help think “outside the box” when it comes to approving development plans. I’d like to see our Town expand in a manner similar to other Towns, such as Cary, Fuquay-Varina, & Holly Springs.

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-199-
Submitted by: Emma Linn
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Consideration of a petition requesting annexation submitted by Douglas and Sarah Machado for property associated with the rezoning request RZ-23-03, located at 2117 Averette Road being Wake County PIN 1851-90-8235 being approximately 2.822 acres.

Recommendation:

Item Summary:

ATTACHMENTS

-

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-220-
Submitted by: Emma Linn
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Consideration of LEGISLATIVE CASE RZ-20-05-01,Fuller Capital Boulevard Property, a rezoning map amendment filed by Red Line Engineering to rezone 29.367 acres located at 4925 Unicon Drive, 4975 Unicon Drive, and 10200 Capital Blvd (portion), being Wake County Tax PINs 1739-51-8319, 1739-61-2717, 1739-51-4482 (portion) from Rural Holding District (RD) and Light Industrial Conditional District (LI-CD) to Light Industrial Conditional District (LI-CD).

Recommendation:

Item Summary:

ATTACHMENTS

-

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-219-
Submitted by: Emma Linn
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Consideration of LEGISLATIVE CASE RZ-23-05, 2117 Averette Road, a rezoning map amendment filed by Douglas and Sarah Machado to rezone 2.822 acres located at 2117 Averette Road, being Wake County Tax PIN 1851-90-8235, from Wake County's Residential-30 (R-30) to General Residential 5 (GR5).

Recommendation:

Item Summary:

ATTACHMENTS

-

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-222-
Submitted by: Patrick Reidy
Submitting Department: Planning
Meeting Date: October 17, 2023

SUBJECT
Consideration of LEGISLATIVE CASE RZ-21-08, Joyner Property, a rezoning filed by McAdams Company to rezone 124.68 acres located at 1180 and 1200 (portion) Club Villas Dr, being Wake County Tax PINs 1841091336 and 1831895139 (portion) from General Residential 3 Planned Unit Development* (GR3 PUD*); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O) to General Residential 10 Conditional District (GR10-CD); Falls Lake Watershed Protection Overlay (FL-WMA); and Special Highway Overlay (SH1-O). (*While these parcels are labeled as GR3 (PUD), the parcels are not subject to any PUD regulations as the PUD regulations were removed when SU-99-02-01 was approved. Due to the zoning map label, staff will refer to the current zoning as GR3 PUD until such time the official zoning map is amended to remove the PUD text.)

Recommendation:

Item Summary:

ATTACHMENTS

-

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-248-
Submitted by: Candace Davis
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Consideration of a Resolution amending Fire Impact Fee Update

Recommendation:

Item Summary:

ATTACHMENTS

- Agenda Item Summary_Fire Impact Fee Update 2023_Resolution.docx
- Wake Forest 9-5-23 Presentation FINAL.pdf
- Wake Forest Fire SDF 2023 Update Report 20230825.pdf
- Resolution 2023-xx_Fire_Impact_Fees.docx

Agenda Item: Considera?on of Approval of a Resolu?on amending Fire Impact Fee Update

Summary: At the September 5th Work Session, the Board of Commissioners received a presenta?on from the consultant team; NC Fire Chief Consul?ng and Ra?elis. The consultants presented the 2023 Fire Protec?on Impact Fee recommended fees. The Planning Board received the fire impact fee analysis report and PowerPoint presenta?on in their September 12th agenda packet as informa?on. Staff's recommenda?on is to approve the fire impact fee recommenda?ons as presented by the consultants and requests the Board call a public hearing at the October 17th mee?ng in accordance with NC General Statutes (G.S. 160A-364).

The a?ached resolu?on amends the resolu?on and fee structure previously adopted with an effec?ve date of January 1, 2024.

RAFTELIS

TOWN of WAKE FOREST

TOWN of
WAKE FOREST

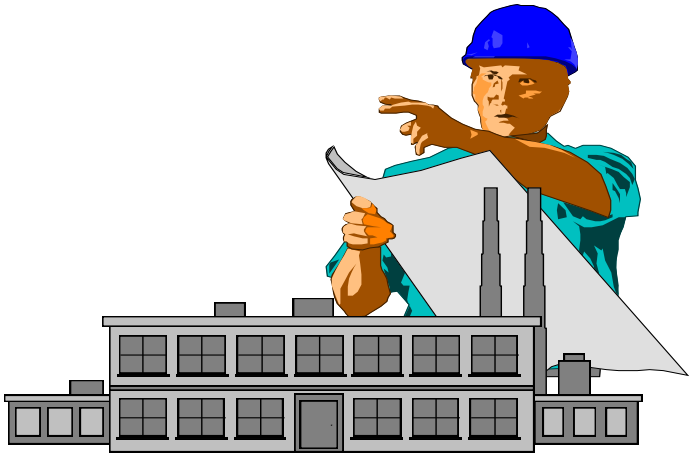
Fire Protection Impact Fee Update

SEPTEMBER 5, 2023

What Are Impact Fees?

What are Development Impact Fees?

Enabled by North Carolina state legislation, these are one-time capital charges assessed to new development or new customers to recover a proportional share of the costs of capital facilities required to provide service to the new customers.



Objective: "Intergenerational Equity"

Relative Dynamic Changes Occurring in Fire and Rescue Services Post COVID

1. Cost of building construction (including fire station construction) has risen significantly.

2. Cost as well as accessibility to fire apparatus and major equipment and tools has increased.

3. The Town of Wake Forest decided in 2016 to update fire impact fee every 3 to 5 years. Department transition occurred in 2020. Significant growth has occurred over the last several years.

Fire Impact Fee Uses – Growth

1. Wake Forest Fire Station 4 - 1505 Jenkins Road – 2015-2017
2. Expansion of Fire Station 2 – 9925 Ligon Mill Road – 2021-2022
3. Funding designated towards future Fire Station 6 - Planned
4. Purchase of a Fire Engine and Ladder truck – Engine 4/Future

Timeline – Fire Protection Impact Fees

- 1989 – Town received local legislation to enact facility (impact fees) - Chapter 502 – SB 576.
- 2006 – Town retained Raftelis to conduct initial evaluation and development of impact fee.
- 2007 – 2008 Implemented and started collecting fire impact fees.
- 2015-2016 – Town retained Raftelis to update fee structure.
- 2020 – Wake Forest Fire Department becomes part of town's municipal structure.
- 2023 – Town retained NC Fire Chiefs to assist with impact fee update.

Partnering with Raftelis

Importance in the Knowledge of the Town of Wake Forest and Wakette Fire District:

- NCFCC has worked closely with the Town of Wake Forest since 2018.
  - Coordinated and facilitated transition of fire department to town operating department.

Partnering with Raftelis

- NCFCC partnered with **Raftelis:**
  - Conducted initial analysis in 2006.
  - Updated in 2015.
  - Highly specialized work involved in development impact fee review.
  - Same methodology applied for **consistency** in conducting update.

- **Ms. Mihaela Coopersmith** from Raftelis will review the technical provisions of the analysis.

RAFTELIS

Rational Nexus Test

- Basis for Cost Justification
  - Must demonstrate a linkage between the service needs of new customers and additional facilities and equipment needed to meet those needs.
  - Must demonstrate a linkage between the level of fees and benefits received by new development.
  - Must not exceed the proportional share of costs for the additional facilities and equipment.

Methodology

Methodology for Calculating Fire Protection Impact Fees:

1. Define the service area and standard of service.
2. Define capital needs to address service requirements.
3. Allocate costs between current and future beneficiaries.
4. Allocate costs between residential and non-residential (employment) base.
5. Calculate cost justified level of fees.

Service Area And Projected Growth

Wake Forest Fire Protection Service Area		
	Current 2023	Projected Growth (2024-2033) [2]
Population [1]	65,785	20,066
Employees	21,024	6,413
Square Footage		
Commercial and Institutional	7,724,695	2,356,236
Manufacturing and Industrial	1,848,567	563,862

Ten Year CIP (2024-2033)	Total	Growth Related
Capital Improvement Plan	15,436,000	11,650,000

(1) Population includes Town of Wake Forest and Wakette Fire District.
(2) Growth Rate for both Population and Employment 2024-2033 is 31%.

Calculation of Cost per Person

Assumptions

- 75.8% of growth driven by residential demand
  - Equates to $8.82 million of CIP for residential growth
- 24.2% of growth driven by non-residential demand
  - Equates to $2.82 million of CIP for commercial/industrial growth

Calculation

- $8.82 million / 20,066 new residents = $440 / resident
- $2.82 million / 6,413 new employees = $440 / employee

Addresses proportionality concerns related to development impact fees.

Residential Fee Based On Functional Population Units

Schedule 1: Functional/Population Unit Analysis
(Persons per Housing Unit)

Housing Type	Population[1]	Housing Unit[1]	Average Household Size	Occupancy Factor [2]	Functional Population Unit
Town of Wake Forest					
Single Family	38,772	13,129	2.95	60%	**1.77**
Multi Family	12,626	4,895	2.58	60%	**1.55**
Group Home	660	660	1.00	60%	**0.60**
Total	**52,058**	**18,684**			

(1) Population and Housing data obtained from 2022 Estimated Population By Type of Dwelling Unit (Town of Wake Forest Corporate Limits)

(2) Occupancy Factor assumes 100 hours spent at home out of a 168 hour week

Residential Fire Protection Fee

<u>Calculation</u>

- Single Family Residence
  - $440 per resident * 1.77 = $780 per unit

- Multi-Family Residence
  - $440 per resident * 1.55 = $681 per unit

Non-Residential Fee

Assumptions

- 2.31 Commercial and Institutional employees per 1,000 square feet.
- 1.73 Industrial and Manufacturing employees per 1,000 square feet.

Source: Town of Wake Forest NAICS employment by use and square footage by use data used to calculate these factors.

Non-Residential Fee

Schedule 2: Employees per 1,000 Square Feet Calculation - Town of Wake Forest

Square Footage		
Type of Use	**Total Square Feet in 2023**	**Forecast Increase in Square Feet 2024 to 2033 (1)**
Commercial and Institutional	7,724,695	2,356,236
Manufacturing and Industrial	1,848,567	563,862

Employees		
Forecast Incremental Employees Added from 2023 to 2033 (2)		6,413
Breakdown of Employees by Industry	**Percent (2)**	**Employees**
Commercial and Institutional	84.8%	5,436
Manufacturing and Industrial	15.2%	976

Employees per 1,000 Square Feet	
Type of Use	**Employees per 1,000 Square Feet**
Commercial and Institutional	**2.307**
Manufacturing and Industrial	**1.732**

(1) Assumes same growth rate of 31% utilized to project residents and employees.

(2) Percentages based on Town of Wake Forest 2021 NAICS industry sector data

Non-Residential Fee

Calculation

- Commercial & Institutional
  - $440 per employee * 2.31 employees per 1,000 square feet = $1,015 per 1,000 square feet.

- Industrial & Manufacturing
  - $440per employee * 1.73 employees per 1,000 square feet = $762 per 1,000 square feet.

Summary and Comparison To Prior Fire Protection Fees

Recommended Fire Protection Fees per:	2017	2023	% Change
Single Family Residential Unit	$ 337	$ 780	131.2%
Multi Family Residential Unit	$ 253	$ 681	169.2%
1,000 square feet of Commercial and Institutional	$ 569	$ 1,015	78.5%
1,000 square feet of Industrial and Manufacturing	$ 197	$ 762	287.0%

Next Steps

- Local legislation requires public hearing and giving the town planning board reasonable opportunity to make comments or recommendations to Board of Commissioners.

- September 12 – Planning Board
- September 19 – Public Hearing and Approval
  - » January 1, 2024 Effective Date

QUESTIONS and DISCUSSION?

THANK YOU !

RAFTELIS

August 25, 2023

Ms. Candace Davis
Assistant Town Manager
Town of Wake Forest
401 Elm Avenue
Wake Forest, NC 27587

Subject: Fire System Development Fee Study Update

Dear Ms. Davis:

Raftelis Financial Consultants, Inc. ("Raftelis") has completed an evaluation to develop cost-justified fire system development fees for fiscal year ("FY") 2024 for consideration by the Town of Wake Forest ("Town"). The purpose of this report is to summarize Raftelis' conclusion related to the cost justified fire system development fees to be charged to the Town of Wake Forest and Wakette Rural District residents and businesses who receive fire protection services through the Town. It is not intended to address anything else associated with the system development fees, such as the administration of these fees, etc.

The preparation of this report was developed by Raftelis for the Town based on a specific scope of work agreed to by both parties. The scope of Raftelis' work consisted of completing a calculation of cost justified fire system development fees using common industry practices and industry standards. We provide no opinion on the legality of the system development fees implemented by the Town. It is the responsibility of the Town to ensure compliance of the system development fees with North Carolina statutes. The scope of work did not include any additional work other than the calculation associated with the system development fees, such as opinions or recommendations on the administration of these fees, the timing and application of revenues from the collection of these fees, etc., as that is the responsibility of the Town.

In developing the conclusions contained within this report, Raftelis has relied on certain assumptions and information provided by the Town and its consultant, NC Fire Chief Consulting, who are the most knowledgeable parties of the fire system, its finances, etc. Raftelis has not independently verified the accuracy of the information provided by the Town. We believe such sources are reliable and the information obtained to be reasonable and appropriate for the analysis undertaken and the conclusions reached. The conclusions contained in this report are as of the stated date, for a specific use and purpose, and made under specific assumptions and limiting conditions. The reader is cautioned and reminded that the conclusions presented in this report apply only to the effective date indicated. Raftelis makes no warranty, expressed or implied, with respect to the opinions and conclusions contained in this report. Any statement in this report involving estimates or matters of opinion, whether or not specifically designated, is intended as such, and not as a representation of fact.

Background

System development fees are one-time charges assessed to new growth for the benefit that the new growth derives from the fire system. They serve as an equitable method by which to recover up-front system costs of expansion required to serve new developed properties that will receive benefit from the system expansion. Industry practice indicates that system development fees should be prepared by a financial professional or licensed professional engineer, qualified by experience and training or education, who shall:

- Document in reasonable detail the facts and data used in the analysis and their sufficiency and reliability.
- Employ generally accepted accounting, engineering, and planning methodologies, including the buy-in, incremental cost or marginal cost, and combined cost approaches, setting forth appropriate analysis to the consideration and selection of an approach appropriate to the circumstances and adapted as necessary to satisfy all requirements of the Article.
- Document and demonstrate the reliable application of the methodologies to the facts and data, including all reasoning, analysis, and interim calculations underlying each identifiable component of the system development fee and the aggregate thereof.
- Identify all assumptions and limiting conditions affecting the analysis and demonstrate that they do not materially undermine the reliability of conclusions reached.
- Calculate a final system development fee per service unit of new development and include an equivalency or conversion table for use in determining the fees applicable for various categories of demand.
- Consider a planning horizon of not less than five years, nor more than 20 years.

This letter report documents the results of the calculation of fire system development fees for FY 2024 in accordance with these requirements. In general, system development fees are calculated based on (1) a cost analysis of the existing or planned infrastructure that is in place, or will be constructed, to serve new demands, and (2) the existing or additional demands associated with these assets.

There are three methodologies that could be used to calculate system development fees. These include the buy-in method, the incremental cost method, and the combined cost method. The Incremental method was used to calculate the fire system development fees for the Town, following the same methodology as the previous fee study, and was used due to the Town needing to construct a new fire station to serve the demands of growth. The following steps were completed to calculate the fees:

1. The Fire Department related capital improvement projects ("CIP") were reviewed with Town staff, and the growth related projects were identified. The CIP was allocated to residential and non-residential classes based on the percentage split of population to employment.
2. The additional population and employment growth was developed using Town planning documentation to project current level of population and employment 10 years out.

3. The unit cost of was estimated by dividing the growth related CIP from step 1 by the additional population and employees from step 2.
4. The amount of capacity assumed to be demanded by one person/employee was identified.
5. The system development fee for one person or employee was scaled up for the single-family residential home, and for various categories of commercial development as described below.

Calculation of System Development Fees

Step 1 – Estimate the Growth Related CIP

The Wake Forest Fire Department ("Department") currently provides fire protection services within its Town limits with a current population of approximately 54,274 and an employment base of approximately 21,024. In addition, the Department also serves the rural Wakette Fire District and its current population of approximately 11,511. Thus, the entire fire protection service area served by the Town of Wake Forest has a total population and employment base served of approximately 65,785 and 21,024, respectively.

The Town has developed a fire protection capital improvements plan to address deficiencies in its existing levels of service, and to provide a consistent level of service to anticipated increases in population and employment over the next ten years (FY 2023 through FY 2033). Those capital costs required to address deficiencies in the existing levels of service, or replacement of existing capacity, are not eligible to be recovered through the fire protection system development fees. As a result, our analysis includes only those capital facilities and equipment required to address the needs of growth throughout the ten-year planning period and specifically excludes capital projects intended to cure existing deficiencies or to replace existing capacity.

The growth related CIP was identified as the fire logistics facility, and the new Station 6. The table below summarizes the growth related CIP utilized to calculate the updated system development fees.

Table 1. Growth Related CIP

CIP	Total Projections
Fire Logistics Facility	$1,200,000
Station 6[1]	$10,450,000
Total	**$11,650,000**

These growth related capital costs are then allocated to residential and non-residential development based on the share of facilities and services demanded by each type of development. The demand for services is estimated based on projection of growth in population over the ten-year projection period, and the proportion of that growth in population to growth in employees located within the Town's fire protection service area.

[1] The Station 6 CIP projections allocated to the fire system development fees do not include land cost.

The Town provided population and employment information for 2023, as well as population estimates from planning documents for 2033. The table below summarizes the current and projected population levels, as well as current and projected employee level. The employees were projected to increase based on the same assumptions of population projection. Based on 2023 demographic data and anticipated growth rates provided by the Town, in 2023 the 2033 residential population is estimated to be 85,851, while the employment is estimated to be 27,437 within the Departments fire protection service area.

Table 2. Population and Employment Projections

Category	2023	2033	Projected Growth (2023-2033)
Population[2]	65,785	85,851	20,066
Employment	21,024	27,437	6,413

The 2033 population and employment numbers were utilized to determine a residential/non-residential allocation of the planned capital. Based upon the Projected Growth from 2022 – 2023 in the above chart , this results in a 75.8% (20,066/(20,006+6,413)) residential development allocation and a 24.2% non-residential development allocation for the growth related capital costs. As a result, of the $11.650 million capital cost identified above, 75,8%, or approximately $8.8 million is allocated to residential service and 24.2%, or approximately $2.8 million is allocated to commercial and industrial service.

Step 2 – Calculate the Unit Cost

The residential capital costs are then divided by the additional population anticipated in the Town's fire protection service area during the ten-year planning period to determine a capital cost of approximately $440 per person ($11.65 million/20,066 growth in population). The non-residential capital costs are divided by the additional employees anticipated in the Town's fire protection service area over the ten-year planning period to determine a capital cost of approximately $411 per employee ($8.8 million/6,413 growth in employees). Since the Town does not plan to finance any of the capital improvements through bonds, a debt principal credit is not required to be offset against the system development fees in order to ensure that new development is not charged twice for these capital costs through property taxes and the system development fees.

Step 4 – Calculate the System Development Fee for One ERU

Once the net cost per person and employee is determined, the residential cost per person is allocated to new single family residential development based on a "service unit" that represents the average number of persons per household in the Town's fire protection service area of 1.77. For multi-family residential customers, the residential cost per person is allocated based on a "service unit" that represents the average number of persons (1.55) estimated per multi-family dwelling unit. This average is based on data provided

[2] Population includes 54,274 current 2023 Town of Wake Forest population, and 11,511 current Wakette Rural Service Area population.

by the Town for total population and housing units, and an assumption of 100 hours spent at home out of the total 168 hours per week.

For non-residential development, the non-residential cost per employee is allocated based on a service unit that represents the average number of employees per 1,000 square feet of non-residential development categorized as either Commercial & Institutional (2.31 employees) or Industrial & Manufacturing (1.73 employees). These averages are based on square foot data provided by the Town.

Table 2 provides a summary of the recommended fire protection system development fee to be assessed to all new residential and non-residential development.

Table 3. Calculation of Fire System Development Fees

Description	Unit of Service	Current Fee	100% Calculated Fee
Residential			
Single-Family	1.77 ppl per household	$337	$780
Multi-Family	1.55 ppl per household	$253	$681
Non-Residential			
Commercial & Institutional	2.31 employees per 1,000 sq. ft.	$569	$1,015
Industrial & Manufacturing	1.73 employees per 1,000 sq. ft.	$197	$762

The fire system development fees shown in Table 2 represent the maximum cost justified level of system development fees that can be assessed by the Town. If the Town chooses to assess fees that are less than those shown in the table, the fees should be adjusted across the board for both residential and non-residential development.

Also, the Town can develop an implementation plan to implement the new development fees over two (2) or more years. It is our recommendation that if the Town desires to implement these fees over time that the implementation period be no longer than three (3) years. The implementation plan must implement the same percentage of the total cost fees each year for the residential and non-residential fees.

We appreciate the opportunity to assist the Town with this important engagement. Should you have questions, please do not hesitate to contact Michael Burton at (904) 923-1466, or Mihaela Coopersmith at (843) 523-0357.

Very truly yours,

RAFTELIS FINANCIAL CONSULTANTS, INC.

Michael Burton
Executive Vice President

Mihaela Coopersmith
Manager

RESOLUTION 2023-xx

RESOLUTION APPROVING UPDATED FIRE SERVICE PROTECTION IMPACT (FACILITY) FEES

WHEREAS, the current fee structure in place was updated and adopted in 2017 and the Board of Commissioners decided to evaluate and update respective fees more frequently to be consistent and in line with the town's growth, and

WHEREAS, in FY 2022-2023, the Board approved funds to update the Fire Protection Impact Fees. The Town partnered with NC Fire Chief Consulting and Raftelis to gather information, conduct the study, and complete the update, and

WHEREAS, the staff received the final report that was presented to the Board of Commissioners on September 5, 2023, and

WHEREAS, the recommended fees were presented to the Planning Board on September 12, 2023 and a public hearing was held on October 17, 2023, and

WHEREAS, fees are payable at the time of building permit issuance. Any land dedication and respective credits will be coordinated directly with the Planning Department accordingly, and

NOW, THEREFORE, BE IT RESOLVED the Board of Commissioners of the Town of Wake Forest authorizes the approval of the new Fire Protection Impact Fees effective January 1, 2024.

Recommended Fire Protection Fees per:	2017	2023	% Change
Single Family Residential Unit	$ 337	$ 780	131.2%
Multi Family Residential Unit	$ 253	$ 681	169.2%
1,000 square feet of Commercial and Institutional	$ 569	$ 1,015	78.5%
1,000 square feet of Industrial and Manufacturing	$ 197	$ 762	287.0%

Duly adopted this 17th of October 2023.

_____

Vivian A. Jones
Mayor

(ATTEST)

_____

Theresa Savary
Town Clerk

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-280-
Submitted by: Terry Savary
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Consideration of an Ordinance to approve and authorize the execution and delivery of the Amended and Restated Full Requirements Power Sales Agreement (FRPSA)

Recommendation:

Item Summary:

ATTACHMENTS
- Summary.pdf
- AmendedandRestatedFRPSA.pdf
- TenthAmendedand RestatedFRPPA.pdf
- Ordinance2023-XX_FRPSA_Oct202317.pdf

Agenda Item: Consideration of an Ordinance to approve and authorize the execution and delivery of the Amended and Restated Full Requirements Power Sales Agreement (FRPSA).

Summary: North Carolina Eastern Municipal Power Agency and Duke Energy Progress entered into and executed the Tenth Amended and Restated Full Requirements Power Purchase Agreement (the "Amended and Restated FRPPA") on June 27, 2023. Included in the Amended and Restated FRPPA are changes to many of the defined terms used therein, defined terms that are also used in the Full Requirements Power Sales Agreement entered into between Power Agency and your municipality as of April 24, 2015.

Attachments:

- FRPSA Agreement
- Tenth Amended and Restated FRPPA
- Ordinance

Town of Wake Forest
Execution Copy

Unsigned copy of the Amended and Restated FRPSA for your use

COPY

NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY

Amended and Restated
Full Requirements Power Sales Agreement

Dated as of September 22, 2023

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Exhibit A - Network Integration Transmission Service Agreement and Network Operating Agreement between Duke Energy Progress, Inc. and North Carolina Eastern Municipal Agency A-1

NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY

AMENDED AND RESTATED
FULL REQUIREMENTS POWER SALES AGREEMENT

THIS AGREEMENT, dated as of the 22nd day of September, 2023, is by and between North Carolina Eastern Municipal Power Agency, a joint agency of the State of North Carolina (including successors and permitted assigns, "Power Agency"), and the municipality of the State of North Carolina (including successors and permitted assigns, the "Member") which has executed this Agreement (as supplemented and amended pursuant to the terms of this Agreement, the "Agreement").

WHEREAS, the parties hereto are parties to a Full Requirements Power Sales Agreement, dated as of April 24, 2015, (the "FRPSA"), pursuant to which Power Agency sells and the Member purchases the Full Requirements Bulk Power Supply requirements of the Member; and

WHEREAS, Power Agency entered into a Full Requirements Power Purchase Agreement with Duke Energy Progress, LLC (including successors and permitted assigns, "DEP"), dated as of September 5, 2014, as amended and restated effective as of December 10, 2014, August 1, 2015, June 1, 2017, July 1, 2017, November 1, 2018, June 1, 2020, January 1, 2021, October 1, 2021, and March 1, 2022 (as amended and restated, the "Original FRPPA"), pursuant to which Power Agency agreed to purchase from DEP and DEP agreed to sell to Power Agency firm capacity and energy in amounts required by Power Agency to reliably serve the then current and future electrical loads of Power Agency's Members; and

WHEREAS, Power Agency and DEP agreed to replace the Original FRPPA with the Tenth Amended and Restated Full Requirements Power Purchase Agreement, executed as of June 27, 2023 to be effective as of January 1, 2023 (the "FRPPA"), pursuant to which Power Agency has agreed to purchase from DEP and DEP has agreed to sell to Power Agency full requirements capacity and energy to serve Power Agency's Native Load (as defined therein); and

WHEREAS, certain defined terms in the Original FRPPA have been amended by the FRPPA and, as a result thereof, Power Agency and the Member desire to amend and restate the FRPSA to give effect to the amended defined terms set forth in the FRPPA; and

WHEREAS, on September 22, 2023, the Board of Directors of Power Agency adopted a resolution pursuant to which it approved this Amended and Restated Full Requirements Power Sales Agreement and directed that it be submitted to the Members for approval; and

WHEREAS, the governing board of the Member has authorized the execution and delivery of this Amended and Restated Full Requirements Power Sales Agreement; and

WHEREAS, Power Agency is a party to the Network Integration Transmission Service Agreement (the "NITSA") and the Network Operating Agreement (the "NOA") between Duke Energy Progress, Inc. and North Carolina Eastern Municipal Power Agency, as amended by DEP from time to time, on file with the Federal Energy Regulatory Commission as OATT Service

Agreement No. 268 of Duke Energy Progress, Inc., a copy of which is attached to this Agreement as **Exhibit A**; and

WHEREAS, Power Agency is a party to an Agreement for Transmission Use and Other Electric Service (the "Dominion NCP Transmission Agreement") with Dominion North Carolina Power (formerly Virginia Electric and Power Company) ("Dominion NCP"), dated as of July 30, 1981, with respect to (i) arrangements for the transmission of electric energy from points of interconnection of the DEP and Dominion NCP electric systems; and (ii) other related matters; and

NOW, THEREFORE, the parties hereto mutually agree as follows:

SECTION 1. Definitions.

The singular of any term defined in this Agreement shall encompass the plural, and the plural the singular, unless the context clearly indicates otherwise or may otherwise require.

(a) "Affiliate" of any Person means any other Person directly or indirectly Controlling, directly or indirectly Controlled by or under direct or indirect common Control with such Person.

(b) "Bond Resolution" means the resolution adopted by Power Agency, as the same may be amended or supplemented from time to time pursuant to the terms thereof, pursuant to which the Bonds are issued. Subsequent amendments to the Bond Resolution may be made without the approval of the Member if made pursuant to the terms of the Bond Resolution.

(c) "Bonds" means Bonds (as such term is defined in the Bond Resolution) issued from time to time pursuant to and under the authority of the Bond Resolution (i) to pay Balance of Defeasance Costs (as such term is defined in the Debt Service Support Contract), and (ii) to refund Bonds, Notes (as such term is defined in the Debt Service Support Contract) or Subordinated Debt (as such term is defined in the Debt Service Support Contract) theretofore issued and outstanding as authorized by Section 8 of the Debt Service Support Contract.

(d) "Contract Year" means the 12-month period commencing January 1 of each year during the term of this Agreement and ending midnight local time on the December 31 next following (or such other 12-month period as Power Agency shall determine); provided, however, that the first Contract Year shall commence, with respect to Full Requirements Bulk Power Supply, on the day immediately following the Effective Date; and provided further, however, that the last Contract Year shall end at midnight local time on the date of termination of this Agreement as provided in Section 2 herein.

(e) "Control" of any Person means the possession, directly or indirectly, of the power either to (a) vote more than fifty percent (50%) of the securities or interests having ordinary voting power for the election of directors (or other comparable controlling body) of such Person or (b) direct or cause the direction of management or policies of such Person, whether through the ownership of voting securities or interests, by contract or otherwise.

(f) "Customer Resource" means any generating unit having a nameplate capacity rating of 95 kW or more or an Energy Injection Device, including any Energy Injection Device owned by

Power Agency, that is installed behind (i) a member's retail customer meter, (ii) a Member's wholesale customer meter, or (iii) the meter of a retail customer of a wholesale customer of a Member.

(g) "Debt Service Support Contract" means the Debt Service Support Contract, dated as of the date hereof, entered into between Power Agency and the Members, as the same may be supplemented and amended from time to time.

(h) "Delivery Point" means the point on the DEP Transmission System where the delivery of power to the Member is measured in accordance with the NITSA and NOA, at which point the delivery of electric power to the Member is measured for billing purposes under this Agreement.

(i) "Dominion NCP Transmission Agreement" has the meaning assigned in the preambles to this Agreement.

(j) "Economic Development Resource" means any generating unit or Energy Injection Device that is installed for the purpose of retaining the load of an existing customer or attracting the load of a new customer served or to be served by a Member and that is used to serve load at the site of the generating unit or Energy Injection Device consistent with Section 4.3 of the FRPPA.

(k) "Edenton Generators" means the two (2) 1,250 kW generators owned and operated by the Town of Edenton that are located on Tower Drive, Edenton, North Carolina.

(l) "Effective Date" means January 1, 2023.

(m) "Electric System" means all properties and assets, real and personal and tangible and intangible, of the Member now or hereafter existing, used for or pertaining to the generation, transmission, transformation, distribution and sale of electric power and energy or general plant associated therewith, including all renewals, replacements, additions, extensions, expansions, improvements and betterments thereto.

(n) "Elizabeth City Generators" means the four (4) 1,750 kW generators owned and operated by the City of Elizabeth City that are located at 410 Pritchard Street, Elizabeth City, North Carolina.

(o) "Energy Injection Device" means battery storage, or any other current or future technologies that withdraw, store, and reinject energy into the electrical system that have a maximum capable injection capacity of 95 kW or more.

(p) "Full Requirements Bulk Power Supply" means, with respect to the Member, all electric power and energy required by the Member at its Delivery Point(s)[1], exclusive of any purchases of power and energy by the Member from the Southeastern Power Administration ("SEPA"), if any, and, as applicable, exclusive of the output of Customer Resources, Member Resources, Economic Development Resources, the Edenton Generators and the Elizabeth City Generators. Full Requirements Bulk Power Supply shall include all transmission service to deliver Full Requirements Bulk Power Supply to the Member's Delivery Point(s), power and energy purchases

[1] Including any load met by NCEMPA Generation that is interconnected with the Member's Electric System.

made by Power Agency pursuant to the Full Requirements Power Purchase Agreement, power and energy supplied by NCEMPA Generation, and power and energy derived by Power Agency from any resource used to replace power and energy purchases under the Full Requirements Power Purchase Agreement (i) following the exercise by Power Agency of an early termination option set forth in the Full Requirements Power Purchase Agreement, or (ii) in connection with a PURPA Qualifying Facility owned by Power Agency.

(q) "Full Requirements Power Costs" for any period means all costs associated with or incidental to Full Requirements Bulk Power Supply for such period. In addition to the costs associated with or incidental to Full Requirements Bulk Power Supply, Full Requirements Power Costs also shall include, without limitation (i) Power Agency's general and administrative overhead costs allocated to Power Agency's activities related to its provisions of Full Requirements Bulk Power Supply, (ii) working capital deemed necessary by Power Agency, (iii) costs and expenses relating to the acquisition, construction, maintenance and operation of an administrative building or office, including land therefor, together with any administrative equipment and facilities, which may be owned alone or together with any other joint agency or agencies, joint municipal assistance agencies, municipalities, corporations, associations or Persons under such terms and provisions for sharing costs and otherwise as may be determined by Power Agency, (iv) costs associated with Power Agency management and other services provided to Members, including, but not limited to, costs associated with compliance with renewable energy requirements or mandatory electric reliability standards, (v) amounts necessary for the payment of the principal of and premium, if any, and interest on any bonds, notes (including notes issued in anticipation of the issuance of bonds), certificates, warrants or other evidences of indebtedness, including commercial paper, issued for Full Requirements Power Costs (collectively, "Full Requirements Power Debt"), which Full Requirements Power Debt shall be payable from all or any amounts received under the Full Requirements Power Sales Agreements, as determined by Power Agency, after giving effect to the provisions of Section 6(d) thereof, as payments from the Members of Full Requirements Power Costs, and (vi) all costs and expenses relating to the issuance, security and payment of Full Requirements Power Debt, including without limitation costs and expenses associated with insurance contracts, agreements for lines of credit, letters of credit, commitments to purchase Full Requirements Power Debt, depositaries for safekeeping and agents for delivery and payment.

(r) "Full Requirements Power Purchase Agreement" has the meaning assigned in the preambles to this Agreement.

(s) "Full Requirements Power Sales Agreement" means this Agreement and all other Agreements substantially identical to this Agreement entered into by Power Agency and the Members with respect to the purchase and sale of Full Requirements Bulk Power Supply, as the same may be supplemented or amended from time to time.

(t) "Guidelines Concerning Distributed Resources" means the Guidelines Concerning Distributed Resources, originally approved and adopted as Guidelines Concerning Load-Side Generation by the North Carolina Eastern Municipal Power Agency Board of Commissioners on June 23, 1993 and revised by the Board of Directors of Power Agency on November 16, 2012, January 27, 2017 and January 26, 2018, as supplemented and amended, including, but not limited to, as supplemented and amended on July 28, 2023.

(u) "Hourly Demand" means, in each hour, the aggregate load of Power Agency's Members for which there is in effect a Full Requirements Power Sales Agreement, determined by summing the metered 60-minute demands of the Members (integrated metered kilowatt load, compensated where applicable, in accordance with the NITSA and NOA and Dominion NCP Transmission Agreement, to reflect losses from the meter location back to the Delivery Point), adjusted to include the output of PURPA Qualifying Facilities in each clock hour in accordance with Section 4.4.2 of the Full Requirements Power Purchase Agreement, and adjusted further to include line losses over the DEP transmission system.

(v) "Interruptible Load", as used in the Guidelines Concerning Distributed Resources, means the load of any retail customer of a Member that is not a residential customer that such customer may elect to interrupt, curtail, or otherwise reduce, either on its own or at the request or direction of Power Agency or a Member.

(w) "Late Payment Interest Rate" means, for any month, the prime rate being charged by Bank of America, N.A., or its successor, or by any other major bank selected by Power Agency in its sole discretion, on the first day of such month, plus one percentage point, divided by twelve, expressed in percentage points, to the nearest hundredth, but not in excess of the rate permitted by applicable North Carolina law.

(x) "Members" means those entities which enter into Full Requirements Power Sales Agreements with Power Agency substantially identical to this Agreement.

(y) "Member Resource" means any generating unit (other than the Edenton Generators and Elizabeth City Generators) having a nameplate capacity of 95 kW or more or Energy Injection Device, including any Energy Injection Device owned by Power Agency, that is directly connected to the electric system behind the Duke-owned wholesale revenue meter of a Member.

(z) "Member's Share" has the meaning assigned in the Debt Service Support Contract.

(aa) "Monthly Bill" means the written statement prepared monthly by Power Agency and provided to the Member pursuant to Section 5 herein.

(bb) "Monthly Support Costs" has the meaning assigned in the Debt Service Support Contract.

(cc) "NCEMPA Generation" means any generating unit owned by Power Agency having a nameplate capacity rating of 95 kW or more that is connected to the electric system behind the Duke-owned wholesale meter of a Member.

(dd) "NITSA" has the meaning assigned in the preambles to this Agreement.

(ee) "NOA" has the meaning assigned in the preambles to this Agreement.

(ff) "Person" means any individual, corporation, partnership, joint venture, association, joint stock company, trust, limited liability company, unincorporated organization, governmental authority or any other form of legal entity.

(gg) "Policy Guidelines for Leased Facilities Charges" means the Policy Guidelines For Leased Facilities Charges approved and adopted by the Board of Directors of Power Agency, as revised, supplemented and amended, including, but not limited to, as supplemented and amended on April 23, 2004.

(hh) "Prudent Utility Practice" means any of the practices, methods, and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods, and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Prudent Utility Practices are not intended to be limited to the optimum practices, methods, or acts to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the electric utility industry. In evaluating whether any matter conforms to Prudent Utility Practice as used in this Agreement, the parties hereto shall take into account (i) the fact that Power Agency and each Member is a public body and a body corporate and politic organized under the laws of the State of North Carolina, with the statutory duties and responsibilities thereof, and (ii) the objectives to integrate Full Requirements Bulk Power Supply with the other resources of the Members, including, but not limited to, Qualified Resources owned by Power Agency, its Members and its Members' customers, SEPA Purchases and other PURPA Qualifying Facilities to achieve optimum utilization of the resources and achieve efficient and economical operation of each system.

(ii) "PURPA Qualifying Facility" means a generating facility that is a "small power production facility" or "cogeneration facility" that, in each case, meets the requirements of Sections 292.203(a) and 292.203(b) of Title 18 of the Code of Federal Regulations and that has satisfied the procedures for obtaining Qualifying Facility status under Section 292.207 of Title 18 of the Code of Federal Regulations.

(jj) "Qualified Resources", as used in the Guidelines Concerning Distributed Resources consists of Member Resources, Customer Resources, and NCEMPA Generation.

(kk) "Renewable Energy Development and Service Agreement" means the Renewable Energy Development and Service Agreement between Power Agency and each of its members dated as of May 26, 2009, as the same may be supplemented and amended.

(ll) "Revenues" means all income, rents, rates, fees, charges, receipts, profits and other moneys or monetary benefits derived by the Member directly or indirectly from the ownership or operation of its Electric System and the sale, furnishing or supplying of capacity or output and power and energy therefrom, including, without limiting the generality of the foregoing, (i) all income, rents, rates, fees, charges receipts, profits or other moneys derived from the sale, furnishing or supplying of the electric power and energy and other services' facilities and commodities sold, furnished or supplied the facilities of the Electric System, (ii) the earnings on and income derived from the investment of such income, rents, rates, fees, charges, receipts, profits or other moneys to the extent that the use of such earnings and income is limited by or pursuant to law to the Electric System and (iii) the proceeds derived by the Member directly or indirectly from the sale, lease or other disposition of a part of the Electric System, but the term "Revenues" shall not include retail customers' deposits or any other deposits subject to refund until such deposits have become the

property of the Member and shall not include any refunds associated with electric service by a Member prior to the Effective Date.

(mm) "SEPA Purchases" means the aggregate sum of capacity and energy that some or all of Power Agency's Members receive as preference customers, through the U.S. Department of Energy - Southeastern Power Administration ("SEPA"), pursuant to contracts entered into between the United States of America and such Members pursuant to the Flood Control Act of 1944 or similar or superseding Federal law.

(nn) "Telemetry and Metering System Services Agreement" means the Telemetry and Metering System Services Agreement between DEP (formerly Carolina Power & Light Company) and Power Agency dated as of August 7, 1998, and January 1, 2020, and as supplemented from time to time.

(oo) "Total Annual Budget" means the budget adopted by Power Agency pursuant to Section 5 of this Agreement.

SECTION 2. Term of Agreement.

This Agreement shall be effective as of the Effective Date. Power Agency shall notify the Member of the Effective Date as soon as practical thereafter.

The term of this Agreement shall expire at midnight local time on December 31, 2043; provided, however, that this Agreement may be terminated by the Member effective at midnight local time on December 31, 2035, upon written notice to Power Agency (i) not later than July 31, 2027, or (ii) not later than March 31, 2031; provided, however, if the number of Members giving notice to terminate pursuant to clause (ii) of Section 2 of such Members' Full Requirements Power Sales Agreements would cause Power Agency's 12-month average Monthly Coincident Billing Demands (as such term is defined in the Full Requirements Power Purchase Agreement) to be reduced by more than 700 megawatts, as determined by Power Agency based on Power Agency's actual Monthly Coincident Billing Demands during Calendar Year 2030, Power Agency shall give written notice, not later than July 31, 2031, of such fact to all Members from whom Power Agency has received such notice to terminate, together with Power Agency's best estimate of the costs Power Agency expects to incur under the Full Requirements Power Purchase Agreement as a result of a reduction in its 12-month average Monthly Coincident Billing Demands exceeding 700 megawatts, and any such Member who has given such notice to terminate thereafter may rescind such notice to terminate by written notice to Power Agency not later than September 30, 2031. In the event Power Agency determines that the number of Members giving notice to terminate pursuant to clause (ii) of Section 2 of such Members' Full Requirements Power Sales Agreements would cause Power Agency's 12-month average Monthly Coincident Billing Demands to be reduced by more than 700 megawatts, Power Agency shall use its reasonable best efforts to engage in negotiations (in which the Member may participate) with DEP to permit all Members who have given such notice to terminate to terminate their Full Requirements Power Sales Agreements without any financial costs to Power Agency. Notwithstanding the foregoing, any costs incurred by Power Agency pursuant to the Full Requirements Power Purchase Agreement if the final number of Members giving notice to terminate pursuant to clause (ii) of this Section 2 causes Power Agency's 12-month average

Monthly Coincident Billing Demands to be reduced by more than 700 megawatts shall be borne by such terminating Members on a pro rata basis, as determined by Power Agency using Power Agency's actual Monthly Coincident Billing Demands during Calendar Year 2030. This Agreement may be terminated by Power Agency as provided in Section 7(b) of this Agreement.

(a) Notwithstanding the foregoing, the expiration or termination of this Agreement shall not affect any accrued liability or obligation hereunder. This Agreement shall not be subject to termination by either party under any circumstances, whether based upon the default of any other party under this Agreement or any other instrument or otherwise, except as specifically provided in this Agreement.

SECTION 3. Sale and Purchase of Full Requirements Bulk Power Supply.

(a) Commencing with the first day of the first Contract Year, Power Agency shall provide or cause to be provided and sell, and the Member shall purchase from Power Agency, the Full Requirements Bulk Power Supply requirements of the Member. Power Agency will be responsible in accordance with the provisions of this Agreement for planning, negotiating, designing, financing, acquiring or constructing, contracting for, administering, operating, and maintaining all generation and transmission arrangements and facilities and power purchases necessary to effect the delivery and sale of Full Requirements Bulk Power Supply to the Member during the term of this Agreement. In furtherance of Power Agency's obligations to sell and the Member's obligations to purchase hereunder, Full Requirements Bulk Power Supply shall initially be sold and purchased pursuant to the provisions of this Agreement (i.e., on a take and pay basis to the extent delivered or provided).

(b) Full Requirements Bulk Power Supply shall be obtained or furnished and delivered or caused to be delivered by Power Agency in the manner it determines to be most economical, dependable, and otherwise feasible. Initially, Full Requirements Bulk Power Supply shall be obtained and furnished to all Members in accordance with the Full Requirements Power Purchase Agreement and the NITSA and NOA. If Power Agency exercises one or more of its early termination options set forth in the Full Requirements Power Purchase Agreement, Power Agency may provide for Full Requirements Bulk Power Supply by any additional or alternative means it determines to be most economical, dependable, and otherwise feasible, including, but not limited to, one or more of the following methods: (1) purchase by Power Agency of power generated by one or more other power suppliers and transmission thereof over the facilities of one or more other power suppliers, either solely or in combination with transmission facilities owned by Power Agency or as to which Power Agency has the right of use, if any; (2) acquisition or construction by Power Agency of generation or transmission facilities or any project supplying a portion of Full Requirements Bulk Power Supply; (3) acquisition or construction by Power Agency of such additional generation facilities and transmission of the power and energy generated thereby over the facilities of one or more other power suppliers, either solely or in combination with transmission facilities owned by Power Agency or as to which Power Agency has the right of use, if any; or (4) generation, transmission and delivery by one or more other power suppliers, pursuant to a contract arrangement therefor obtained or approved by, or assigned to, Power Agency for and on behalf of Member or the Members as its agent for that purpose. In the event that any such method or any combination of such methods is such that the Member makes payment for any part of such power supply service directly to one or more other power suppliers, such payments shall

nevertheless be accounted for as though the same were paid by Power Agency, and the Member shall be granted a credit with respect to Power Agency's rates and charges to the Member with respect to the same billing period, accordingly.

(c) From and after the Effective Date, neither Power Agency nor the Member shall enter into any new contract or permit any then or thereafter existing contract to be renewed or extended (regardless of the manner in which such renewal or extension may be effectuated, including failure of a party thereto timely to cancel and terminate the same upon any anniversary date when such is possible) or enter into any amendment to or modification to such a contract, with any other bulk power supplier which shall preclude or impair the ability of Power Agency or the Member to exercise and perform its rights and obligations under this Agreement.

(d) Power Agency, for the purpose of carrying out its rights and obligations under this Agreement, shall be, and the Member hereby designates and appoints Power Agency as, the Member's sole agent to the fullest legal extent that such agency may be established for such purposes.

(e) From and after the effective date of any termination of this Agreement pursuant to Section 7(b) of this Agreement, the Member shall be solely responsible for providing its Full Requirements Bulk Power Supply to the Member's Delivery Point(s); provided, however, that such Member shall be obligated to Power Agency under this Agreement for any costs incurred by Power Agency pursuant to any agreements with a bulk power supplier associated with the delivery to the Member's Delivery Point(s) of Full Requirements Bulk Power Supply or any delivery facilities, and any other cost not included in the costs payable by the Member under any other agreement with Power Agency, including, but not limited to: wheeling charges, leased facilities charges; costs of administration, operation, maintenance, renewals, replacements, or capital additions required for the Member's Delivery Point(s); costs associated with delivery facilities, protection stations, metering, transmission extensions, capacitors, reactive charges, changes in DEP-owned equipment, or loss due to early retirement of delivery facilities and all such similar costs incurred by Power Agency with respect to the Member or otherwise. Following such a termination, the Member shall be entitled to purchase the balance of its Full Requirements Bulk Power Supply requirements from Power Agency only if Power Agency and the Member shall enter into a new power sales agreement, containing such additional or different terms and conditions, if any, as Power Agency may reasonably require.

SECTION 4. Rates and Charges; Surplus Moneys.

Power Agency shall establish appropriate rates and charges for Full Requirements Bulk Power Supply for the Members sufficient at all times to pay all costs and expenses incurred by Power Agency and reserves deemed necessary therefor by Power Agency, including reserves for the payment of such costs and expenses in future periods (including future Contract Years) and taking into account withdrawals of such reserves established in previous periods, all with respect to Full Requirements Bulk Power Supply, and shall establish appropriate rates and charges for special obligations as set forth in the Monthly Bill as provided in Section 5 of this Agreement. Such rates and charges shall be sufficient at all times to permit the payment of all Monthly Support Costs and of all Full Requirements Power Costs of Power Agency and shall at all times be consistent with the provisions of the NITSA and NOA, the Dominion NCP Transmission

Agreement, the Renewable Energy Development and Service Agreement and the policies and guidelines established from time to time by Power Agency, including, but not limited to, Policy Guidelines for Leased Facilities Charges, Guidelines Concerning Distributed Resources, and policies regarding any compliance responsibilities associated with mandatory electric reliability standards applicable to the Members.

Power Agency shall furnish to the Members the basis for changes in rates and charges for Full Requirements Bulk Power Supply made pursuant to the provisions of Section 6(a) of this Agreement.

SECTION 5. Total Annual Budget and Monthly Bills; Payments by the Member.

(a) Not less than thirty (30) days prior to each Contract Year, Power Agency shall provide to the Member a proposed annual budget for the ensuing Contract Year with respect to amounts to be paid under this Agreement, and thereafter shall hold a public hearing on such proposed annual budget and shall provide to the Member a Total Annual Budget for the Contract Year. During each Contract Year, Power Agency shall review at least quarterly, and at such other times as Power Agency deems desirable, the Total Annual Budget for the Contract Year. In the event such review indicates that the Total Annual Budget does not or will not substantially correspond with actual receipts and expenditures, or if at any time during such Contract Year there are or are expected to be extraordinary receipts, credits, or costs substantially affecting the Monthly Support Costs or Full Requirements Power Costs, Power Agency shall adopt and provide to the Member an amended Total Annual Budget, which shall supersede, for the remainder of such Contract Year, the Total Annual Budget or amended Total Annual Budget theretofore provided as the basis for the determination of Monthly Support Costs and Full Requirements Power Costs. The Total Annual Budget under this Agreement shall include, as a component thereof, any budget required to be provided the Member under the Member's Debt Service Support Contract.

(b) On or before the fifth (5th) day of each month of each Contract Year (beginning with the first full month of the Contract Year), or such other date not later than the tenth (10th) day of such month as Power Agency shall establish from time to time, Power Agency shall prepare, date, and on such date provide to the Member a Monthly Bill separately showing (i) the amount of power and energy of Full Requirements Bulk Power Supply delivered to the Member in the preceding calendar month at the Delivery Point(s) and the total amount payable by the Member therefor at Power Agency's applicable Full Requirements Bulk Power Supply rates and charges; (ii) the amount payable by the Member under the Monthly Bill pursuant to the Debt Service Support Contract for the next succeeding month for its Member's Share of Monthly Support Costs; (iii) the amount payable by the Member for special obligations, which shall be for leased facilities charges, delivery facilities costs, any back end costs or liabilities or any charges payable by the Member for services or facilities other than for the provisions of Full Requirements Bulk Power Supply for the preceding month, and (iv) any costs or charges payable by the Member associated with the Agreement for Transmission Use and Other Electric Service.

(c) The amounts shown in the Monthly Bill to be paid to Power Agency by the Member shall be due and payable ten (10) days after the date of the Monthly Bill, and any amounts due and not paid by the Member within fifteen (15) days after the date of the Monthly Bill shall accrue a late payment charge computed at the Late Payment Interest Rate. Remittances received by mail will

be accepted without assessment of a late payment charge, provided that the postmark of the United States Postal Service clearly indicates that the payment was mailed on or before such fifteenth (15th) day. Remittances due in a month transmitted by wire transfer will be accepted without assessment of a late payment charge if received on or before the twenty-fifth (25th) day of such month.

(d) All monies received by Power Agency as payment from the Member of any Monthly Bill (whether in full or partial payment thereof) shall be applied by Power Agency pro rata to the separate monthly charges shown on the Monthly Bill in the ratio that each separate charge as set forth in Sections 5(b)(i) through 5(b)(iv) of this Agreement bears to the total Monthly Bill rendered, and the resulting amounts shall be credited to the appropriate accounts on the books of Power Agency. ***The Member understands and agrees that a failure by the Member to pay in full its obligations under this Agreement and under its Debt Service Support Contract may result in an event of default under this Agreement and under its Debt Service Support Contract.***

(e) In each Contract Year, the Member shall pay to Power Agency the Member's Share of Monthly Support Costs for such Contract Year. The Member shall be obligated to make such payments unconditionally and without offset, counterclaim or other reduction, whether or not all or any portion of Full Requirements Bulk Power Supply is delivered to the Member pursuant to Section 3 of this Agreement or this Agreement expires or is terminated in whole or in part. Such payments shall be made and shall not be conditioned upon the performance or non-performance by Power Agency or any other Member under this or any other agreement or instrument. The remedies for any such non-performance by Power Agency shall be limited to those provided by Sections 7(d) and 7(e) of this Agreement.

(f) In the event of any dispute as to any portion of any Monthly Bill, the Member shall nevertheless pay the full amount of the disputed charges when due and shall give written notice of the dispute to Power Agency within sixty (60) days following the date on which such payment is due. Such notice shall identify the disputed bill, state the amount in dispute, and set forth a full statement of the grounds on which such dispute is based. No adjustment shall be considered or made for disputed charges unless notice is given as aforesaid. Power Agency shall give consideration to such dispute and shall advise the Member with regard to its position relative thereto within thirty (30) days following receipt of such written notice. Upon final determination (whether by agreement, arbitration, adjudication, or otherwise) of the correct amount, an appropriate adjustment shall be made on the Monthly Bill next submitted to the Member after such determination, together with interest computed at the Late Payment Interest Rate.

SECTION 6. Rate Review and Payment Sources.

(a) Power Agency, at such intervals as it shall deem appropriate, but in any event not less frequently than once each Contract Year, shall review its rates and charges and, if necessary, shall revise such rates and charges so that the revenues collected hereunder shall be at least sufficient to comply with the provisions of Section 4 of this Agreement. In making revisions to rates and charges, Power Agency shall comply with the provisions of Chapter 159B, including, but not limited to, the provisions of §159B-10(b), if applicable, and §159B-16.1(b). Power Agency shall cause a notice in writing to be given to the Member and the other Members which shall set out all the proposed revisions of the rates and the date upon which such revised rates shall become

effective. The effective date shall not be less than forty (40) days after the date of the notice except when required to assure compliance with the provisions of Section 4 of this Agreement, and shall set forth the basis upon which the rates are proposed to be adjusted and established. Monthly changes in amounts billed pursuant to automatic adjustment clauses included in the rates and charges shall not require, notice, but changes in such clauses shall be subject to the foregoing notice provisions.

(b) The obligations of the Member to make payments under Section 5 of this Agreement for its Full Requirements Bulk Power Supply shall be an operating expense of its Electric System.

(c) The Member shall not be required to make any payments to Power Agency under this Agreement except from the Revenues of its Electric System. The Member covenants and agrees that it will fix, charge, and collect rents, rates, fees, and charges for electric power and energy and other services, facilities, and commodities sold, furnished, or supplied through the facilities of its Electric System at least sufficient to provide Revenues adequate to meet its obligations under this Agreement, any additional contract relating to supplying Full Requirements Bulk Power Supply by and between Power Agency and the Member and its Debt Service Support Contract, and to pay any and all other amounts payable from or constituting a charge and lien upon such Revenues, including, but not limited to, amounts sufficient to pay the principal of and interest on all general obligation bonds (if also payable from Revenues) and revenue bonds heretofore or hereafter issued by the Member to finance its Electric System. Notwithstanding the foregoing, nothing set forth in this Agreement shall be construed to limit, constrain or affect in any way the legal rights and authority of the Member to design, set and implement rates, fees and charges for electric power and energy and other services to its retail and wholesale customers through the operation of the Member's duly authorized rate setting process so long as the Member's rates, fees and charges for electric power and energy and other services fully meet and comply with the Member's obligations set forth in this Section 6(c).

(d) The Member shall take no action the effect of which would be to prevent, hinder, or delay Power Agency from the timely fulfillment of its obligations under this Agreement, the Full Requirements Power Purchase Agreement, the NITSA and NOA, the Agreement for Transmission Use and Other Electric Service, the Bond Resolution, and the Bonds or other securities or evidences of indebtedness issued to provide the amounts due and payable between Power Agency and the Member relating to delivery facilities, or any other agreement entered into between Power Agency and any Member.

SECTION 7. Obligations in the Event of Default.

(a) Upon failure of the Member to make any payment in full when due under this Agreement or to perform any obligation herein, Power Agency shall make demand upon the Member for payment or performance, and if said failure is not cured within fifteen (15) days from the date of such demand, it shall constitute a default under this Agreement at the expiration of such period, and notice of such default shall forthwith be given to the Member. Notice of such demand, and the default if it occurs, shall be provided to the other Members by Power Agency.

(b) If the Member shall fail to pay any amounts due to Power Agency under this Agreement, or to perform any other obligation hereunder which failure constitutes a default under this

Agreement, Power Agency may terminate this Agreement. In either such event, Power Agency shall forthwith notify such Member of such termination. Notice of such termination shall be given to the other Members of Power Agency. Except for such termination, the obligations of the Member under this Agreement shall continue in full force and effect. For purposes of applying the other provisions of this section, such termination shall be considered to be a default under this Agreement.

(c) Any waiver at any time by either party to this Agreement of its rights with respect to any default of the other party hereto, or with respect to any other matter arising in connection with such Agreement, shall not be considered a waiver with respect to any subsequent default, right, or matter.

(d) In the event of any default by Power Agency under any covenant, agreement, or obligation of this Agreement, the Member may, upon fifteen (15) days' prior written notice, bring any suit, action, or proceeding in law or in equity, including mandamus and injunction, as may be necessary or appropriate to enforce any covenant, agreement, or obligation of this Agreement against Power Agency.

(e) No remedy conferred upon or reserved to the parties hereto is intended to be exclusive of any other remedy or remedies available hereunder or now or hereafter existing at law, in equity, or by statute or otherwise, but each and every such remedy shall be cumulative and shall be in addition to every other such remedy. The pursuit by either party of any specific remedy shall not be deemed to be an election of that remedy to the exclusion of any other or others, whether provided hereunder or by law, equity, or statute. Any delay by either party in the exercise of any remedy with respect to any matter arising in connection with this Agreement shall not constitute a waiver by such party of any right to later exercise such remedy with respect to the same or any other matter arising in connection with this Agreement.

SECTION 8. Deliveries; Delivery Facility Costs; Load Forecasts; System Reliability.

(a) Full Requirements Bulk Power Supply shall be delivered to the high voltage side of the Member's Delivery Point(s).

(b) In addition to the rates and charges for Full Requirements Bulk Power Supply, the Member, to the extent applicable, shall be responsible to Power Agency for all costs of delivery facilities, Power Agency's payments to DEP for Protection Station costs, leased facilities charges, net loss in salvage (as defined in the NITSA and NOA) of delivery facilities, capacitor costs and charges for reactive power, all pursuant to the NITSA and NOA, all such similar costs incurred by Power Agency pursuant to the Dominion NCP Transmission Agreement , if applicable, and all other charges incurred by Power Agency at the request or on behalf of the Member in accordance with Power Agency's established policies and guidelines. The Member shall fulfill such cost responsibility by: (i) payment to Power Agency of any costs to Power Agency relating to delivery of Full Requirements Bulk Power Supply to the Member's Delivery Point(s) and not included in the rates and charges of Power Agency for delivery of Full Requirements Bulk Power Supply, including, but not limited to, leased facilities charges; (ii) payment of any and all costs of ownership, operation, maintenance, renewals, replacements, and additions to delivery facilities owned by Power Agency but required to deliver Full Requirements Bulk Power Supply to the

Member pursuant to a Delivery Facility Use Agreement between Power Agency and the Member; (iii) payment of any and all costs of operation and maintenance, exclusive of renewals, replacements, and additions of delivery facilities owned by the Member and operated by Power Agency pursuant to a Delivery Facility Operating and Maintenance Agreement; and (iv) payment by any combination of the foregoing. Leased facilities charges for Members connected to the DEP and Dominion NCP transmission systems will be calculated in accordance with Power Agency's Policy Guidelines for Leased Facilities Charges, as established and amended from time to time by Power Agency.

(c) Delivery Point data sheets shall be completed for each Delivery Point. No revisions or modifications (other than necessary maintenance) of the delivery facilities for Members shall be undertaken for the purpose of modifying the characteristics of delivery from transmission facilities of DEP or Dominion NCP, as applicable, and/or of Power Agency set out on the Delivery Point data sheets unless prior agreement is obtained from Power Agency and DEP or Dominion NCP, as applicable, and revised Delivery Point Data Sheet(s) are first executed. Power Agency and each Member shall agree on the amount of firm capacity required at each such Delivery Point, taking into account the firm load expected to be served at such Delivery Point(s). A reasonable allowance will be included if growth is anticipated. A Member shall not place loads on Delivery Point(s) in excess of the firm capacity amount(s) so agreed to and recorded on the Delivery Point Data Sheet(s) without Power Agency and the Member first negotiating a new Delivery Point Data Sheet. Pursuant to the NITSA and NOA, DEP has agreed with Power Agency that it shall not unreasonably withhold its agreement for an increase in the firm capacity amount. The Agreement for Transmission Use and Other Electric Service also includes provisions for modifications to existing Delivery Points. Delivery Points will be established and/or modified in accordance with the terms and conditions of the NITSA and NOA or the Dominion NCP Transmission Agreement and the Procedure for Establishing New Delivery Points adopted by Power Agency in accordance with the requirements of NERC Reliability Standard FAC-002-0, as each may be amended from time to time.

(d) Should a Member request more capacity at a Delivery Point than is reasonably necessary to serve the continuous load at that point for the purpose of switching load between Delivery Points, such capability will be provided by DEP pursuant to the NITSA and NOA. If additional transmission or other facilities are required, and payment by Power Agency of a leased facilities charge to cover the investment in any required additional transmission or other facilities is required, the Member shall agree to reimburse Power Agency for payment of such charge. In the alternative, Power Agency or a Member may provide such capability through its own facilities if Power Agency gives written notice to DEP sufficient to enable DEP to accommodate such an arrangement. Parallel operation, transfer of loads, emergency switching and other operations at or in connection with Delivery Points will be undertaken in accordance with Section 5.0 of the NOA.

(e) Prior to March 31 of each Contract Year, each Member shall assist Power Agency with development of projected capacity requirements at each Delivery Point for the next ten (10) calendar years in order for Power Agency to fulfill in a timely manner its responsibilities to DEP and to Dominion NCP, and its responsibilities to the Member hereunder. The projected capacity requirement shall be for the load reasonably expected to exist in the area served by each such Delivery Point. The proposed location, delivery voltage, and estimated capacity requirements of

any new delivery point desired by the Member or Power Agency for the next ten (10) calendar years shall also be delineated.

The terms and conditions of the NITSA and NOA shall govern the size of loads connected to Delivery Points on, or extensions from, the 115kV or 230kV transmission system of DEP and the conditions upon which a Delivery Point may be connected to a DEP transmission line.

(f) Subject to the terms and conditions of the NITSA and NOA, transmission line extensions shall be made to new Delivery Points for Members whose conductors connect with those of DEP (either directly or through Power Agency's facilities) from a transmission line which has adequate capacity to serve the additional load involved.

(g) In accordance with Section 3.5 of the Dominion NCP Transmission Agreement, Future Delivery Points on the Dominion NCP transmission system will be established pursuant to Prudent Utility Practices as defined therein. Future Delivery Points shall be established at 230kV or 115kV at the option of Dominion NCP, exercised consistent with Prudent Utility Practices, except in the case of small loads where Dominion NCP may agree to provide service at lower voltage levels.

(h) The Member shall operate and maintain Delivery Points in a manner consistent with the terms and conditions of the NOA. The Member shall avoid and refrain from any acts or transactions, or the use of any equipment, appliance, or device, which would (i) have a significant adverse effect upon the reliability or operating characteristics of the DEP or Dominion NCP systems, or the interconnected facilities of Power Agency or of its other Members, including, but not limited to, such adverse effects caused by the interconnection of, or the transfer of loads between, Delivery Points not made in accordance with the terms and conditions of the NOA, or (ii) interconnect the DEP or Dominion NCP systems through the systems of Power Agency or the Member with other power suppliers without agreement between Power Agency and DEP or Dominion NCP on reasonable measures or conditions, if any, for parallel operation. Each Member shall maintain a reasonable electrical balance between the phases at each Delivery Point.

(i) It is expressly understood and agreed that Power Agency does not hereby contract to furnish Member electric power for pumping water for extinguishing fires.

(j) The Member shall install, maintain, and operate such protective equipment and switching, voltage control, load shedding, and other facilities as shall be required in order to meet the requirements of DEP and Dominion NCP, as applicable, to assure continuity and adequacy of service and the stability of the interconnected facilities of DEP or Dominion NCP and Power Agency and the other Members and to provide adequate protection for DEP's or Dominion NCP's facilities, and its services to other customers, against trouble originating on the electric system of Power Agency or the Member. In addition, the Member recognizes and agrees to comply and to cooperate with Power Agency in complying, as applicable, (i) with the terms and conditions of the NITSA and NOA and the applicable NERC Reliability Standards, including, but not limited to, those related to system protection, load reduction, load shedding and load management and (ii) with any similar provisions applicable to Dominion NCP.

(k) The Member shall provide promptly to Power Agency any and all information requested by Power Agency to permit Power Agency to provide to DEP the information which DEP may

request pursuant to the terms and conditions of the NITSA and NOA to carry out DEP's scheduling and dispatch function, including the telemetering of Delivery Point data and other network planning and operation activities.

SECTION 9. Member Planning and Operations.

(a) Power Supply Planning. The Member will keep Power Agency advised on matters relating to the Member's power supply planning, including, but not limited to, load forecasts, proposed transmission additions, and new Delivery Points.

(b) Diligence. The Member will exercise diligence in the operation of its Electric System with the view of securing efficiency in keeping with Prudent Utility Practice, will construct its facilities in accordance with specifications at least equal to those prescribed by the National Electric Safety Code of the United States Bureau of Standards, and will maintain its lines at all times in a safe operating condition. Each Member will operate said lines in conformity with Section 8(h) of this Agreement. The Member will use electric service equally from the three phases as nearly as possible.

(c) Capacitors. Members whose conductors connect with those of DEP (either directly or through Power Agency's facilities) shall install capacitors and operate switched capacitors in accordance with the terms and conditions of the NITSA and NOA. In the alternative, Power Agency may install such capacitors, or cause such capacitors to be installed, to maintain the required power factor, and such Member will reimburse Power Agency for the costs and expenses it incurs in connection therewith. Power Agency may (i) require each Member whose conductors connect with those of Dominion NCP (either directly or through Power Agency's facilities) to install on its distribution system sufficient capacitors or other facilities to maintain at the time of Dominion NCP's monthly peak a power factor of 92% or higher, or any future power factor established by Dominion NCP, at each of that Member's Delivery Points, or (ii) in the alternative, install facilities to maintain such power factor, and such Member will reimburse Power Agency for the costs and expenses it incurs in connection therewith. Any such costs or expenses incurred by Power Agency pursuant to arrangements with Dominion NCP shall be reimbursed by the Member which caused such costs or expenses to be incurred.

(d) Access. Power Agency and the Member each will give the other the right to enter the premises of the other, and the Member will give DEP or Dominion NCP the right to enter the Member's premises, at all reasonable times for the purpose of repairing or removing facilities, reading meters, or performing work incidental to delivery and receipt of Full Requirements Bulk Power Supply.

(e) Compliance. The Member will be subject to and will comply with all applicable terms and conditions set forth in those tariffs, rate schedules, guidelines, including, but not to, the Guidelines Concerning Distributed Resources, and contracts which affect Power Agency and the Member.

SECTION 10. Disposition of Electric Systems.

The Member covenants and agrees that it shall not sell, mortgage, lease or otherwise dispose of or encumber its Electric System or any part thereof except as permitted by any of the following provisions of this Section 10:

(a) The Member may, in the ordinary course of the business of operating and maintaining its Electric System, scrap, trade-in, sell or otherwise dispose of any property or equipment if the Member determines that (i) such property or equipment is surplus, obsolete or otherwise not required for the operation and maintenance of its Electric System, and (ii) the original cost of all property and equipment disposed of pursuant to this subparagraph (a) in any fiscal year of the Member is less than the greater of $25,000 or two percent (2%) of the gross plant investment of the Electric System as reported on the books for the Electric System as of the end of the most recent fiscal year of the Member for which such figure is available.

(b) The Member may sell, lease, mortgage or otherwise dispose of or encumber any property and equipment (i) if and to the extent permitted by N.C.G.S. Section 160A-20, as the same may be amended from time to time, or (ii) if the Member determines, with the written concurrence of Power Agency (which concurrence shall not be unreasonably withheld), that, taking into account past and current operating results of its Electric System and any replacements or intended replacements for such property and equipment to be disposed of, the proposed action will not have a material adverse effect on the Revenues or the operation of its Electric System, or materially increase the operating and maintenance expenses of its Electric System.

(c) The Member may sell or otherwise dispose of its Electric System to one or more other Members, or merge or consolidate its Electric System with the Electric System or Systems of one or more other Members, provided that the purchasing or surviving Member(s), as the case may be, shall have assumed all of the transferor Member's duties and obligations hereunder and under the transferor Member's Debt Service Support Contract.

(d) The Member may merge or consolidate with, or be merged or consolidated into, one or more units of local government which shall have assumed all of the Member's duties and obligations hereunder, in which event such Member shall be relieved from all such duties and obligations, but only if (i) this Agreement shall have been assigned to such unit(s) of local government, which shall have assumed all of the transferor Member's duties and obligations hereunder, and (ii) the Local Government Commission of North Carolina shall have determined that after such merger or consolidation the survivor unit(s) of local government will have the ability to meet the obligations of such Member hereunder.

(e) The Member may sell or otherwise dispose of its Electric System to any other Person but only if the Member (i) has assigned and transferred this Agreement and all interests herein to the transferee Person who has assumed all of the transferor Member's duties and obligations hereunder, and (ii) has terminated its Debt Service Support Contract pursuant to the provisions of Section 13 of the Debt Service Support Contract; provided, however, that prior to any sale or other disposition pursuant to this subsection (e), Power Agency shall have determined that such sale or other disposition will not increase the cost of power and energy under the Full Requirements Power Sales Agreement of any other Member; and provided further, however, that if the transferee Person

is DEP, or a subsidiary or Affiliate of DEP, this Agreement shall be terminated and not assigned and transferred and DEP shall have agreed to (a) exclude the transferor Member's load from the calculation of Power Agency's Hourly Demand under the Full Requirements Power Purchase Agreement, and (b) delete the transferor Member's Delivery Points from the NITSA and NOA.

(f) In the event of a sale or other disposition permitted by subsection (c) of this Section 10, or a merger or consolidation permitted by subsection (c) and (d) of this Section 10, the Member shall provide to Power Agency a counsel's opinion, satisfactory in form and substance to counsel to Power Agency, that (i) in the event of a sale or other disposition, the transferee has assumed and become liable for the duties and obligations of the transferor Member under this Agreement and the transferor Member's Debt Service Support Contract, or (ii) in the event of a merger or consolidation, that following such merger or consolidation the Electric System or unit of local government, as the case may be, surviving such merger or consolidation shall remain or shall have become subject to this Agreement and the transferor Member's Debt Service Support Contract and liable for the duties and obligations of the Member hereunder and thereunder to the same extent that such Electric System or Member had been so subject prior to such merger or consolidation. In the event of a sale or other disposition permitted by subsection (e) of this Section 10 (other than a sale or disposition to DEP or a subsidiary or Affiliate of DEP), the Member shall provide to Power Agency a counsel's opinion, satisfactory in form and substance to counsel to Power Agency, that the transferee has assumed and become liable for the duties and obligations of the transferor Member under this Agreement.

(g) Nothing contained in the foregoing subsections (a) through (f) of this Section 10 shall be deemed to authorize a Member to mortgage or encumber all or substantially all of the properties of its Electric System.

SECTION 11. Miscellaneous General Provisions.

(a) Character and Continuity of Service. Power Agency shall use its reasonable best efforts to enforce the terms and conditions of the Full Requirements Power Purchase Agreement, the NITSA and NOA and the Dominion NCP Transmission Agreement, and the terms and conditions of any other similar agreement(s) with other parties for Full Requirements Bulk Power Supply.

Power Agency may temporarily interrupt or reduce deliveries of electric energy to the Member if Power Agency determines that such interruption or reduction is necessary in case of emergencies, to meet any regulatory compliance or reliability directives or in order to install equipment in or make repairs to or replacements, investigations, and inspections of or to perform other maintenance work on its generation or transmission facilities and related apparatuses. After informing the Member regarding any such planned interruption or reduction, giving the reason therefor, and stating the probable duration thereof, Power Agency will, to the best of its ability and if sufficient time is available, schedule such interruption or reduction at a time which will cause the least interference with the operations of the Members.

Power Agency shall not be required to provide, and shall not be liable for failure to provide, service under this Agreement when such failure or the cessation or curtailment of or interference with the service is caused by Force Majeure or, with respect to the services to be provided for Full

Requirements Bulk Power Supply, is caused by the inability of Power Agency to obtain any required governmental approvals to enable Power Agency to acquire or construct any facilities.

(b) Metering. Electric capacity and energy delivered by Power Agency to Members' Delivery Points connected to the DEP transmission system will be measured by meters installed at such Members' Delivery Points. The installation, operation, maintenance, repair and replacement of all metering equipment located at Delivery Points connected to the DEP transmission system will be performed by DEP pursuant to the NITSA and NOA. Electric capacity and energy delivered by Power Agency to Members' Delivery Points connected to the Dominion NCP transmission system will be measured by meters installed at such Members' Delivery Points, and such measurements will be transmitted to the point of interconnection between the DEP transmission system and the Dominion NCP transmission system pursuant to the Telemetry and Metering System Services Agreement. The installation, operation, maintenance, repair and replacement of all metering equipment located at Delivery Points connected to the Dominion NCP transmission system will be performed pursuant to the Dominion NCP Transmission Agreement.

(c) Power Deliveries. Power and energy furnished to the Member under this Agreement shall be in the form of three phase current, alternating at a frequency of approximately 60 Hertz.

(d) Effect of PURPA. Power Agency shall endeavor to provide the Member with capacity and energy, or transmission services, as required by the provisions of Section 210 of the Public Utility Regulatory Policies Act of 1978 (16 USC 824a-3) and its implementing regulations ("PURPA Requirements") in connection with the service of loads by the Members pursuant to the PURPA Requirements. In the event a PURPA Qualifying Facility interconnects within the Member's system, the Member may purchase the output from such PURPA Qualifying Facility. Any such purchases will be treated for billing and crediting purposes under this FRPSA in the same manner as such purchases are treated under Section 4.4 of the FRPPA.

(e) Liability of Parties. Neither Power Agency nor the Member shall be responsible for the transmission, control, use or application of electric power provided under this Agreement on the other side of the Point of Connection (hereinafter defined) therefor and shall not, in any event, be liable for damage or injury to any Person or property whatsoever arising, accruing, or resulting from, in any manner, the receiving, transmission, control, use, application, or distribution by Power Agency or the Member of said electric power.

Where Power Agency or the Member has facilities and equipment located on the premises of the other party, the party owning the premises shall permit no one but the other party's authorized representatives to have access to or handle those facilities and equipment. Each party shall indemnify, hold and save harmless the other party for any loss or damage to that other party's premises caused by or arising out of the negligence of the party owning the facilities and equipment, or its representatives, while on the premises of the other party. Each party shall indemnify, hold and save harmless the other party from and against any and all legal and other expenses, claims, costs, losses, suits or judgments for damages, injuries to or death of Persons, or damage to or destruction of property, arising in any manner directly or indirectly by reason of acts of negligence of either party's authorized representative while on the premises of the other party under the right of access provided in this Section 11(e).

Power Agency and the Member shall indemnify, hold and save each other harmless from any and all loss or damage sustained, and from any and all liability to any Person or property incurred by the other (the indemnified party), by reason of any act or performance, or failure to act or perform, on the part of the other (the indemnifying party) or its officers, agents, or employees, in constructing, maintaining or operating the indemnifying party's apparatus, appliances or other property, or in the transmission, control, or application, redistribution, delivery, or sale of said power and energy on the indemnifying party's side of said Point of Connection. Whenever any claim is made against either party, whether the indemnified party or the indemnifying party, the party against whom the claim is made shall give notice to the other party within a reasonable time after the party against whom the claim is made becomes aware of any facts which could reasonably cause it to conclude that the claim is covered by this indemnification. Except as otherwise specifically provided in this Section 11(e), such indemnification shall hold harmless the indemnified party, its officer, agents or employees, from and against any and all liability and any and all losses, damages, injuries, costs and expenses, including expenses incurred by the indemnified party, its agents, servants or employees, in connection with defending any claim or action, and including reasonable attorneys' fees incurred or suffered by the indemnified party, its officer, agents or employees, by reason of the assertion of any such claim against the one indemnified, its officer, agents or employees. The indemnification provided for in this Section 11(e) shall not cover the following expenses: (1) the expense of investigating any claim prior to the time that notice is given to the other party that said claim is covered by this indemnification; (2) compensation for time of employees of the indemnified party spent in defending any action; and (3) attorneys' fees incurred by an indemnified party after an indemnifying party has assumed the defense of an action as provided in this Section 11(e). At any time, the indemnifying party may, at its option, assume on behalf of the indemnified party, its officer, agents and employees, after written notification by the indemnified party of the existence of such a claim, the defense of any action at law or in equity which may be brought against the indemnified party, its officers, agents or employees. The indemnifying party, regardless of whether it assumes the defense of any such action, will pay on behalf of the indemnified party, its officer, agents or employees, the amount of any judgment that may be entered against the indemnified party, its officer, agents or employees, in any such action.

If, pursuant to the provisions of the Full Requirements Power Purchase Agreement, Power Agency is liable to DEP for any loss or damage sustained or any liability to any Person or property incurred by DEP by reason of any act or performance, or failure to act or perform, by the Member, its officers, agents or employees, then the Member shall reimburse Power Agency for any costs or expenses incurred in connection therewith.

In the event that a Member sustains any loss or damage or incurs any liability to any Person or property by reason of any act or performance, or failure to act or perform, by DEP, its officers, agents or employees, then Power Agency shall indemnify and hold harmless such Member from and against such loss, damage or liability; provided, however, that Power Agency shall not be required to indemnify and hold harmless such Member from and against such loss, damage or liability unless Power Agency shall be entitled to recover from DEP the amount of any indemnification sought by the Member pursuant to this paragraph.

The term "Point of Connection" as used in this Section 11(e) shall mean any point at which the conductors owned by a Member connect with the conductors owned by any other entity,

including Power Agency, for the purpose of delivering electric power to the Member in accordance with the provisions of this Agreement.

(f) No Adverse Distinction. Power Agency agrees that there shall be no pattern of adverse distinction and no pattern of undue discrimination in carrying out its obligations under this Agreement relating to the Member as compared to the other Members.

(g) Other Terms and Conditions. Service hereunder shall be in accordance with such other terms and conditions as are established as part of Power Agency's service rules and regulations, which shall not be inconsistent with the provisions of this Agreement.

(h) Notices and Computation of Time. Any notice or demand given by the Member to Power Agency under this Agreement shall be deemed properly given if mailed postage prepaid and addressed, or electronically mailed, to the chief executive officer of Power Agency at its principal office or electronic mail address designated in writing filed with the Members by Power Agency. Any notice, demand, budget, or statement given or rendered by Power Agency to the Members under this Agreement shall be deemed properly given or rendered if mailed postage prepaid and addressed, or electronically mailed, to the Person and at the address designated in writing filed with Power Agency by the Member. The designations of the name and address to which any such notice or demand is directed may be changed at any time and from time to time by either party giving notice as above provided.

In computing any period of time prescribed or allowed under this Agreement, the day of the act or event after which the designated period of time begins to run is not to be included. The last day of the period so computed is to be included, unless it is a Saturday, a Sunday, or a legal holiday in North Carolina, in which event the period runs until the end of the next day which is not a Saturday, a Sunday, or a legal holiday in North Carolina.

SECTION 12. Future Members.

It is expressly understood that nothing herein shall preclude other future Members from contracting with Power Agency for planning, procuring, and providing such other future Members' bulk power supply.

SECTION 13. Records; Accounts; Reports; Audits.

Power Agency shall keep accurate records and accounts for any projects owned or controlled by Power Agency and for Full Requirements Bulk Power Supply, separate and distinct from its other records and accounts. Such records and accounts shall contain information supporting the allocation of Power Agency's indirect costs associated with any projects owned or controlled by Power Agency and with Full Requirements Bulk Power Supply. Such records and accounts shall be audited annually by a firm of independent certified public accountants, experienced in electric utility accounting and of national reputation, to be employed by Power Agency. Such records and accounts and such annual audit, including all written comments and recommendations of such accountants, shall be made available for inspection at any reasonable time by the Member at the principal office of Power Agency.

The Member shall keep accurate records and accounts for its Electric System, separate and distinct from its other records and accounts. Such records and accounts shall be audited annually by a firm of certified public accountants or by an accountant approved by the Local Government Commission of North Carolina as qualified to audit Local Government accounts who has no personal interest, direct or indirect, in the fiscal affairs of the municipal government or any of its officers, which audit may be part of the annual audit of the accounts of the Member. Such records and accounts shall be made available for inspection by Power Agency at any reasonable time, and a copy of such annual audit, including all written comments and recommendations of such accountants, shall be furnished to Power Agency not later than one hundred eighty (180) days after the close of the Member's fiscal year.

Power Agency shall, following the close of each fiscal year, submit an annual report of its activities for the preceding year to the Members, to the North Carolina Utilities Commission, and to the Local Government Commission of North Carolina. Each such report shall set forth a complete operating and financial statement covering the operations of Power Agency.

SECTION 14. Modification and Uniformity of Contracts.

This Agreement shall not be subject to termination by either party hereto under any circumstances whether based upon the default of the other party under this Agreement, or any other agreement, or otherwise, except as specifically provided in this Agreement. If any other Full Requirements Power Sales Agreement is amended or replaced, so that it contains terms and conditions different from those contained in this Agreement, Power Agency shall notify the Member and, at the option of the Member and upon timely request, Power Agency shall amend this Agreement to include similar terms and conditions.

SECTION 15. Assignment of Agreement.

Except as provided in Section 10 of this Agreement, this Agreement shall not be transferred or assigned.

SECTION 16. Severability.

If any section, paragraph, clause, or provision of this Agreement shall be finally adjudicated by a court of competent jurisdiction to be invalid, the remainder of this Agreement shall be unaffected by such adjudication and all of the remaining provisions of this Agreement shall remain in full force and effect as though such section, paragraph, clause or provision or any part thereof so adjudicated to be invalid had not been included herein. In the event of any such invalidity, the parties hereto shall promptly negotiate in good faith valid new provisions to restore the Agreement to its original intent and effect.

Notwithstanding the invalidity or unenforceability of any or all other provisions of this Agreement, the provisions of this Agreement in respect of the Member's obligation to pay its Member's Share of Monthly Support Costs shall remain in full force and effect.

SECTION 17. Applicable Law; Construction.

This Agreement is made under and shall be governed by the law of the State of North Carolina without regard to principles of conflicts of laws. Headings herein are for convenience only and shall not influence the construction of this Agreement.

SECTION 18. Survivorship of Obligations.

The termination of this Agreement shall not discharge any party hereto from any obligation it owes to the other party under this Agreement by reason of any transaction, loss, cost, damage, expense, or liability which shall occur or arise (or the circumstances, events, or basis of which shall occur or arise) prior to such termination. It is the intent of the parties hereby that any such obligation owed (whether the same shall be known or unknown at the termination of this Agreement or whether the circumstances, events, or basis of the same shall be known or unknown at the termination of this Agreement) shall survive the termination of this Agreement.

SECTION 19. No Delay.

No disagreement or dispute of any kind between the parties to this Agreement or between any party and any other entity, concerning any matter, including, without limitation, the amount of any payment due from said party or the correctness of any billing made to the party, shall permit the said party or either of them, to delay or withhold any payment or the performance by any party of any other obligation pursuant to this Agreement. Each party shall promptly and diligently undertake to resolve such disagreement and dispute without undue delay.

SECTION 20. Further Documentation.

From time to time after the execution of this Agreement, the parties hereto shall within their legal authority execute other documents as may be necessary, helpful, or appropriate to carry out the terms of this Agreement.

SECTION 21. Incorporation of Exhibits.

All Exhibits attached to this Agreement shall be incorporated into and be a part of this Agreement.

SECTION 22. Continuance and Enforcement of Agreement.

(a) Except as provided in Section 7(b) of this Agreement, Power Agency shall continue this Agreement in full force and effect and shall enforce this Agreement in accordance with its terms to the extent permitted by law.

(b) The failure of a party to enforce at any time any of the provisions of this Agreement or to require at any time performance by the other party of any of the provisions of this Agreement shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of this Agreement or any part thereof, or the right of such party thereafter to enforce each and every such provision.

SECTION 23. Relationship to Other Instruments.

It is recognized by the parties hereto that Power Agency must comply with the requirements of the Bond Resolution, and it is therefore agreed that this Agreement is made subject to the terms and provisions of the Bond Resolution.

SECTION 24. Counterparts; Electronic Signatures.

This Agreement may be executed in any number of counterparts and by different parties hereto on separate counterparts, each of which counterparts, taken together, shall constitute but one and the same Full Requirements Power Sales Agreement. The parties agree that the electronic signature of a party to this Agreement shall be as valid as an original signature of such party and shall be effective to bind such party to this Agreement and, when printed from electronic files, if introduced as evidence in any judicial, arbitral, mediation or administrative proceeding, will be admissible as between the parties to the same extent and under the same conditions as other original business records created and maintained in documentary form. For purposes of this Agreement, "electronic signature" means a manually-signed original signature that is then transmitted by electronic means, and "transmitted by electronic means" means sent in the form of a facsimile or sent via the internet as a "pdf" (portable document format) or other replicating image attached to an e-mail message.

SECTION 25. Entire Agreement.

This Agreement shall constitute the entire understanding among the parties hereto, superseding any and all previous understandings, oral or written, pertaining to the subject matter contained herein. No party hereto has relied, or will rely, upon any oral or written representation or oral or written information made or given to such party by any representative of the other party or anyone on its behalf.

SECTION 26. Preaudit.

Execution of this Agreement by the finance officer of the Member shall constitute a certification of such finance officer that, to the extent this Agreement requires the Member to satisfy a financial obligation during the Member's fiscal year in which the Effective Date occurs, this Agreement has been preaudited in the manner required by the N.C. Local Government Budget and Fiscal Control Act.

SECTION 27. Attorney's Approval.

Execution of this Agreement by the Town Attorney of the Member shall constitute compliance with the provisions of Section 6.2 of the Member's Charter that requires the Town Attorney to draft legal documents relating to the affairs of the Town and inspect and pass upon all agreements, contracts, franchises and other instruments with which the Member may be concerned.

[Balance of Page Intentionally Left Blank; Signature Page Follows.]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement all by authority of their respective governing bodies duly given.

Executed this ____ day of _____, 2023.

TOWN OF WAKE FOREST

By:_____
Mayor

Attest:

_____
Town Clerk

(SEAL)

For purposes of Section 26 only:

_____
Finance Officer

For purposes of Section 27 only:

_____
Town Attorney

Executed this ____ day of _____, 2023.

NORTH CAROLINA EASTERN
MUNICIPAL POWER AGENCY

By:_____
Chief Executive Officer

Attest:

_____
Assistant Secretary

(SEAL)

[Signature Page of Full Requirements Power Sales Agreement]

Exhibit A

Network Integration Transmission Service Agreement

and

Network Operating Agreement

between

Duke Energy Progress, Inc.

and

North Carolina Eastern Municipal Power Agency

NETWORK INTEGRATION TRANSMISSION SERVICE AGREEMENT

AND

NETWORK OPERATING AGREEMENT

BETWEEN

DUKE ENERGY PROGRESS, LLC

AND

NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY

SERVICE AGREEMENT FOR
NETWORK INTEGRATION TRANSMISSION SERVICE

1.0 This Service Agreement, dated as of January 1, 2020, is entered into, by and between Duke Energy Progress, LLC, with its principal offices located at 410 S. Wilmington Street, Raleigh, North Carolina 27601, ("Transmission Provider" or "DEP"), and North Carolina Eastern Municipal Power Agency, with its principal offices located at 1427 Meadow Wood Blvd, Raleigh, NC 27604 ("Transmission Customer" or "NCEMPA").

2.0 The Transmission Customer has been determined by the Transmission Provider to have submitted a Completed Application for Network Integration Transmission Service under the Open Access Transmission Tariff of Duke Energy Progress, LLC (the "Tariff").

3.0 The Transmission Customer has met the creditworthiness standards of Section 11.2 of the Tariff. In the event that Transmission Customer does not take service for any reason, the Transmission Provider will provide Transmission Customer with a statement identifying the costs incurred.

4.0 Service under this Service Agreement shall commence on the later of (1) January 1, 2020, or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. __

5.0 The Transmission Provider agrees to provide and the Transmission Customer agrees to take and pay for Network Integration Transmission Service in accordance with the provisions of Part III of the Tariff and this Service Agreement.

5.1 The Transmission Customer is responsible for replacing Real Power Losses associated with all transmission service in accordance with Section 28.5 of the Tariff.

NCEMPA has initially arranged, through its contracts with Duke Energy Progress, LLC ("DEP"), for the supply of Real Power Losses associated with its transmission service in accordance with Section 28.5 of the Tariff.

6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.

Transmission Provider:

Paul Graves
Duke Energy Progress, LLC
Manager, Tariff Administration
299 1st Avenue N
St. Petersburg, FL 33701
Mailcode: FL-906B
Phone: (727) 820-5524
Paul.Graves@duke-energy.com

Transmission Customer:

Kathy Moyer
ElectriCities of North Carolinas, Inc.
Vice President, Operations
1427 Meadow Wood Blvd.
Raleigh, NC 27604
Phone: (919) 760-6225
kmoyer@electricities.org

7.0 The Tariff, Specifications for Network Integration Transmission Service and the Network Operating Agreement, all of which may be amended from time to time, are incorporated herein and made a part hereof.

8.0 Service under this Service Agreement will be subject to some combination of the agreed-upon charges detailed below:

8.1 Transmission Charge:

In each month, Transmission Customer's charge for transmission service shall be determined in accordance with Attachment H of the Tariff. For purposes of applying the provisions of Attachment H, the Transmission Customer's "Network Load" shall be determined as follows:

Network Load = [(TCCP - SEPA) / (1.0 - TLF)] + 50 MW

where:

"TCCP" for any month is the aggregate of the 60-minute integrated metered demands recorded at (or, if the metering location is remote from the Delivery Point, compensated to) the Transmission Customer's Delivery Points during the hour of the month in which the greatest load was imposed on the Transmission Provider's Transmission System.

"SEPA" is the sum of the preference customer Southeastern Power Administration ("SEPA") capacity allocations of Transmission Customer's municipal participants.

"TLF" is the approved Transmission Loss Factor (expressed as a decimal amount) for the Transmission Provider's Transmission System.

8.2 Ancillary Services Charges:

1 Scheduling, System Control and Dispatch Service

The charges for Scheduling, System Control and Dispatch Service shall be per Schedule 1 of the Tariff.

The Transmission Customer's load for purposes of computation of the Scheduling, System Control and Dispatch Service, shall include the Customer's coincident peak load reduced by the Customer's allocation of capacity from the Southeastern Power Administration ("SEPA"), plus the associated DEP transmission system losses.

2 Reactive Supply and Voltage Control from Generation Sources Service

The charges for Reactive Supply and Voltage Control from Generation Sources Service shall be per Schedule 2 of the Tariff.

The Transmission Customer's load used for the purposes of calculating the charges for Reactive Supply and Voltage Control from Generation Sources Service shall include the Customer's coincident peak load reduced by the Customer's allocation of capacity from the Southeastern Power Administration ("SEPA"), plus the associated DEP transmission system losses minus the Transmission Customer's Retained Capacity (as identified in Section 3.0 (1) of the Specifications for Network Integration Transmission Service).

3 Regulation and Frequency Response Service

The charges for Regulation and Frequency Response Service shall be per Schedule 3 of the Tariff. The Transmission Customer has initially made alternative comparable arrangements to satisfy its Regulation and Frequency Response Service obligation through its (i) 1981 Power Coordination Agreement with DEP (the "1981 PCA"), and (ii) Supplemental Load Agreements with DEP dated December 23, 2002 and February 25, 2005.

4 Energy Imbalance Service

The charges for Energy Imbalance Service shall be per Schedule 4 of the Tariff. The Transmission Customer has initially made alternative comparable arrangements to satisfy its Energy Imbalance Service obligation through its (i) 1981 Power Coordination Agreement with DEP (the "1981 PCA"), and (ii) Supplemental Load Agreements with DEP dated December 23, 2002 and February 25, 2005.

5 Operating Reserve - Spinning Reserve Service

The charges for Operating Reserve - Spinning Reserve Service shall be per Schedule 5 of the Tariff. The Transmission Customer has initially made alternative comparable arrangements to satisfy its Operating Reserve - Spinning Reserve Service obligation through its (i) 1981 Power Coordination Agreement with DEP (the "1981 PCA"), and (ii) Supplemental

Load Agreements with DEP dated December 23, 2002 and February 25, 2005.

6 Operating Reserve -Supplemental Reserve Service

The charges for Operating Reserve -Supplemental Reserve Service shall be per Schedule 6 of the Tariff. The Transmission Customer has initially made alternative comparable arrangements to satisfy its Operating Reserve -Supplemental Reserve Service obligation through its (i) 1981 Power Coordination Agreement with DEP (the "1981 PCA"), and (ii) Supplemental Load Agreements with DEP dated December 23, 2002 and February 25, 2005.

9.0 Nothing contained herein shall be construed as affecting in any way the Transmission Provider's right to unilaterally make application to the Federal Energy Regulatory Commission, or other regulatory agency having jurisdiction, for any change in the Tariff or this Service Agreement under Section 205 of the Federal Power Act, or other applicable statute, and any rules and regulations promulgated thereunder; or the Transmission Customer's rights under the Federal Power Act and rules and regulations promulgated thereunder.

10.0 The Transmission Customer will be responsible for Delivery Facilities Charges, Distribution Substation Service charges, Redispatch cost, Network Upgrade, and/or Direct Assignment Facilities cost under this agreement as follows:

Delivery Facilities Charges calculated as set forth in Attachment B-1 to the Specifications for Network Integration Transmission Service.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: _____ _____

Name: J. Samuel Holeman, III Date

Title: Vice President, Transmission System Planning & Operations
Duke Energy Progress, LLC

Transmission Customer:

By: _____ 10/31/19

Name: Matthew E. Schull Date

Title: Chief Operating Officer, NCEMPA
ElectriCities of North Carolina, Inc.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: _____ 10/29/2014

Name: J. Samuel Holeman, III Date

Title: Vice President, Transmission System Planning & Operations
Duke Energy Progress, LLC

Transmission Customer:

By: _____ _____

Name: Matthew E. Schull Date

Title: Chief Operating Officer, NCEMPA
ElectriCities of North Carolina, Inc.

SPECIFICATIONS FOR
NETWORK INTEGRATION TRANSMISSION SERVICE

1.0 Term of Transaction:

Start Date: January 1, 2020

Termination Date: January 1, 2025

If the Service Agreement is not terminated by the Transmission Provider or the Transmission Customer, the Service Agreement will automatically renew for successive five-year terms. The Service Agreement may be terminated at the end of each successive five-year term by the Transmission Provider or the Transmission Customer by giving notice of such termination in writing at least one year prior to the end of the renewal period.

2.0 Description of capacity and energy to be transmitted by Transmission Provider including the electric Control Area in which the transaction originates.

The Transmission Customer has capacity and energy pursuant to 1) agreements with Duke Energy Progress, LLC with capacity and energy made available in the DEP Eastern control area, 2) an agreement with Southeastern Power Administration (SEPA) with capacity and energy originating from SEPA's Kerr hydroelectric project in the Dominion Virginia Power control area and SEPA's Philpott hydroelectric project in the American Electric Power control area.

3.0 Network Resources

(1) Transmission Customer Generation Owned or Leased:

None

(2) Transmission Customer Generation Purchased:

(a) The purchase of approximately 29 MW of capacity and associated energy from the Kerr hydroelectric project located in the Dominion Virginia Power control area and the Philpott hydroelectric project located in the American Electric Power control area, operated by the U.S. Army Corps of Engineers, and marketed by the Southeastern Power Administration ("SEPA"). Although considered a Network Resource for purposes of this Service Agreement, SEPA reimburses the Transmission Provider for transmission service under a separate Service Agreement. Consequently, SEPA allocations will be subtracted from the Transmission Customer's Network Load for purposes of determining charges pursuant to paragraph 8.0 of this Service Agreement.

(b) Effective October 1, 2018, the purchase of capacity and energy from DEP pursuant to the Full Requirements Power Purchase Agreement which obligates DEP to provide capacity and energy to meet NCEMPA's full requirements load, net of load met by SEPA. Full Requirements Capacity and Energy under this Agreement is supplied by DEP's system of generating and purchased resources and is delivered to the DEP-East Control Area. The Full Requirements Power Purchase Agreement obligates DEP to supply such capacity and energy through December 31, 2043.

Total Network Resources = (1) + (2) = Transmission Customer's Total Network Load

4.0 Network Load

(1) Transmission Customer Network Load:

See Attachment A-1 for a list of the Transmission Customer's Delivery Points and the 10-year forecast for each. Detailed information about each of the Transmission Customer's Delivery Points shall be set forth in Delivery Point Data Sheets, executed by the Parties, substantially in the form set forth in Attachment A-2. Initiation of a new Delivery Point, or changes to the configuration of or investment in existing Delivery Points, shall require execution of an appropriately modified Delivery Point Data Sheet.

The Transmission Provider shall include the Transmission Customer's need for sufficient Delivery Point capability in its Transmission System planning and shall, consistent with Good Utility Practice, endeavor to construct and place into service Delivery Point capability sufficient to meet the Transmission Customer's current and forecasted Network Load at each such Delivery Point on a basis comparable to the Transmission Provider's delivery of service to its Native Load Customers. Retirement or modification of any Delivery Point (including a Delivery Point located at any jointly used delivery station) that the Transmission Provider may deem necessary in the course of satisfying the foregoing commitment shall be on a non-discriminatory basis and shall be comparable to the Transmission Provider's termination or modification of delivery stations in serving its Native Load Customers.

(2) Total Network Load at time of most recent annual peak load:

Season (Date - Hour Ending)	Total Network Load [kW]
Summer 2018 (06/19/2018-HE 20:00)	1,501,158
Winter 2018 (01/08/2018-HE 8:00)	1,577,804

5.0 Power Factor Requirements

The power factor requirements applicable to Transmission Customer's Delivery Points shall be as set forth in the Transmission Provider's Tariff.

6.0 Designation of party(ies) subject to reciprocal service obligation:

None.

7.0 Name(s) of any Intervening Systems providing transmission service:

None.

8.0 Party Responsible for Providing Real Power Losses:

Transmission Customer has initially arranged, through its contracts with Duke Energy Progress, LLC ("DEP"), for the supply of Real Power Losses associated with its transmission service in accordance with Section 28.5 of the Tariff.

ATTACHMENT A-1

**TO THE SPECIFICATIONS FOR SERVICE UNDER THE
NETWORK INTEGRATION TRANSMISSION SERVICE AGREEMENT (NITSA)
BETWEEN
NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY
AND DUKE ENERGY PROGRESS, LLC**

NCEMPA DELIVERY POINTS AND
FORECASTED DELIVERY POINT DEMANDS

North Carolina Eastern Municipal Power Agency
2019 Forecast Annual DP NCP Demand Kilowatts at Power Agency Delivery Level
Including SEPA Allocation

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Apex 1	0	0	0	0	0	0	0	0	0	0
Apex 2	21,469	21,816	22,229	22,759	23,269	23,792	24,319	24,856	25,422	26,038
Apex 3	20,016	20,340	20,724	21,219	21,694	22,181	22,673	23,174	23,702	24,276
Apex 4	38,318	38,938	39,674	40,621	41,531	42,464	43,405	44,363	45,374	46,473
Apex 5	17,736	18,024	18,364	18,802	19,223	19,655	20,091	20,535	21,002	21,511
Ayden 1	21,145	20,935	20,772	20,703	20,618	20,526	20,435	20,344	20,269	20,224
Benson 1	7,913	7,836	7,788	7,779	7,763	7,751	7,740	7,730	7,729	7,742
Clayton 1	9,518	6,853	6,928	7,039	7,145	7,254	7,364	7,477	7,598	7,734
Clayton 2	17,676	20,558	20,783	21,118	21,434	21,761	22,092	22,431	22,795	23,203
Farmville 1	0	0	0	0	0	0	0	0	0	0
Farmville 2	12,108	12,026	11,983	12,004	12,013	12,028	12,044	12,064	12,097	12,152
Fremont 1	3,366	3,331	3,304	3,292	3,278	3,262	3,246	3,231	3,218	3,209
Greenville 1	277,207	302,536	303,713	306,506	309,005	311,666	314,374	317,186	320,349	324,106
Greenville 4	110,387	54,968	55,182	55,689	56,143	56,627	57,119	57,630	58,204	58,887
Greenville 5	0	30,392	30,511	30,791	31,042	31,310	31,582	31,864	32,182	32,569
Hookerton 1	1,515	1,506	1,501	1,502	1,502	1,501	1,501	1,500	1,501	1,504
Kinston 1	92,267	71,569	71,369	71,558	71,678	71,833	71,998	72,185	72,449	72,844
Kinston 2	0	20,172	20,119	20,172	20,206	20,250	20,296	20,349	20,423	20,534
La Grange 1	6,231	6,174	6,131	6,115	6,095	6,073	6,051	6,030	6,012	6,004
Laurinburg 1	28,713	0	0	0	0	0	0	0	0	0
Laurinburg 2	0	28,505	28,368	28,422	28,428	28,446	28,472	28,504	28,567	28,660
Louisburg 1	11,626	11,394	11,299	11,264	11,217	11,176	11,136	11,100	11,075	11,069
Lumberton 1	0	0	0	0	0	0	0	0	0	0
Lumberton 2	28,744	28,486	28,295	28,229	28,144	28,047	27,952	27,858	27,785	27,754
Lumberton 3	16,627	16,478	16,367	16,329	16,279	16,223	16,169	16,114	16,072	16,054
Lumberton 4	14,582	14,452	14,354	14,321	14,277	14,228	14,180	14,132	14,095	14,079
New Bern 1	34,225	34,011	33,906	33,981	34,023	34,082	34,146	34,220	34,330	34,502
New Bern 2	33,441	33,233	33,130	33,203	33,245	33,302	33,364	33,436	33,544	33,712
New Bern 3	2,050	2,037	2,031	2,035	2,038	2,041	2,045	2,049	2,056	2,066
New Bern 4	26,991	26,823	26,740	26,799	26,832	26,879	26,929	26,987	27,074	27,210
New Bern 5	16,319	16,217	16,167	16,203	16,223	16,251	16,281	16,317	16,369	16,451
Pikeville 1	1,968	1,954	1,945	1,945	1,944	1,941	1,939	1,937	1,936	1,939
Red Springs 1	7,144	7,090	7,058	7,064	7,062	7,065	7,068	7,073	7,086	7,112
Rocky Mount	78,350	77,851	77,201	77,163	77,048	76,971	76,903	76,858	76,894	77,066
Rocky Mount 2	78,169	77,472	77,023	76,985	76,870	76,793	76,726	76,680	76,716	76,888
Selma 2	3,603	3,587	3,538	3,528	3,511	3,494	3,478	3,462	3,449	3,440
Selma 3	11,271	11,157	11,068	11,029	10,962	10,930	10,880	10,829	10,787	10,761
Smithfield 1	29,486	29,302	29,211	29,276	29,312	29,363	29,418	29,461	29,577	29,725
Smithfield 2	6,722	6,680	6,659	6,674	6,682	6,694	6,706	6,721	6,742	6,776
Southport 1	14,526	14,527	14,573	14,697	14,807	14,924	15,044	15,169	15,310	15,480
Wake Forest 2	13,304	13,408	13,554	13,771	13,975	14,188	14,402	14,622	14,858	15,123
Wake Forest 3	27,729	27,947	28,250	28,703	29,129	29,571	30,018	30,476	30,969	31,520
Washington 1	66,429	65,884	65,486	65,381	65,231	65,054	64,884	64,713	64,592	64,569

North Carolina Eastern Municipal Power Agency
2019 Forecast Annual DP NCP Demand Kilowatts at Power Agency Delivery Level
Including SEPA Allocation

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Wilson 1	0	0	0	0	0	0	0	0	0	0
Wilson 2	12,676	12,629	12,622	12,682	12,730	12,784	12,840	12,900	12,974	13,071
Wilson 3	45,403	45,235	45,209	45,425	45,598	45,790	45,991	46,205	46,471	46,820
Wilson 4	11,393	11,351	11,345	11,399	11,442	11,490	11,541	11,595	11,661	11,749
Wilson 5	19,134	19,063	19,052	19,143	19,215	19,297	19,381	19,472	19,583	19,731
Wilson 6	25,764	25,669	25,654	25,778	25,873	25,984	26,097	26,219	26,370	26,568
Wilson 7	18,265	18,198	18,187	18,274	18,343	18,421	18,501	18,588	18,695	18,835
Wilson 8	0	0	0	0	0	0	0	0	0	0
Wilson 9	0	0	0	0	0	0	0	0	0	0
Wilson 10	0	0	0	0	0	0	0	0	0	0
Wilson 11	73,109	72,838	72,797	73,144	73,419	73,732	74,055	74,401	74,828	75,390
Wilson 12	58,001	57,786	57,753	58,028	58,247	58,495	58,751	59,026	59,364	59,811
DEP Total	**1,472,534**	**1,469,013**	**1,469,936**	**1,478,539**	**1,485,763**	**1,493,569**	**1,501,629**	**1,510,092**	**1,520,154**	**1,532,951**
Bethaven	4,035	3,993	3,964	3,956	3,944	3,935	3,925	3,917	3,912	3,915
Edenton	22,723	22,610	22,546	22,584	22,606	22,618	22,634	22,649	22,681	22,749
Elizabeth City 1	35,861	35,441	35,299	35,315	35,307	35,285	35,266	35,248	35,256	35,318
Elizabeth City 2	36,132	35,909	35,765	35,782	35,774	35,751	35,732	35,713	35,721	35,785
Hamilton	785	775	768	765	761	757	754	751	748	747
Hertford	5,373	5,329	5,302	5,303	5,299	5,298	5,297	5,298	5,305	5,321
Hobgood	786	778	771	767	763	759	755	751	747	745
Robersonville*	5,358	5,295	5,250	5,232	5,209	5,188	5,168	5,149	5,136	5,132
Scotland Neck	6,008	5,948	5,902	5,882	5,857	5,831	5,805	5,779	5,757	5,744
Tarboro 1	13,267	13,148	13,071	13,063	13,042	13,028	13,016	13,007	13,012	13,040
Tarboro 2	2,168	2,148	2,136	2,134	2,131	2,129	2,127	2,125	2,126	2,131
Tarboro 3	12,752	12,637	12,563	12,556	12,536	12,523	12,510	12,502	12,507	12,534
Tarboro 4	10,796	10,699	10,636	10,630	10,613	10,602	10,591	10,584	10,588	10,611
Tarboro 5	9,126	9,044	8,991	8,985	8,971	8,962	8,953	8,947	8,950	8,970
VEPCO Total	**164,971**	**163,755**	**162,962**	**162,954**	**162,815**	**162,664**	**162,533**	**162,419**	**162,447**	**162,740**
Agency Total	**1,637,505**	**1,632,768**	**1,632,898**	**1,641,493**	**1,648,579**	**1,656,254**	**1,664,161**	**1,672,511**	**1,682,601**	**1,695,691**

*Robersonville has one delivery point with 3 metering points: (2) 4kV metering points and (1) 12kV metering point, all at one delivery for load forecasting purposes. Since the load forecast is completed by city level and delivery level, and not metering point level, Robersonville is shown as one delivery point. The NCEMPA forecast files do not contain a Robersonville 2 and 3, only Robersonville 1.

ATTACHMENT A-2

TO THE SPECIFICATIONS FOR SERVICE UNDER THE
NETWORK INTEGRATION TRANSMISSION SERVICE AGREEMENT (NITSA)
BETWEEN
NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY
AND DUKE ENERGY PROGRESS, LLC

FORM OF DELIVERY POINT DATA SHEETS

DELIVERY POINT DATA SHEET

1. NCEMPA Participant _____
2. Location _____
3. Effective Date _____
4. Delivery Point Name and Location _____
5. Delivery Point Voltage _____
6. Point of Connection
   A. Name _____
   B. Number _____
   C. Physical Location _____
   D. Firm Capacity of: _____
   E. Voltage _____
   F. Metered Voltage _____
   G. Location of Meter _____
7. Special Facilities or Conditions _____

ACCEPTED BY NCEMPA
Name: _____
Title: _____
Date: _____

ACCEPTED BY DEP
Name: _____
Title: _____
Date: _____

ATTACHMENT B-1

TO THE SPECIFICATIONS FOR SERVICE UNDER THE
NETWORK INTEGRATION TRANSMISSION SERVICE AGREEMENT (NITSA)
BETWEEN
NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY
AND DUKE ENERGY PROGRESS, LLC

DELIVERY FACILITIES CHARGES

DELIVERY FACILITIES CHARGES

Transmission Customer will compensate Transmission Provider for Transmission Customer's share of the cost of Delivery Facilities (facilities beyond the Delivery Points that are used to deliver capacity and energy from the Transmission System to the systems of Transmission Customer's municipal participants at each Delivery Point). The charges for Delivery Facilities in each month shall be calculated in accordance with the formulas set forth below, based upon the operating voltage (transmission voltage or distribution voltage) of specific Delivery Facilities at a Delivery Point.

Delivery Facilities Charge for Transmission Voltage Delivery Facilities	=	$(CACR_{EF} + CACR_{AF})$	X	$MFCR_{TV}$
Delivery Facilities Charge for Distribution Voltage Delivery Facilities	=	$(CACR_{EF} + CACR_{AF})$	X	$MFCR_{DV}$

$$CACR_{EF} = OC_{EF} \times RF$$

$$CACR_{AF} = OC_{AF} \times RF$$

Terms used in the foregoing formulas shall have the following meanings:

$CACR_{EF}$ ("Customer-Assigned Cost Responsibility - Existing Facilities"): the portion (in $) of the Original Cost of Delivery Facilities in service as of July 1, 2008 and located at Transmission Customer's Delivery Points for which Transmission Customer shall bear cost responsibility for purposes of calculating Delivery Facilities Charges.

$CACR_{AF}$ ("Customer-Assigned Cost Responsibility - Additional Facilities"): the portion (in $) of the Original Cost of Delivery Facilities placed in service on and after July 1, 2008 and located at Transmission Customer's Delivery Points for which Transmission Customer shall bear cost responsibility for purposes of calculating Delivery Facilities Charges. In any year, $CACR_{AF}$ shall be determined as the product of the Original Cost of Additional Facilities (Delivery Facilities placed in service on and after July 1, 2008) times the RF for that year.

OC_{EF} ("Original Cost of Existing Facilities"): for any Delivery Point, the asset costs of Delivery Facilities placed in service before July 1, 2008, as set forth in the Delivery Facilities Investment Data Sheet for such Delivery Point that is in effect as of July 1, 2008. These values, shall not change during the term of the NITSA

except (as set forth below) as necessary to reflect the Transmission Provider's remaining book investment in existing Delivery Facilities that later may be retired from service.

OC_{AF} ("Original Cost of Additional Facilities"): for any Delivery Point, the asset costs of new Delivery Facilities or modifications to existing Delivery Facilities that are placed in service on and after July 1, 2008, as properly recorded by Transmission Provider in FERC Accounts 360 through 369 (or their successor accounts) and reflected on a new or modified Delivery Facilities Investment Data Sheet for that Delivery Point.

OC_{EF} and OC_{AF} shall be reduced from time to time by an appropriate share of the Transmission Provider's remaining book investment in existing or new Delivery Facilities that were reflected in the determination of OC_{EF} or OC_{AF} (as applicable) but that later are retired from service.

RF ("Responsibility Factor"): For Delivery Points where the Transmission Customer is the sole user of the Delivery Facilities, RF shall equal 1.0. For Delivery Points where the Transmission Customer is not the sole user of the Delivery Facilities, RF shall be calculated as follows:

RF =

(Transmission Customer metered demand at hour of peak annual demand on Delivery Facility)

divided by

(Total demand on Delivery Facility at hour of peak annual demand on Delivery Facility)

The Transmission Provider shall update the values used for RF each calendar year based on the most recent available load data.

$MFCR_{TV}$ ("Monthly Fixed Charge Rate - Transmission Voltage"): A rate, expressed as a decimal value, representing one-twelfth of the annual cost of ownership of Delivery Facilities operated at transmission voltage (115 kV and higher). The current $MFCR_{TV}$ value is 0.89%.

$MFCR_{DV}$ ("Monthly Fixed Charge Rate - Distribution Voltage"): A rate, expressed as a decimal value, representing one-twelfth of the annual cost of ownership of Delivery Facilities operated at distribution voltage (below 115 kV). The current $MFCR_{DV}$ value is 1.05%.

The values used for $MFCR_{TV}$ and $MFCR_{DV}$ may be changed by the Transmission Provider only pursuant to a filing made under Section 205 of the Federal Power Act, and by the Transmission Customer only pursuant to a filing made under Section 206 of the Federal Power Act.

Effective January 1, 2020, Transmission Customer shall pay the following monthly Delivery Facilities charges:

Delivery Facilities Charge for Transmission Voltage Delivery Facilities = $10,973.09 /month

Delivery Facilities Charge for Distribution Voltage Delivery Facilities = $84,757.76 /month

A Delivery Point may be terminated by either Transmission Provider or Transmission Customer upon reasonable notice.[1] In the event that the termination of the Delivery Point results in the Early Retirement (as defined in Section 3.a below) of any of the Transmission Provider's facilities covered by these distribution rates or any of the Transmission Customer's facilities interconnected with such Transmission Provider's facilities, the Transmission Provider or the Transmission Customer, as applicable, shall be responsible for paying to the other party a Loss Due to Early Retirement ("LDER") calculated as follows:

1. If Transmission Provider is the initiator of the termination of the Delivery Point, Transmission Provider shall be responsible for paying to Transmission Customer any LDER incurred by Transmission Customer involving Transmission Customer's facilities interconnected with Transmission Provider's facilities at the Delivery Point. In such event, Transmission Customer's LDER shall consist of the sum of (a) the net book value of the Transmission Customer's facilities interconnected with Transmission Provider's facilities at the Delivery Point, plus actual cost of removal, less any actual salvage value, all as calculated using Transmission Customer's standard accounting practices, and (b) Transmission Customer's Reintegration Costs.

Reintegration Costs shall include the direct labor costs (plus a reasonable percentage for regular employee fringe benefits and a reasonable percentage for engineering and supervision, cost of use of equipment, cost of materials, and miscellaneous expenses) that Transmission Customer incurs in connecting, by the most practical and direct route, (a) the Transmission Customer's lines that were previously connected with the terminated Delivery Point with (b) the Delivery Point that replaces the terminated Delivery Point. Reintegration Costs will be calculated consistent with the standard methodology being used by the Transmission Customer at that time for calculations of this kind.

[1] For purposes of this Attachment B-1, "termination" of a Delivery Point means the Transmission Customer's permanent removal of all load from the point of electrical connection or at the voltage specified in the Delivery Point Data Sheet in effect for that Delivery Point immediately prior to the load removal.

2. If Transmission Customer is the initiator of the termination of the Delivery Point, Transmission Customer shall be responsible for paying to Transmission Provider any LDER incurred by Transmission Provider involving the Transmission Provider facilities covered by these distribution rates. In such event, Transmission Provider's LDER shall consist of the net book value of the Transmission Provider's facilities covered by these distribution rates, plus actual cost of removal, less any actual salvage value, all as calculated using Transmission Provider's standard accounting practices.

3. Definitions

a. A retirement shall be deemed to result in an "Early Retirement" for LDER purposes if the LDER, calculated as set forth in sections 1 and 2 herein, exceeds 20% of the sum of (a) the original cost of the asset(s) (including any additions or retirements) for which the LDER is calculated (b) actual removal costs, and (c), in the case of a termination initiated by the Transmission Provider, Reintegration Costs.

b. For LDER calculation purposes, "net book value" of an asset represents the original cost of the asset (including any additions or retirements) less actual accumulated depreciation for the asset as reflected in the fixed assets system of the impacted entity.

4. Billing Provisions. After the Delivery Point is terminated, the Transmission Provider or Transmission Customer, as applicable, shall render a bill to the other party for the Transmission Provider's or Transmission Customer's LDER (excluding the actual cost of removal and actual salvage value), and, if applicable, the Transmission Customer's Reintegration Costs. After the facilities at the Delivery Point have been removed, the Transmission Provider or Transmission Customer, as applicable, shall render a bill to the other party for the Transmission Provider's or Transmission Customer's actual cost of removal and actual salvage value. Bills rendered hereunder shall be subject to the Billing and Payment provisions of Section 7 of the Tariff.

ATTACHMENT B-2

**TO THE SPECIFICATIONS FOR SERVICE UNDER THE
NETWORK INTEGRATION TRANSMISSION SERVICE AGREEMENT (NITSA)
BETWEEN
NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY
AND DUKE ENERGY PROGRESS, LLC**

ORIGINAL COST OF EXISTING DELIVERY FACILITIES AND INITIAL CUSTOMER-ASSIGNED COST RESPONSIBILITY FOR EXISTING DELIVERY FACILITIES

Cost Responsibility for Existing Power Agency Municipal Participant Distribution Delivery Facilities

(a)	(b)	(c)	(d)	(e)	(f)
Delivery Point	**OC_{EF}**	**OC_{AF}**	**$CACR_{EF}$**	**$CACR_{AF}$**	**$CACR_{TOTAL}$**
Apex	$1,531,103		$1,531,103		$1,531,103
Apex # 4		$12,389		$12,389	$12,389
Apex # 5		$28,560		$28,560	$28,560
Benson	$1,396,179		$531,665		$531,665
Clayton	$4,044,335		$1,194,730		$1,194,730
Farmville		$14,586		$14,586	$14,586
Fremont	$562,283		$226,840		$226,840
Hookerton	$889,473		$219,716		$219,716
Kinston	$52,117		$52,117		$52,117
LaGrange	$625,884		$315,970		$315,970
Laurinburg	$770,049		$536,768		$536,768
Louisburg	$1,004,227		$517,651		$517,651
Lumberton #2	$39,671		$39,671		$39,671
Lumberton #3	$22,560		$22,560		$22,560
Lumberton #4		$10,740		$10,740	$10,740
New Bern #1	$11,869		$11,869		$11,869
New Bern #2	$52,988		$52,988		$52,988
New Bern #3	$1,002,374		$130,900		$130,900
New Bern #4	$2,641		$2,641		$2,641
New Bern Lewis Farm Rd.		$12,803		$12,803	$12,803
Pikeville	$577,071		$172,103		$172,103
Red Springs	$494,457		$404,487		$404,487
Selma # 2	$671,869		$464,694		$464,694
Selma # 3		$15,664		$15,664	$15,664
Smithfield	$553,433		$553,433		$553,433
Smithfield # 2		$23,948		$23,948	$23,948
Southport	$1,088,355		$526,946		$526,946
Wake Forest		$14,289		$14,289	$14,289
Wake Forest # 3		$26,530		$26,530	$26,530
Wilson #1 - #11	$399,986		$399,986		$399,986
Investment in metering, telemetering, and related equipment (combined system load signal)	$3,821		$3,821		$3,821
Total Distribution	**$15,796,745**	**$159,509**	**$7,912,659**	**$159,509**	**$8,072,168**

Cost Responsibility for Existing Power Agency Municipal Participant Transmission Delivery Facilities

(a)	(b)	(c)	(d)	(e)	(f)
	Transmission Voltage Delivery Facilities				
	OC_{EF}	**OC_{AF}**	**$CACR_{EF}$**	**$CACR_{AF}$**	**$CACR_{TOTAL}$**
Ayden	$79,383		$79,383		**$79,383**
Greenville #1, #2 and #3	$347,501		$347,501		**$347,501**
Rocky Mount	$240,339	$37,100	$240,339	$37,100	**$277,439**
Rocky Mount #4	$73,932		$73,932		**$73,932**
Washington	$157,956		$157,956		**$157,956**
Wilson 230 kV POD	$296,721		$296,721		**$296,721**
Total Transmission	**$1,407,886**	**$37,100**	**$1,407,886**	**$37,100**	**$1,232,932**

Network Operating Agreement

Between

Duke Energy Progress, LLC

And

North Carolina Eastern Municipal Power Agency

Duke Energy Progress, LLC, formerly known as Carolina Power & Light Company (d/b/a Progress Energy Carolinas, Inc.) (Transmission Provider), and North Carolina Eastern Municipal Power Agency (Transmission Customer) agree that the provisions of this Network Operating Agreement (NOA) and the Service Agreement govern the Transmission Provider's provision of Network Integration Service to the Transmission Customer in accordance with DEP's Open-Access Transmission Tariff (Tariff), as it may be amended from time to time. Unless specified herein, capitalized terms shall refer to terms defined in the Tariff.

The Network Operating Committee consisting of a representative and an alternate from each Network Customer and the Transmission Provider shall: (i) coordinate operating criteria and other technical considerations required for implementation of Network Integration Transmission Service; (ii) ensure that current operating practices and procedures are consistent with the Network Operating Agreement; (iii) plan, schedule, and implement operational changes to maintain consistency with the Network Operating Agreement; and (iv) recommend, schedule, and implement Network Operating Agreement changes. Each party's authorized official will inform the other party's authorized official in writing of the representative and alternate to the Network Operating Committee as soon as practical, so that the agreement can be implemented.

1.0 Control Area Requirements

The Transmission Customer shall: (i) operate as a Control Area under applicable guidelines of the North American Electric Reliability Corporation ("NERC") and the SERC Reliability Corporation ("SERC"); or (ii) satisfy its Control Area requirements, including all Ancillary Services, by contracting with the Transmission Provider; or (iii) satisfy its Control Area requirements, including all Ancillary Services, by contracting with another entity that can satisfy those requirements in a manner that is consistent with the Tariff and Good Utility Practice and satisfies NERC and SERC standards. The Transmission Customer shall plan, construct, operate and maintain its facilities and system in accordance with Good Utility Practice, which shall include, but not be limited to, all applicable guidelines of NERC and SERC, as they may be modified from time to time, and any generally accepted practices in the region that are consistently adhered to by the Transmission Provider.

2.0 Redispatch Procedures

(a) If the Transmission Provider determines that redispatching resources (including reductions in off-system purchases and sales) to relieve an existing or potential transmission constraint is the most effective way to ensure the reliable operation of the Transmission System, the Transmission Provider will redispatch the Transmission Provider's resources, and request the Transmission Customer to redispatch its resources, on a least-cost basis, without regard to the ownership of such resources. The Transmission Provider will maintain a redispatch protocol and will apprise the Transmission Customer of its redispatch practices and procedures, as they may be modified from time to time.

(b) The Transmission Customer will submit verifiable cost data for its resources, which estimate the cost to the Transmission Customer of changing the generation output of its Network Resources, to the Transmission Provider. This cost data will be used, along with similar data for the Transmission Provider's resources, as the basis for least-cost dispatch. The Transmission Provider's bulk power operations personnel will keep this data confidential, and will not disclose it to the Transmission Provider's marketing personnel. If the Transmission Customer experiences changes to its costs, the Transmission Customer will submit those changes to the Transmission Provider's Energy Control Center. The Transmission Provider will implement least-cost redispatch consistent with its existing contractual obligations and its current practices and procedures for its own resources per Sections 33.2 and 42.2 of the Tariff. The Transmission Customer shall respond within ten minutes to requests for redispatch from the Transmission Provider's Energy Control Center.

(c) The Transmission Customer may audit, at its own expense, particular redispatch events (such as the cause or necessity of the redispatch) during normal business hours following reasonable notice to the Transmission Provider. Either the Transmission Customer or the Transmission Provider may request an audit of the other Party's cost data. Any audit of cost data will be performed by an independent agent at the requesting Party's cost. Such independent agent will be a nationally recognized accounting firm and will be required to keep all cost data confidential.

(d) Once redispatch has been implemented, the Transmission Provider will book in a separate account the redispatch costs incurred by the Transmission Provider and the Transmission Customer based on the submitted cost data. The Transmission Provider and the Transmission Customer will each bear a proportional share of the total redispatch costs pursuant to Sections 33 and 42 and Attachment J of the Tariff. The redispatch charge or credit, as appropriate, will be reflected on the Transmission Customer's monthly bill.

3.0 Metering

(a) Unless otherwise agreed and except as provided in Section 3(b), the Transmission Provider will be responsible for the installation, operation, maintenance, repair and replacement of all metering equipment necessary to provide Network Integration Service or Network Contract Demand Service.

All metering equipment shall conform to Good Utility Practice and, if it is electrically located in the Transmission Provider's Control Area, the standards and practices of the Transmission Provider's Control Area. Prior to installation of any metering equipment by the Transmission Customer or its agents, the Transmission Provider and the Transmission Customer shall review the metering equipment to ensure conformance with such standards or practices.

Metering equipment necessary to provide Network Integration Transmission Service that is in place at each Delivery Point as of the date of this Agreement is included within the Delivery Facilities provided by Transmission Provider pursuant to Section 10 and Attachments B-1 and B-2 of the NITSA.

(b) Unless otherwise agreed, electric capacity and energy received by the Transmission Provider from the Transmission Customer will be measured by meters installed and maintained by the Transmission Customer at the Transmission Customer's Network Resources if such Network Resources are electrically located within the Transmission Provider's Control Area. When measurement is made at any location other than a Point of Receipt, suitable adjustment for losses between the point of measurement and the Point of Receipt will be agreed upon in writing between the Parties hereto and will be applied to all measurements so made. Metered receipts used in billing and accounting hereunder will in all cases include adjustment for such losses.

(c) Electric capacity and energy delivered to the Transmission Customer's points of delivery by the Transmission Provider will be measured by meters installed at the points of delivery. When measurement is made at any location other than a Point of Delivery, suitable adjustment for losses between the point of measurement and the Point of Delivery will be agreed upon in writing between the Parties hereto and will be applied to all measurements so made. Metered receipts used in billings and accounting hereunder will in all cases include adjustments for such losses.

(d) Meters at the Transmission Customer's Network Resources and Network Loads will be tested at least biennially. In addition, the Transmission Customer will, upon request of the Transmission Provider, test any of its meters at its Network Resources or Network Loads used for determining the receipt or delivery of capacity and energy by the Transmission Provider. Representatives of the Transmission Provider will be afforded an opportunity to witness such tests. In the event the test shows the meter to be inaccurate, the Transmission Customer will make any necessary adjustments, repairs or replacements thereon.

(e) In the event any meter used to measure capacity and energy fails to register or is found to be inaccurate, appropriate billing adjustments, based on the best information available, will be agreed upon by the Parties hereto. Any meter tested and found to be not more than two percent above or below normal will be considered to be correct and accurate insofar as correction of billing is concerned. If, as a result of any test, a meter is found to register in excess of two percent either above or below normal, then the reading of such meter previously taken will be corrected according to the percentage of inaccuracy so found, but no correction will extend beyond ninety days prior to the day on which inaccuracy is discovered by such test.

(f) The Transmission Provider will have the right to install suitable metering equipment at any Point(s) of Receipt or Delivery, as herein provided for the purpose of checking the meters installed by the Transmission Customer.

(g) The Transmission Customer will read the meters owned by it, except as may be mutually agreed, and will furnish to the Transmission Provider all meter readings and other information required for operations and for billing purposes. Such information will remain available to the Transmission Provider for 3 years.

(h) The Transmission Customer has entered into a Metering Services Agreement with the Transmission Provider for NCEMPA members participating in Virginia Electric and Power Company ("VEPCO Participants"). See Attachment A-1 for a list of the Transmission Customer's VEPCO Participant Delivery Points.

4.0 Control Area and Data Equipment

(a) Unless otherwise agreed, the Transmission Provider will be responsible for the installation, modification, operation, maintenance, repair and replacement of all data acquisition equipment, protection equipment, and any other associated equipment and software, which may be required by either Party for the Transmission Customer to operate in accordance with its choice under Section 1.0 of this NOA.

Such equipment shall conform to Good Utility Practice and, if the Transmission Customer is electrically located within the Transmission Provider's Control Area, the standards and practices of the Transmission Provider's Control Area. Prior to installation of any such equipment by Transmission Customer or its agents, the Transmission Provider and the Transmission Customer shall review the equipment and software required by this Section to ensure conformance with such standards or practices.

(b) The selection of real time telemetry and data to be received by the Transmission Provider's Energy Control Center and the Transmission Customer shall be at the reasonable discretion of the Transmission Provider's Control Area, as deemed necessary for reliability, security, economics, and/or monitoring of system operations. This telemetry includes, but is not limited to, loads, line flows, voltages, generator output, and breaker status at any of the Transmission Customer's transmission facilities. To the extent telemetry is required that is not available, the Transmission Customer shall, at its own expense, install any metering equipment data acquisition equipment, or other equipment and software necessary for the telemetry to be received by the Transmission Provider's Energy Control Center.

The Transmission Customer has load located outside the Transmission Provider's Control Area. The Transmission Customer currently provides and shall continue to provide real time telemetry and data for this load to the Transmission Provider's Energy Control Center that is necessary for the provision of Network Integration Transmission Service.

(c) Each Party shall be responsible for implementing any computer modifications or changes required to its own computer system(s) as necessary to implement this Section.

5.0 Operating Requirements

(a) The Transmission Customer shall operate its generating resources inside the Transmission Provider's Control Area in a manner consistent with that of the Transmission Provider, including following voltage schedules, free governor response, meeting power factor requirements at the point of interconnection with the Transmission Provider's system, and other such criteria required by NERC and SERC, and consistently adhered to by the Transmission Provider.

(b) When load is being served by the Transmission Customer within the DEP control area, the Transmission Customer shall maintain a power factor of 100% to 90% lagging at each point of delivery determined on the basis of the 60-minute metered or computed reactive demand (kVar) for each hour of the month and the corresponding 60-minute metered or computed kilowatt demand for that hour.

In addition, the Transmission Customer shall maintain a power factor of 100% to 95% lagging at each point of delivery, determined on the basis of the 60-minute metered or computed kilowatt demand at the time of DEP's monthly transmission system peak and the corresponding 60-minute reactive demand (kVar) for that hour.

To the extent the Transmission Customer owns or operates reactive devices which would cause reactive power to flow onto the DEP system, DEP and the Customer will develop procedures governing the Customer's delivery of reactive power to the DEP system.

In the event that the Transmission Customer does not satisfy the power factor requirements outlined above, or the Parties cannot agree on the procedures governing the customer's delivery of reactive power, or the Parties cannot agree on the efforts to be undertaken by the Transmission Customer to satisfy the power factor requirements within an agreed upon period of time, DEP reserves the right to make a unilateral filing with FERC under Section 205 of the Federal Power Act seeking authorization to either (i) assess appropriate charges to the Transmission Customer for reactive power supplied to the Transmission Customer by DEP up to the level of minimum power factor requirement, or (ii) install power factor correction equipment sufficient to bring the Transmission Customer's power factor into compliance with the power factor requirements, and to assess the Transmission Customer the reasonable cost of such equipment.

(c) Insofar as practicable, the Transmission Provider and the Transmission Customer shall protect, operate, and maintain their respective systems so as to avoid or minimize the likelihood of disturbances which might cause impairment of service on the system(s) of the other. The Parties shall implement load shedding programs to maintain the reliability and integrity of the Transmission System, consistent with the standards of NERC and SERC, as provided in Sections 33.6 and 42.6 of the Tariff. Load shedding shall include: (1) automatic load shedding by under frequency relay or (2) manual load shedding. The Transmission Provider will implement load shedding to maintain the relative sizes of load served, unless otherwise required by circumstances beyond the control of the Transmission Provider or the Transmission Customer. Automatic load shedding devices will operate without notice. When manual load shedding is necessary, the Transmission Provider shall notify the Transmission Customer's dispatchers or

schedulers of the required action and the Transmission Customer shall comply within ten minutes.

(d) The Transmission Customer shall, at its own expense, provide, operate, and maintain in service high-speed, digital under frequency load shedding equipment. For load served in or from the DEP Zone, the Transmission Customer will install under frequency relays to disconnect automatically its Network Load in a manner consistent with that followed by the Transmission Provider.

The installation of under frequency relays to accomplish any load shedding in addition to that already installed shall be completed on a schedule agreed to by the Network Operating Committee. The Network Operating Committee may review the amount of load that would be disconnected automatically, and make such adjustments and changes as necessary.

(e) In the event the Transmission Provider modifies the load shedding system, the Transmission Customer shall, at its expense, make changes to its equipment and the settings of such equipment, as required. The Transmission Customer shall test and inspect the load shedding equipment within ninety (90) days of taking Network Integration Transmission Service or Network Contract Demand Transmission Service under the Tariff and thereafter in accordance with Good Utility Practice, and provide a written report to the Transmission Provider. The Transmission Provider may request a test of the load shedding equipment with reasonable notice.

(f) The Transmission Customer shall ensure that all Network Resources meet the Transmission Provider's requirements for parallel operation of non-utility generation.

The Transmission Customer shall not permit any generating unit greater than 5 MW to be operated in parallel either continuously or momentarily with the Transmission Provider's system without the written approval of the Transmission Provider's Network Operating Committee representative.

For the Transmission Customer owned generation greater than 5 MW operated in parallel with the Transmission Provider's system without prior written approval, the Transmission Provider may take any and all appropriate action necessary to prevent the parallel operation of such generation. These actions may include, but are not limited to, ensuring reliability and safety of the Transmission Provider's system by whatever means necessary.

(g) Parallel Operation or Transfers of Load Between Points of Connection

(1) Planning

The Transmission Customer shall not permit any Point of Delivery to be operated in parallel with another Point of Delivery, or transfer load between Points of Delivery, unless the Transmission Provider has first approved the arrangement. The Transmission Provider shall grant such approval unless the reliability of its system and its ability to measure energy at any Point of Delivery would be adversely affected by such operation in parallel or load transfer. Any and all switching shall be done with the prior consent of the Transmission Provider Energy Control Center System Operator.

(2) Operations

The Transmission Customer will be permitted to parallel Points of Delivery or to transfer loads for purposes of emergencies, maintenance, construction, or restoration of service with the prior consent of the Transmission Provider Energy Control Center System Operator.

6.0 Operational Information

The Transmission Customer shall provide data needed for the safe and reliable operation of the Transmission Customer's and the Transmission Provider's Control Area and to implement the provisions of the Tariff. The Transmission Provider will treat this information as confidential and will not divulge it to its marketing personnel.

(a) The Transmission Customer served from the DEP Zone shall provide by September 1st of each year the Customer's Network Resource availability forecast (e.g., all planned resource outages, including off-line and on-line dates) for the following year. Such forecast shall be made in accordance with Good Utility Practice. The Transmission Customer shall inform the Transmission Provider, in a timely manner, of any changes to the Transmission Customer's Network Resource availability forecast. In the event that the Transmission Provider determines that such forecast cannot be accommodated due to a transmission constraint on its Transmission System, and such constraint may jeopardize the security of its Transmission System or adversely affect the economic operation of either the Transmission Provider or the Transmission Customer, the provisions of Sections 33.2 and 42.2 of the Tariff will be implemented.

(b) The Transmission Customer served from the DEP Zone shall provide at least 14 calendar days advance notice of the Transmission Customer's best forecast of any planned transmission or Network Resource outage(s) and other operating information that the Transmission Provider deems appropriate. In the event that such planned outages cannot be accommodated due to a transmission constraint on the Transmission Provider's Transmission System, the provisions of Sections 33.2 and 42.2 of the Tariff will be implemented.

(c) The Transmission Provider and the Transmission Customer shall notify and coordinate with as much advance notice as reasonably possible with the other Party prior to the beginning of any work by the other Party (or contractors or agents performing on their behalf), which may directly or indirectly have adverse effects on the reliability and security of the other Party's system.

(d) The Transmission Customer is responsible for replacing Real Power Losses associated with all transmission service in accordance with Sections 28.5 and 36.11 of the Tariff. The Transmission Customer must identify the party responsible for supplying Real Power Losses before the transaction takes place.

7.0 Network Planning

In order for the Transmission Provider to plan, on an ongoing basis, to meet the Transmission Customer's requirements for Network Integration Service, the Transmission Customer served from the DEP Zone shall provide, by January 1st of each year, updated

information (current year and 15-year projections) for Network Loads and Network Resources, as well as any other information reasonably necessary to plan for Network Integration Service. This type of information is consistent with the Transmission Provider's information requirements for planning to serve its Native Load Customers. The data will be provided in a format consistent with that used by the Transmission Provider.

8.0 Character of Service

Power and energy delivered under the Service Agreement and this NOA shall be delivered as three-phase alternating current at a nominal frequency of sixty (60) Hertz, and at the nominal voltages at the delivery and receipt points.

9.0 Transfer of Power and Energy Through Other Systems

Since the Transmission Provider's Transmission System is, and will be, directly and indirectly connected with other electric systems, it is recognized that, because of the physical and electrical characteristics of the facilities involved, power delivered under the Service Agreement and this NOA may flow through such other systems. The Parties agree to advise other electric systems as deemed appropriate of such scheduled transfers and to attempt to maintain good relationships with affected third parties. If the Transmission Provider is charged by another electrical system for loop flow charges, then the Transmission Provider may seek recovery of these charges from the Transmission Customer based on his cost responsibility pursuant to § 205 of the Federal Power Act.

10.0 Notice

If any Notice or request made to or by either Party regarding this NOA shall be made to the representative of the other Party as indicated in the Network Service Agreement.

11.0 Incorporation

The Tariff and the Service Agreement, as may be amended from time to time, are incorporated herein and made a part hereof.

12.0 Term

The term of this NOA shall be concurrent with the term of the Service Agreement between the Parties.

IN WITNESS WHEREOF, the Parties have caused this NOA to be executed by their respective authorized officials.

Transmission Provider:

By: _____ _____

Name: J. Samuel Holeman, III Date

Title: Vice President, Transmission System Planning & Operations
Duke Energy Progress, LLC

Transmission Customer:

By: _____ 10/31/19

Name: Matthew E. Schull Date

Title: Chief Operating Officer, NCEMPA
ElectriCities of North Carolina, Inc.

IN WITNESS WHEREOF, the Parties have caused this NOA to be executed by their respective authorized officials.

Transmission Provider:

By: _____ 10/29/2019

Name: J. Samuel Holeman, III Date

Title: Vice President, Transmission System Planning & Operations
Duke Energy Progress, LLC

Transmission Customer:

By: _____ _____

Name: Matthew E. Schull Date

Title: Chief Operating Officer, NCEMPA
ElectriCities of North Carolina, Inc.

TENTH AMENDED AND RESTATED

FULL REQUIREMENTS POWER PURCHASE AGREEMENT

BETWEEN

NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY

AND

DUKE ENERGY PROGRESS, LLC

Tariff Submitter: Duke Energy Progress, LLC

FERC Program Name: FERC FPA Electric Tariff

Tariff Title: Tariffs, Rate Schedules and Service Agreements

Tariff Effective Date: January 1, 2023

Tariff Record Title: Full Requirements Power Purchase Agreement with NCEMPA

Option Code: A

Record Content Description: Rate Schedule No. 200

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TENTH AMENDED AND RESTATED

FULL REQUIREMENTS POWER PURCHASE AGREEMENT

This Tenth Amended and Restated Full Requirements Power Purchase Agreement, including Exhibit I ("Capacity Rate Formula"), Exhibit II ("Energy Rate Formula"), Exhibit III ("Reserve Capacity Rate Formula"), Exhibit IV ("Base Load Reduction Compensation Payment"), Exhibit V ("Form of Notice of Member Resource, Customer Resource, and Economic Development Resource"), Exhibit VI ("Methodology for Calculation of GSU Loss Factor - DEP"), Exhibit VII ("Calculation of Coal Combustion Residual Costs"), Exhibit VIII ("Buyer Maximum Annual CCR Billing Amount"), Exhibit IX ("Rate Discounts for North Carolina Excess Deferred Taxes"), Exhibit X ("Rate Discounts Pursuant to Settlement Agreement in FERC Docket No. EL20-4-000"), and Exhibit XI ("Grandfathered Energy Injection Devices ") hereto, which are incorporated into and made a part hereof, as such exhibits may be amended from time to time (collectively, the "Agreement"), is made and entered into as of June 27, 2023 (the "Execution Date"), between North Carolina Eastern Municipal Power Agency ("Power Agency" or "Buyer"), a public body and body corporate and politic organized and existing under Chapter 159B of the General Statutes of North Carolina, known as the Joint Municipal Electric Power and Energy Act ("Joint Municipal Act"), with offices in Raleigh, North Carolina, and Duke Energy Progress, LLC ("DEP" or "Duke"), a limited liability company organized and existing under Chapter 55 of the General Statutes of North Carolina, known as the Business Corporation Act, with offices in Raleigh, North Carolina.

Power Agency and DEP are sometimes herein referred to individually as a "Party" or

collectively as the "Parties."

RECITALS

Whereas, DEP is engaged in the business of generating, transmitting and distributing electric power in portions of North Carolina and South Carolina, and operates its own electric generation facilities; and

Whereas, Power Agency is a joint agency organized by its member municipalities pursuant to the Joint Municipal Act to own and operate facilities for the generation, transmission, sale, and supply of electric power and energy; and

Whereas, the Parties entered into the Full Requirements Power Purchase Agreement as of September 5, 2014, for which FERC granted an effective date of December 10, 2014; and

Whereas, DEP as Transmission Provider under the DEP OATT accepted the Full Requirements Power Purchase Agreement as a designated network resource of Power Agency under the DEP OATT for the entire Delivery Period; and

Whereas, the Parties replaced the Full Requirements Power Purchase Agreement with the First Amended and Restated Full Requirements Power Purchase Agreement dated as of December 10, 2014, with a FERC effective date of December 10, 2014; and

Whereas, the Parties replaced the First Amended and Restated Full Requirements Power Purchase Agreement with the Second Amended and Restated Full Requirements Power Purchase Agreement dated as of July 31, 2015, with a FERC effective date of August 1, 2015; and

Whereas, the Parties replaced the Second Amended and Restated Full Requirements Power Purchase Agreement with the Third Amended and Restated Full Requirements Power Purchase Agreement dated as of June 1, 2017, with a FERC effective date of June 1, 2017; and

Whereas, the Parties replaced the Third Amended and Restated Full Requirements Power Purchase Agreement with the Fourth Amended and Restated Full Requirements Power Purchase Agreement dated as of April 28, 2017, with a FERC effective date of July 1, 2017; and

Whereas, the Parties replaced the Fourth Amended and Restated Full Requirements Power Purchase Agreement with the Fifth Amended and Restated Full Requirements Power Purchase Agreement dated as of December 19, 2018, with a FERC effective date of November 1, 2018; and

Whereas, the Parties replaced the Fifth Amended and Restated Full Requirements Power Purchase Agreement with the Sixth Amended and Restated Full Requirements Power Purchase Agreement dated as of April 24, 2020, with a FERC effective date of June 1, 2020; and

Whereas, the Parties replaced the Sixth Amended and Restated Full Requirements Power Purchase Agreement with the Seventh Amended and Restated Full Requirements Power Purchase Agreement dated as of May 27, 2021, with a FERC effective date of January 1, 2021; and

Whereas, the Parties replaced the Seventh Amended and Restated Full Requirements Power

Purchase Agreement with the Eighth Amended and Restated Full Requirements Power Purchase Agreement dated as of September 24, 2021, with a FERC effective date of October 1, 2021; and

Whereas, on December 17, 2021, pursuant to Section 205 of the Federal Power Act, DEP unilaterally proposed to replace the Eighth Amended and Restated Full Requirements Power Purchase Agreement with the Ninth Amended and Restated Full Requirements Power Purchase Agreement with a FERC effective date of March 1, 2022, which proposal NCEMPA opposed; and

Whereas, FERC permitted the proposed Ninth Amended and Restated Full Requirements Power Purchase Agreement to go into effect as of March 1, 2022, subject to refund, pending the outcome of settlement and hearing procedures ordered by the Commission;

Whereas, the Parties entered into a settlement agreement pursuant to which the Ninth Amended and Restated Full Requirements Power Purchase Agreement would be effective for the period March 1, 2022 through December 31, 2022, and would be replaced with this Tenth Amended and Restated Full Requirements Power Purchase Agreement, effective January 1, 2023; and

Whereas, the Parties hereby replace the Ninth Amended and Restated Full Requirements Power Purchase Agreement with the Tenth Amended and Restated Full Requirements Power Purchase Agreement with a FERC effective date of January 1, 2023; and

Whereas, pursuant to the terms, conditions, cost of service rates, and charges set forth in this Agreement, Power Agency agrees to purchase from DEP and DEP agrees to sell to Power Agency full requirements capacity and energy to serve Power Agency's Native Load (defined below) needs.

NOW THEREFORE, IN CONSIDERATION OF THE PROMISES AND COVENANTS SET FORTH HEREIN, AND FOR OTHER GOOD AND VALUABLE CONSIDERATION THE SUFFICIENCY OF WHICH IS ACKNOWLEDGED, AND INTENDING TO BE BOUND, THE PARTIES AGREE AS SET FORTH IN THIS AGREEMENT:

1. Definitions

Unless defined in the body of the Agreement, any capitalized term herein shall have the meaning set forth below:

1.1 "Affiliate" means, in relation to any person, any entity controlled, directly or indirectly, by such person, any entity that controls, directly or indirectly, such person, or any entity directly or indirectly under common control with such person. An affiliate includes a division of the specified entity that operates as a functional unit. For purposes of this definition only, "control" means the direct or indirect authority, whether acting alone or in conjunction with others, to direct or cause to be directed the management policies of an entity.

1.2 "Adjusted Base Block" has the meaning set forth in Section 2.9.2.

1.3 "Adjusted Supplemental Load" has the meaning set forth in Section 2.9.3.

1.4 "AFUDC" means allowance for funds used during construction.

1.5 "Allocable Share of CCR Disallowances" means (a) if a Retail Rate Order or applicable Law provides for a CCR Disallowance for any year(s), the CCR Disallowances for such year(s) times Buyer's Production Demand Allocation Factor for that year(s) for

demand-related costs and/or Buyer's allocable share for fuel-related costs; and/or (b) if a Retail Rate Order or applicable Law does not identify a year(s) for all or any portion of the CCR Disallowances provided for in a Retail Rate Order or other applicable Law, the average of Buyer's Production Demand Allocation Factors for demand-related costs and/or Buyer's allocable share for fuel-related costs for the years subject to the Retail Rate Order or applicable Law times the CCR Disallowances provided for in such Retail Rate Order or applicable Law that are not identified for any particular year(s).

1.6 "Agreement" has the meaning set forth in the first paragraph of this Agreement.

1.7 "Allocation/Billing Change" has the meaning set forth in Section 2.5.

1.8 "Alternative Base Load Capacity" has the meaning set forth in Section 2.9.2.

1.9 "Alternative Resource" means an owned or purchased generation resource that Power Agency will use to reduce Power Agency's Supplemental Load and/or Base Load purchases under this Agreement.

1.10 "Ancillary Service Credit" has the meaning set forth in Section 3.10.1.

1.11 "Annual Coincident Billing Demand" means (i) Power Agency's Annual Coincident Demand, less (ii) the SEPA capacity allocation associated with the SEPA Entitlement, adjusted to include Line Losses and GSU Losses (in kilowatts), less (iii) any Alternative Base Load Capacity metered at or (if necessary) adjusted to the DEP generator level; provided, however, that the Annual Coincident Billing Demand shall not be greater than the Supply Cap or less than zero.

1.12 "Annual Coincident Demand" means Power Agency's Hourly Demand that is coincident with the hour of DEP's Annual Peak Demand.

1.13 "Annual True-up Amount" has the meaning set forth in Section 7.1.1.

1.14 "Applicable Rate" has the meaning set forth in Section 4.4.2.1.

1.15 "Asset Purchase Agreement" means that certain Asset Purchase Agreement by and between Power Agency and DEP dated as of September 5, 2014, as the same may be amended from time to time.

1.16 "Bankrupt" means that a Party:

(i) is dissolved (other than pursuant to a consolidation, amalgamation or merger);

(ii) becomes insolvent or is unable to pay its debts or fails or admits in writing its inability generally to pay its debts as they become due;

(iii) makes a general assignment, arrangement or composition with or for the benefit of its creditors;

(iv) institutes or has instituted against it a proceeding seeking a judgment of insolvency or bankruptcy or any other relief under any bankruptcy or insolvency Law or other similar Law affecting creditor's rights, or a petition is presented for its winding-up or liquidation;

(v) has a resolution passed for its winding-up, official management or liquidation (other than pursuant to a consolidation, amalgamation or merger);

(vi) seeks or becomes subject to the appointment of an administrator, provisional liquidator, conservator, receiver, trustee, custodian or other similar official for it or substantially all of its assets;

(vii) has a secured party take possession of all or substantially all of its assets, or has a distress, execution, attachment, sequestration or other legal process levied, enforced or sued on or against all or substantially all of its assets;

(viii) causes or is subject to any event with respect to which, under the applicable Laws of any jurisdiction, has an analogous effect to any of the events specified in clauses (i) to (vii) inclusive; or

(ix) takes any action` in furtherance of, or indicating its consent to, approval of, or acquiescence in, any of the foregoing acts.

1.17 "Base Block" means 700 MWs, or such reduced amount in accordance with Section 2.9.4.

1.18 "Base Load" means the portion of Power Agency's Hourly Demand during each clock hour that is equal to the lesser of (i) the Base Block, or (ii) Power Agency's Hourly Demand.

1.19 "Beneficial Reuse" means any beneficial uses of coal combustion residuals made by non-affiliated third parties in connection with construction projects, mining reclamation projects, and any other beneficial uses that may be made by such non-affiliated third parties.

1.20 "Beneficial Reuse Costs" mean Duke's generation system level costs incurred less any revenue or credits earned by Duke arising from the transfer of title of quantities of coal combustion residuals to non-affiliated third parties for their Beneficial Reuse.

1.21 "Billing Dispute Notice" has the meaning set forth in Section 8.3.1.

1.22 "Business Day" mean any day on which Federal Reserve member banks in New York, New York are open for business, and such day shall commence at 8:00 a.m. and close at 5:00 p.m. Eastern Prevailing Time.

1.23 "Buyer Deferred CCR Costs" shall have the meaning specified in Section 5.5.2.1.

1.24 "Buyer Maximum Annual CCR Billing Amount" shall be the annual values as stipulated in Exhibit VIII.

1.25 "Buyer's CCR Costs" means Buyer's allocable share of demand and/or energy related CCR Costs for a year.

1.26 "Buyer's Production Demand Allocation Factor" has the meaning specified in Section I of Exhibit VII.

1.27 "Buyer's Share of CCR Insurance Proceeds" mean the share of CCR Insurance Proceeds that are allocable to Buyer: (a) if the CCR Insurance Proceeds specifies a year(s) and/or specific costs identifiable in a specific year(s), then Buyer's Share of CCR Insurance Proceeds shall be the CCR Insurance Proceeds times the Buyer's Production Demand Allocation Factor for demand related charges and/or the Buyer's allocable share for fuel related charges for the year(s) to which such proceeds apply, or (b) if the CCR Insurance Proceeds do not specify a year(s) nor specify costs, the Buyer's Share of the CCR

Insurance Proceeds shall equal the ratio of the Buyer's CCR Costs to total CCR Costs incurred from January 1, 2015 through December 31st of the year prior to the year in which the CCR Insurance Proceeds are received times the CCR Insurance Proceeds.

1.28 "Calculation of Coal Combustion Residual Costs" means the computation included in Exhibit VII that is to be applied each year during the term of this Agreement for purposes of calculating the Charge for Buyer CCR Costs.

1.29 "Calendar Year" means the period from January 1 through December 31 of any year.

1.30 "CAMA" means the North Carolina Coal Ash Management Act, 2014 N.C. Sess. Laws 122; 2014 N.C. Ch. 122; 2013 N.C. SB 729, as amended in June 2015 by the Mountain Energy Act, N.C. SB 716, as further amended by the Drinking Water Protection/Coal Ash Cleanup Act, House Bill 630/S.L. 2016-95, as such legislation may be amended or modified from time-to-time.

1.31 "Capacity Rate" means the unit charge for capacity, as such charge is calculated annually through application of the Capacity Rate Formula, expressed in dollars per kilowatt per month or per year, as applicable.

1.32 "Capacity Rate Formula" means the spreadsheets and related notes included in Exhibit I that are to be applied each year during the term of this Agreement for purposes of calculating the Capacity Rate.

1.33 "CCR Disallowance" means CCR Costs that the NCUC disallows for recovery in a Retail Rate Order, or those costs which Duke is prohibited from recovering from retail ratepayers in accordance with any applicable Law, including those costs disallowed as

a lump sum and/or for a particular type of expenditure. Any billing credit associated with a CCR Disallowance shall include any rate of return previously charged on such amount by Duke as well as interest computed at the Interest Rate.

1.34 "CCR Insurance Proceeds" means payments received by Duke from insurance companies that recover CCR Costs which Buyer has paid or has an obligation to pay under this Agreement.

1.35 "CCR Rule" means the Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals from Electric Utilities promulgated by the United States Environmental Protection Agency and published on April 17, 2015, 80 Fed Reg. 21302, as such regulations may be amended or modified from time to time.

1.36 "Charge for Buyer CCR Costs" shall be the charge calculated in accordance with Exhibit VII.

1.37 "Coal Combustion Residual Costs" or "CCR Costs" mean costs that have been or will be incurred in the future by Duke to satisfy the various requirements of CAMA, the CCR Rule, and consent and/or settlement agreements/orders concerning the treatment, management and remediation of coal combustion residuals. CCR Costs shall not include any of the following:

(i) Requirements or obligations imposed on Duke to treat, manage or remediate coal combustion residuals by new legislation or regulations promulgated after December 31, 2016; and

(ii) DOJ Settlement Costs.

1.38 "Combined System" means those certain generating facilities owned and/or operated by DEP and those certain firm power purchase arrangements to which DEP is a party that are collectively used to serve Firm Native Load during the Delivery Period of this Agreement.

1.39 "Combined System Capacity" has the meaning set forth in Section 4.1.4.5.

1.40 "Commercial and Industrial Customer" means any retail customer of a Member that is not a residential customer.

1.41 "Compensation Payment" means the payment, calculated in accordance with the methodology set forth in Exhibit IV, that is to be made by Power Agency to DEP in the event Power Agency reduces its Base Load purchases pursuant to Section 2.7.

1.42 "Construction Project" has the meaning set forth in Section 16.3.

1.43 "Customer Resource" means any generating unit having a nameplate capacity rating of 95 kW or more or an Energy Injection Device, including any Energy Injection Device owned by Power Agency, that is installed behind (i) a Member's retail customer meter, (ii) a Member's wholesale customer meter, or (iii) the meter of a retail customer of a wholesale customer of a Member.

1.44 "CWIP" means construction work in progress.

1.45 "Defaulting Party" has the meaning set forth in Section 13.1.

1.46 "Delivery Period" has the meaning set forth in Section 2.1.1.

1.47 "Delivery Points" means the points on the DEP Transmission System where the delivery of power to Power Agency's Members is measured in accordance with the NITSA.

1.48 "Demand Response" means those activities engaged in by Power Agency or its Members to reduce, interrupt, or otherwise manage end-use consumer load through the use of centralized control and/or by supplying load signal information, real-time pricing signals, or specific instruction. The use of one or more Energy Injection Devices or other types of Qualified Resources shall not be considered Demand Response.

1.49 "Demand-Side Management" means energy and load-shape modifying activities undertaken by Power Agency and/or a Member that are designed to encourage end-use consumers to modify patterns of electricity usage to shift the timing and level of electricity consumption. The use of one or more Energy Injection Devices or other types of Qualified Resources shall not be considered Demand-Side Management.

1.50 "DEP Cost of Capital" means the carrying cost rate (in %) computed by multiplying the Weighted Cost of Capital (Exhibit 1, page 4) by the sum of one (1) plus the Tax Revenue Requirement Factor (Exhibit 1, page 3).

1.51 "DEP Generation System" means the system of electric generating units owned by, operated by, or under the control of DEP and used by DEP to meet the requirements of its Firm Native Load customers and other system obligations.

1.52 "DEP OATT" means the Open Access Transmission Tariff on file at the FERC, as it may be amended from time to time, pursuant to which DEP as Transmission Provider offers transmission service over the DEP transmission system, or the open access transmission tariff of a successor Transmission Provider.

1.53 "DEP-Supplied Load" has the meaning set forth in Section 3.12.

1.54 "DEP Supply Ratio" has the meaning set forth in Section 3.11.

1.55 "DEP's Annual Peak Demand" means the highest of DEP's Monthly Peak Demands during each Calendar Year.

1.56 "DEP's Monthly Peak Demand" means the highest sixty (60) minute net integrated demand in megawatts recorded by DEP during each month associated with serving its Firm Native Load.

1.57 "DEP Transmission System" means the integrated transmission system over which transmission service is provided to customers in the DEP Zone pursuant to the DEP OATT.

1.58 "Department of Justice Settlement Costs" or "DOJ Settlement Costs" means the burden of, or the costs associated with, compliance with the criminal and/or civil fines, restitution related to counts of conviction, community service payments, the mitigation obligation, and funding of the environmental compliance plans as set forth in the Judgment in *United States v. Duke Energy Progress, Inc.*, Case Nos. 5:15-CR-62, 67 & 68 (E.D.N.C. May 14, 2015), Additional Probation Term 16. The term "DOJ Settlement Costs" also includes:

(i) the burden of, or costs associated with criminal and/or civil fines, penalties, restitution, community service payments or any mitigation obligation imposed on Duke from its failure to comply with the terms as set forth in the Judgment in United States v. Duke Energy Progress, Inc., Case Nos. 5:15-CR-67 & 68 (E.D.N.C. May 14, 2015), Additional Probation Term 16;

(ii) "Unallowable Costs" as described in paragraph III.C.16 of the "Interim Administrative Agreement between Duke Energy Corporation; Duke Energy Business Services, LLC; Duke Energy Carolinas, LLC; and Duke Energy Progress, Inc. and the United States Environmental Protection Agency (EPA Case Nos. 15-0411-00 thru 15-0411-03 and 15-0411-00A thru 15-0411-02A); and

(iii) the burden of and/or costs associated with CCR Costs that Duke is prohibited from collecting in rates pursuant to an agreement reached with a governmental authority; provided however, for purposes of this definition only, the phrase "an agreement reached with a governmental authority" shall neither include nor apply to any agreement, order, cost treatment, and/or finding issued, accepted and/or approved by (a) FERC pertaining to wholesale rates and/or regulation, and/or (b) the NCUC or SCPSC pertaining to retail rates and/or regulation.

1.59 "Eastern Prevailing Time" (or "EPT") means the time in effect in the Eastern Time Zone of the United States of America, whether it be Eastern Standard Time or Eastern Daylight Savings Time.

1.60 "Economic Development Resource" means any generating unit or Energy Injection Device that is installed for the purpose of retaining the load of an existing customer or attracting the load of a new customer served or to be served by a Member and that is used to serve load at the site of the generating unit or Energy Injection Device consistent with Section 4.3 of this Agreement.

1.61 "Edenton Generators" means the two (2) 1,250 kW generators owned and operated by the Town of Edenton that are located on Tower Drive, Edenton, North Carolina.

1.62 "Effective Date" means the start of service of this Rate Schedule No. 200, which was August 1, 2015.

1.63 "Elizabeth City Generators" means the four (4) 1,750 kW generators owned and operated by the City of Elizabeth City that are located at 410 Pritchard Street, Elizabeth City, North Carolina.

1.64 "Energy Efficiency Measures" means programs sponsored or specifically implemented by Power Agency and/or a Member to reduce the energy used by specific end-use devices and systems, typically without affecting the services provided. Energy Efficiency Measures reduce overall electricity consumption and achieve energy savings by substituting technically more advanced equipment to produce the same level of end-use services (e.g., lighting, heating, and motor drive) with less electricity consumed in all hours of operation, not merely the peak hours. Examples include, but are not limited to, high efficiency appliances, efficient lighting programs, high-efficiency heating, ventilating and air conditioning ("HVAC") systems or control modifications, efficient building design, advanced electric motor drives, and heat recovery systems. The use of one or more Energy Injection Devices or other types of Qualified Resources shall not be considered Energy Efficiency Measures.

1.65 "Energy Injection Device" means battery storage, or any other current or future technologies that withdraw, store, and reinject energy into the electrical system that have a maximum capable injection capacity of 95 kW or more.

1.66 "Energy Rate" means the unit charge for energy, calculated annually through application of the Energy Rate Formula, expressed in dollars per megawatt-hour.

1.67 "Energy Rate Formula" means the spreadsheets and related notes included in Exhibit II that are to be applied each year during the term of this Agreement for purposes of calculating the Energy Rate.

1.68 "Estimated Nuclear Integration Date" has the meaning set forth in Section 2.7.5.

1.69 "Event of Default" has the meaning set forth in Section 14.1.

1.70 "Excepted Provision" has the meaning set forth in Section 16.2.

1.71 "FERC" means the Federal Energy Regulatory Commission or any successor or replacement agency vested with regulatory authority over wholesale power sales in interstate commerce.

1.72 "Firm Native Load" means the demands of wholesale and retail power customers for which DEP, by statute, franchise, regulatory requirements, or contract, has undertaken the obligation to plan, construct and operate its system to provide reliable power supply services and meet the electric needs of such customers.

1.73 "Force Majeure" means any cause beyond the control of the party affected and which with reasonable efforts the party affected is unable to overcome, including without limitation the following: acts of God; fire, flood, landslide, lightning, earthquake,

hurricane, volcanic eruption, tornado, storm, freeze, or drought; blight, famine, epidemic or quarantine; strike, lockout or other labor difficulty; act or failure to act of the other party (and such party so acting or failing to act shall not use its act or failure to act to excuse any other obligation which it has under this Agreement); act or failure to act of any regulatory agency or other governmental authority; changes in the work or delays caused by public bidding requirements; theft; casualty; accident; equipment breakdown; failure or shortage of, or inability to obtain from usual sources, goods, labor, equipment, information or drawings, machinery, supplies, energy, fuel or materials; embargo; injunction; litigation or arbitration with suppliers or vendors; shortage of rolling stock; arrest; war; civil disturbance; explosion; acts of public enemies; sabotage; invasion; or breach of contract by any supplier, contractor, subcontractor, or laborer.

1.74 "Formal Notice" has the meaning set forth in Section 2.7.5.

1.75 "Governmental Authority" mean any federal, state, local or municipal governmental body; any governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, policy, regulatory or taxing authority, or jurisdictional power; any court or governmental tribunal; any Transmission Organization, regional power pool, or NERC; any instrumentality of any of the foregoing; or any other entity performing any similar function(s) or purpose.

1.76 "GSU Losses" means the product in any hour of the GSU Loss Factor and Power Agency's load as measured or calculated at its Delivery Points.

1.77 "GSU Loss Factor" means the factor (expressed as a decimal fraction) intended to represent the ratio of (i) the amount of energy consumed or lost in transformation over the generator step-up transformers and, (ii) the total amount of energy delivered from the DEP Transmission System in any hour, as determined in accordance with Section 3.13.

1.78 "Hourly Demand" means in each hour, the aggregate load of Power Agency's Members for which there is in effect a Member Power Sales Agreement determined by summing the metered 60-minute demands of the Members (integrated metered kilowatt load, compensated where applicable, in accordance with the NOA, to reflect losses from the meter location back to the Delivery Point), adjusted to include the output of PURPA Qualifying Facilities in each clock hour in accordance with Section 4.4.2 of this Agreement, and adjusted further to include Line Losses and GSU Losses.

1.79 "Interest Rate" means for any month, the prime rate being charged by Bank of America, N.A., or its successor, on the first day of such month, less one percentage point, divided by twelve, expressed in percentage points, to the nearest hundredth.

1.80 "Interruptible Demand Charge" has the meaning set forth in Section 9.7.

1.81 "Interruptible Load" shall mean that load of a Commercial and Industrial Customer that such Commercial and Industrial Customer may elect to interrupt, curtail, or otherwise reduce, either on its own or at the request or direction of Power Agency or a Member.

1.82 "ISO" means an independent system operator that has functional or operating control over a transmission system.

1.83 "ITC" means an independent transmission company.

1.84 "Law" means any statute, regulation, rule, procedure, code, ordinance, resolution, order, writ, judgment, decree or permit enacted, adopted, issued or promulgated; and/or, any legal, regulatory, or administrative determination by any regulatory body, administrative agency, or court, including without limitation under principles of common law; and/or, or any decree or issuance of a Governmental Authority; and/or, any change in, modification of, or new or changed interpretation of any of the foregoing.

1.85 "Line Losses" means the energy consumed or lost in the transmission, transformation and/or delivery of energy over the DEP Transmission System between the Transfer Point and the Delivery Points and, in any hour is equal to the Transmission Loss Factor (expressed as a decimal fraction) multiplied by Power Agency's load as measured or calculated at its Delivery Points.

1.86 "MAC" has the meaning set forth in Section 11.2.1.

1.87 "Member" means a municipality in North Carolina which has become, or which may hereafter become, a member of the Power Agency and which is a party to a Member Power Sales Agreement.

1.88 "Member Debt Service Support Contract" means a contract between Power Agency and each of its Members pursuant to which Power Agency agrees to issue bonds to refinance its existing indebtedness and each Member agrees to pay its share of Monthly Support Costs, as such term is defined therein.

1.89 "Member Resource" means any generating unit (other than the Edenton Generators and Elizabeth City Generators) having a nameplate capacity of 95 kW or more or Energy Injection Device, including any Energy Injection Device owned by Power Agency, that is directly connected to the electric system behind the Duke-owned wholesale revenue meter of a Member.

1.90 "Member Power Sales Agreement" means an agreement between Power Agency and each of its Members pursuant to which Power Agency sells to a Member and such Member purchases from Power Agency such Member's full requirements bulk power supply.

1.91 "Monthly Billing Energy" means (i) the sum of Power Agency's Hourly Demand for each hour of a given month, less (ii) the SEPA energy allocation associated with the SEPA Entitlement, adjusted to include Line Losses and GSU Losses (in megawatt-hours), less (iii) energy served by an Alternative Resource metered at or (if necessary) adjusted to the DEP generator level; provided, however, that Monthly Billing Energy shall not be less than zero.

1.92 "Monthly Capacity Charge" has the meaning set forth in Section 5.1 of this Agreement.

1.93 "Monthly Charge for Buyer's CCR Costs" shall have the meaning specified in Section III of Exhibit VII.

1.94 "Monthly Coincident Billing Demand" means (i) Power Agency's Monthly Coincident Demand, less (ii) the SEPA capacity allocation associated with the SEPA Entitlement, adjusted to include Line Losses and GSU Losses (in kilowatts), less (iii) any Alternative

Base Load Capacity metered at or (if necessary) adjusted to the DEP generator level; provided, however, that the Monthly Coincident Billing Demand shall not be greater than the Supply Cap or less than zero.

1.95 "Monthly Coincident Demand" means Power Agency's Hourly Demand in a month that is coincident with the hour of DEP's Monthly Peak Demand in such month.

1.96 "Monthly Energy Charge" has the meaning set forth in Section 5.3.

1.97 "Monthly Reserve Capacity Charge" has the meaning set forth in Section 6.1.

1.98 "Monthly Transmission System Peak" has the meaning set forth in Section 3.12.

1.99 "NCEMPA Generation" means any generating unit owned by Power Agency having a nameplate capacity rating of 95 kW or more that is connected to the electric system behind the Duke-owned wholesale revenue meter of a Member.

1.100 "NCUC" means the North Carolina Utilities Commission.

1.101 "Neighbor Compensation Costs" means costs incurred by Duke that are not required by Law and that are incurred under a program voluntarily implemented by Duke and publicly announced by Duke in December 2016 under which Duke provides to eligible property owners located within a certain proximity to Duke coal ash basins goodwill cash payments, compensation for reduction in property values, and compensation for water bills.

1.102 "NERC" means the North American Electric Reliability Corporation.

1.103 "Network Integration Transmission Service Agreement" (or "NITSA") means the Agreement for Network Integration Transmission Service between DEP (as

Transmission Provider) and Power Agency (as Transmission Customer), effective July 1, 2013, as it may be amended from time to time, providing for the furnishing of network integration transmission service under the DEP OATT, on file with FERC and designated as DEP Service Agreement No. 268.

1.104 "Network Operating Agreement" (or "NOA") means the Network Operating Agreement entered into between DEP (as Transmission Provider) and Power Agency (as Transmission Customer) pursuant to the DEP OATT, effective July 1, 2013, on file with FERC as part of DEP Service Agreement No. 268, as it may be amended from time to time.

1.105 "New Nuclear Generation" means any nuclear-fueled generating unit other than the four (4) nuclear-fueled generating units that are part of the DEP Generating System on the Effective Date of this Agreement (*i.e.,* Shearon Harris Unit 1, Brunswick Units 1 and 2, and Robinson Unit 2), and any contract pursuant to which DEP acquires an entitlement to all or a portion of the capacity of a nuclear-fueled generating unit, in either case acquired or entered into after the Effective Date.

1.106 "Non-Defaulting Party" has the meaning set forth in Section 14.1.1.

1.107 "Notice Event Conditions" has the meaning set forth in Section 2.7.

1.108 "NRC" means the Nuclear Regulatory Commission.

1.109 "OATT" means Open Access Transmission Tariff.

1.110 "Performance Assurance" has the meaning set forth in Section 11.2.1.

1.111 "Power Agency's Native Load" means the load of the electric power customers of Power Agency's Members, the electric needs of which the Members have undertaken the obligation to meet.

1.112 "Protected Information" has the meaning set forth in Section 7.3.5.

1.113 "Prudent Utility Practices" means any of the practices, methods, and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods, and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Prudent Utility Practices are not intended to be limited to the optimum practices, methods, or acts to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the electric utility industry.

1.114 "PURPA Qualifying Facility" means a generating facility that is a "small power production facility" or "cogeneration facility" that, in each case, meets the requirements of Sections 292.203(a) and 292.203(b) of Title 18 of the Code of Federal Regulations and that has satisfied the procedures for obtaining Qualifying Facility status under Section 292.207 of Title 18 of the Code of Federal Regulations.

1.115 "Qualified Resources" consists of Member Resources, Customer Resources, and NCEMPA Generation.

1.116 "Qualified Resource Addition" has the meaning set forth in Section 4.1.4.

1.117 "Qualified Resource Factor" has the meaning set forth in Section 4.1.4.

1.118 "Renewables Act" means the North Carolina Renewable Energy and Energy Efficiency Portfolio Standard, N.C. Gen. Stat. 62-133.8 et seq., including all related rules promulgated by the North Carolina Utilities Commission, as may be amended or modified from time-to-time, and any such successor statutes, regulations, or rules.

1.119 "Requirements Service" has the meaning set forth in Section 3.1.

1.120 "Reserve Capacity Billing kW" has the meaning set forth in Section 4.1.3.

1.121 "Reserve Capacity Rate" means the unit charge for reserve capacity, calculated annually through application of the Reserve Capacity Rate Formula, expressed in dollars per kilowatt per month.

1.122 "Reserve Capacity Rate Formula" means the spreadsheets and related notes included in Exhibit III that are to be applied each year during the term of this Agreement for purposes of calculating the Reserve Capacity Rate.

1.123 "Response Notice" has the meaning set forth in Section 8.3.2.

1.124 "Retail Rate Order" means a final, non-appealable order issued by the NCUC in (i) a retail rate proceeding; (ii) a proceeding approving Duke's recovery of CCR Costs, including Beneficial Reuse Costs through Duke's fuel adjustment clause; and/or (iii) any other proceeding in which the NCUC expressly approves Duke's recovery of CCR Costs from North Carolina retail customers.

1.125 "RPS" means any federal and/or state renewable energy portfolio program and/or mandate that requires or encourages either Party to comply with requirements to obtain

energy or related products and/or services from renewable energy facilities or sources, or similar program or mandate.

1.126 "RTO" means a regional transmission organization.

1.127 "SCPSC" means the South Carolina Public Service Commission.

1.128 "SEPA Entitlement" shall mean the aggregate sum of the capacity and energy that some or all of Power Agency's Members are entitled to receive during the Delivery Period as preference customers, through the U.S. Department of Energy - Southeastern Power Administration ("SEPA"), pursuant to contracts entered into between the United States of America (Government) and such Members pursuant to the Flood Control Act of 1944 or similar or superseding Federal law.

1.129 "SERC" means the SERC Reliability Corporation or any successor thereto.

1.130 "Supplemental Load" means that portion of Power Agency's Hourly Demand during each clock hour that exceeds the Base Block minus any Alternative Resources supplied by Power Agency in accordance with the provisions of Section 2.9.3.

1.131 "Supply Cap" has the meaning set forth in Section 2.9.6.

1.132 "Taxes" means all taxes, fees, levies, licenses or charges imposed by any Governmental Authority, together with any applicable interest and penalties thereon.

1.133 "Transfer Point" means the location(s) on the DEP Transmission System's East control area where the capacity and energy comprising the Requirements Service purchased and sold hereunder is transferred to the DEP Transmission System for delivery to Power Agency.

1.134 "Transmission Loss Factor" means the Real Power Loss factor applicable to the DEP Zone as reflected in the DEP OATT.

1.135 "Transmission Organization" has the meaning set forth in Section 10.1.

1.136 "Transmission Provider" means the entity responsible for transmitting and/or distributing electric energy utilizing the facilities that comprise the DEP Transmission System, including, without limitation, any ISO, RTO, ITC, or other provider approved by FERC to transmit or distribute energy utilizing the facilities that comprise the DEP Transmission System.

1.137 "Transmission Service Agreement" means an agreement for wholesale transmission service entered into between Power Agency and a Transmission Provider, and placed on file with and made effective by FERC, pursuant to the Transmission Provider's OATT. The Parties agree and acknowledge that a Transmission Service Agreement is a separate and independent agreement from this Agreement, and that the obligations and/or liabilities of the Parties with respect to the subject matter of a Transmission Service Agreement shall be governed solely by such agreement.

2. Term, Commencement & Termination

2.1 Term. This Rate Schedule No. 200 shall be deemed to be effective as of the Effective Date and shall remain in full force and effect (the "Term") through the end of the Delivery Period. Following satisfaction of the conditions precedent set forth in Section 2.2, the Ninth Amended and Restated Full Requirements Power Purchase Agreement, with a FERC effective date of March 1, 2022, shall be replaced by this Agreement, the

Tenth Amended and Restated Full Requirements Power Purchase Agreement, with a FERC effective date of January 1, 2023, and this Agreement shall remain in full force and effect through the end of the Delivery Period, unless modified or terminated earlier in accordance with the provisions herein that specify the terms for such modification or earlier termination.

2.1.1 The "Delivery Period" for the obligations of the Parties to sell and to purchase Requirements Service under the provisions of this Agreement shall be deemed to have begun as of the Effective Date and will continue through December 31, 2043, subject to Sections 2.3, 2.6 and 2.7 and such other terms of this Agreement as permit termination prior to the expiration of the Term.

2.2 Conditions Precedent. Except to the extent duly and validly waived by the affected Party hereto, the following shall be conditions precedent to the Parties' respective obligations under this Agreement, and at such time that a condition precedent is satisfied, the applicable Party shall promptly notify the other Party in writing that such condition precedent has been satisfied:

2.2.1 FERC shall have approved this Agreement or amendments thereto or accepted it for filing, without modification or other condition (unless such modification or other condition is accepted by the Parties as set forth below) in form and substance reasonably acceptable to DEP, in its sole discretion.

2.3 Submittal for FERC Acceptance or Approval. Following execution of this Agreement by both Parties, DEP shall file this Agreement with FERC. Thereafter, DEP shall

diligently pursue acceptance or approval of this Agreement by FERC without modification, suspension, investigation or other condition not in accordance with the terms hereof. DEP shall keep Power Agency reasonably informed of its efforts to secure FERC acceptance or approval and shall advise Power Agency of any significant developments in such regard. Upon request by DEP, Power Agency shall promptly undertake reasonable efforts to assist in DEP's efforts to obtain FERC acceptance or approval of this Agreement and, upon a reasonable request from DEP, shall make a timely submittal at FERC affirmatively supporting DEP's request for FERC acceptance or approval of this Agreement without modification, suspension, investigation or other condition not in accordance with its terms.

2.3.1 Process for Failure of Conditions in Section 2.2.1. If (i) FERC rejects this Agreement or amendments thereto or otherwise fails to act as specified above in Section 2.2.1, or (ii) FERC issues an order that materially modifies or materially conditions its acceptance of this Agreement in a manner that is unacceptable to either Party, the Parties shall promptly enter into good faith negotiations for a mutually satisfactory resolution regarding any such unsatisfied condition(s) precedent set forth in Section 2.2.1, and shall file with FERC a modified agreement addressing the unsatisfied conditions seeking FERC's approval or acceptance of the modified agreement.

2.4 Termination and Survival.

2.4.1 Except as otherwise expressly provided in this Agreement, if this Agreement is terminated for any reason, including, without limitation, by its terms, mutual agreement, early termination, and/or an Event of Default, any monies or other charges, if any, due and owing under this Agreement shall be paid, any corrections or adjustments to payments previously made shall be determined, and any refunds due shall be made, as soon as reasonably practicable but no later than sixty (60) days after such termination. It is the intent of the Parties hereby that any such obligation owed (whether the same shall be known or unknown at the termination of this Agreement or whether the circumstances, events, or bases of the same shall be known or unknown at the termination of this Agreement) will survive the termination of this Agreement. Furthermore, any obligations, limitations, exclusions and duties which, by their nature or the express terms of this Agreement, extend beyond the expiration or termination of this Agreement, including, without limitation, provisions relating to compliance requirements, accounting, billing, billing adjustments, indemnification, and dispute resolution, as well as any other provisions necessary to interpret the respective rights and obligations of the Parties hereunder, shall survive the expiration or earlier termination of this Agreement.

2.4.2 Except as set forth in Section 2.4.1, termination of this Agreement for any reason specified and provided for herein is absolute and forever extinguishes any and all obligations existing under this Agreement for (i) DEP to plan or procure resources to serve Power Agency or to provide any products or services to Power Agency and (ii) Power Agency to purchase from and pay DEP for any products or services under this Agreement. Upon termination of this Agreement in accordance with the provisions herein, each and every obligation of DEP to provide electric energy and capacity to Power Agency, and each and every right and obligation of Power Agency to purchase electric energy and capacity from DEP, shall cease, and neither Party shall claim or assert any continuing right to continued performance, whether by rollover, as an evergreen service, or in any other fashion based on this Agreement. By entering into this Agreement, DEP does not commit, and shall not be deemed to have committed, to plan the DEP Generation System to be able to provide any service to Power Agency beyond the Term. Power Agency expressly agrees that it shall not at any time oppose any filings by DEP to cancel this Agreement as a rate schedule under the Federal Power Act concurrently with, or subsequent to, the termination of this Agreement in accordance with its provisions.

2.5 DEP Options for Changes in Cost Allocation and Billing Demand Methodology. Notwithstanding any provision of this Agreement to the contrary, DEP shall have the

rights specified in Sections 2.5.1 and 2.5.2, which may be exercised in accordance with the procedures set forth in those sections, to change the capacity cost allocation method used in calculating the Capacity Rate, the associated Monthly Coincident Billing Demand, and the Calculation of Coal Combustion Residual Costs billing method from a monthly coincident peak (12-CP) demand method to an annual coincident peak (1-CP) demand method (such change hereinafter being referred to as the "Allocation/Billing Change"):

2.5.1 DEP may elect to implement the Allocation/Billing Change by providing written notice to Power Agency on or before December 31, 2026. If DEP provides such notice, the Allocation/Billing Change will be effective on and after January 1, 2036.

2.5.2 DEP also may elect to implement the Allocation/Billing Change by providing written notice to Power Agency on or before December 31, 2030. If DEP provides such notice, the Allocation/Billing Change will be effective on and after January 1, 2036.

2.5.3 If DEP is required to obtain prior FERC acceptance or approval under Section 205 of the Federal Power Act in order to implement the Allocation/Billing Change, Power Agency shall not oppose any such Section 205 application, nor shall Power Agency propose an effective date for the Allocation/Billing Change that is later than January 1, 2036.

2.5.4 For the period January 1, 2023, through and including December 31, 2027, neither Party shall make a unilateral filing with FERC pursuant to either Section 205 or 206 of the Federal Power Act to change the capacity cost allocation and monthly coincident peak billing demand methodology used in calculating the Capacity Rate, the associated Monthly Coincident Billing Demand, and the Calculation of Coal Combustion Residual Costs.

2.6 Power Agency Options for Early Termination. Notwithstanding any provision of this Agreement to the contrary, Power Agency shall have the rights specified in Sections 2.6.1, 2.6.2, and 2.6.3 to terminate all or a portion of its Supplemental Load and/or Base Load purchases by providing written notice to DEP in accordance with the requirements set forth in those sections.

2.6.1 With written notice provided to DEP on or before December 31, 2023, Power Agency may terminate all or a portion of its Supplemental Load purchases under this Agreement effective with the hour ending 2400 on December 31, 2027.

2.6.2 Power Agency may terminate (i) all or a portion of its remaining Supplemental Load purchases, or (ii) all or a portion of its Base Load purchases, or (iii) a combination of (i) and (ii); provided, however, that Power Agency must provide DEP with written notice of any such termination on or before December 31, 2027, and such termination shall occur with the hour ending 2400 on December 31, 2035.

2.6.3 Power Agency may terminate (i) all or a portion of its remaining Supplemental Load purchases, or (ii) all or a portion of its remaining Base Load purchases, or (iii) a combination of (i) and (ii); provided, however, that Power Agency must provide DEP with written notice of such termination on or before December 31, 2031, and such termination shall occur with the hour ending 2400 on December 31, 2035; provided further, however, that such terminations of Power Agency's Supplemental Load and/or Base Load purchases pursuant to this Section 2.6.3 may not, in the aggregate, reduce Power Agency's 12-month average Monthly Coincident Billing Demand, determined based on actual Monthly Coincident Billing Demands during the immediately preceding Calendar Year (i.e., in Calendar Year 2030), by an amount that exceeds 700 megawatts.

2.7 Power Agency Option Regarding New Nuclear Generation. Notwithstanding any provision of this Agreement to the contrary, if DEP plans to add New Nuclear Generation, Power Agency shall, in accordance with the provisions set forth in this Section 2.7, be entitled to terminate a portion of its Base Load purchases upon the occurrence of each of the conditions (the "Notice Event Conditions") set forth in Section 2.7.1, Section 2.7.2, Section 2.7.3, or Section 2.7.4.

2.7.1 If New Nuclear Generation consists of the construction by DEP (singly or jointly with others) of a new nuclear-fueled generating unit, DEP or another entity acting on DEP's behalf shall have (i) obtained all governmental and

regulatory approvals required for the construction of such unit, including, but not limited to, approvals of local land use authorities, the NRC, the NCUC, and/or the SCPSC; (ii) entered into an engineering, procurement and construction contract for the design and construction of the new nuclear-fueled generating unit; and (iii) satisfied any and all other conditions precedent that DEP reasonably determines are necessary for DEP's construction of the new nuclear-fueled generating unit.

2.7.2 If New Nuclear Generation consists of the acquisition by DEP of an ownership interest in a nuclear-fueled generating unit that is under construction by one or more other entities at the time of such acquisition, DEP shall have, as applicable (i) obtained all governmental and regulatory approvals required for the acquisition of an ownership interest in such unit, including, but not limited to, approval of the NRC, the NCUC, and/or the SCPSC,; (ii) entered into binding commitments to purchase an interest in the land, and the improvements thereon and the construction work in progress at the site of the unit; (iii) entered into binding commitments to acquire an interest in design, engineering, construction and other contracts associated with the construction of the unit; and (iv) satisfied any and all other conditions precedent that DEP reasonably determines are necessary for DEP's acquisition of its ownership interest in such new nuclear-fueled generating unit.

2.7.3 If New Nuclear Generation consists of the acquisition by DEP of an ownership interest in a nuclear-fueled generating unit that is in operation at the time of DEP's acquisition, DEP shall have, as applicable: (i) obtained all governmental and regulatory approvals required for the acquisition of an ownership interest in the unit, including, but not limited to, approval of the NRC, the NCUC, and/or the SCPSC; (ii) entered into binding commitments to purchase an interest in the land, the improvements thereon, equipment, inventory, materials, fuel and supplies associated with such unit; (iii) entered into binding commitments associated with the operation and maintenance of such unit; and (iv) satisfied any and all other conditions precedent that DEP reasonably determines are necessary for DEP's acquisition of its ownership interest in such nuclear-fueled generating unit.

2.7.4 If New Nuclear Generation consists of a contract pursuant to which DEP has acquired or will acquire an entitlement to all or a portion of the capacity from the owner(s) of such nuclear-fueled generating unit, DEP shall have entered into a binding contract in connection therewith and obtained any regulatory approvals that are required in connection with such binding contract.

2.7.5 As soon as reasonably practicable after DEP makes an initial determination that it will add New Nuclear Generation to the DEP Generation System, DEP shall give Power Agency written notice thereof so that Power Agency can begin evaluating its option to terminate a portion of its Base Load purchases

set forth in Section 2.7.6. DEP will provide written notice to Power Agency when a Notice Event Condition has occurred not later than thirty (30) days after the last of such Notice Event Condition specified in Sections 2.7.1, 2.7.2, 2.7.3, or 2.7.4, as applicable, has been satisfied (the "Formal Notice"). Formal Notice shall be accompanied by DEP's estimates of (i) the date that such New Nuclear Generation will be integrated into the DEP Generation System ("Estimated Nuclear Integration Date"), (ii) the amount of capacity (in MW) of the New Nuclear Generation, and (iii) the impact that the addition of such New Nuclear Generation to the DEP Generation System will have on the Capacity Rates, Energy Rates, and Reserve Capacity Rates. The estimated information included with DEP's Formal Notice shall reflect DEP's projections based on the best information available to DEP at the time of the Formal Notice and shall not constitute a guarantee of (a) any indicated date that DEP will integrate the New Nuclear Generation into the DEP Generation System, (b) the amount of capacity (in MW) of the New Nuclear Generation, or (c) the impact that the addition of such New Nuclear Generation to the DEP Generation System will have on the Capacity Rates, Energy Rates, and Reserve Capacity Rates.

2.7.6 After Power Agency receives Formal Notice from DEP in accordance with Section 2.7.5, Power Agency shall have the right, but not the obligation, to terminate a portion of its Base Load purchases pursuant to the procedures and

subject to the conditions set forth in this Section 2.7.6 and in Section 2.7.7. If Power Agency elects to terminate a portion of its Base Load purchases pursuant to this Section 2.7.6, Power Agency shall provide written notice to DEP of such election not later than twelve (12) months after receipt of Formal Notice from DEP. Power Agency's notice shall state the amount of capacity (in MW) and effective date of the termination of Base Load purchases; provided, however, (i) the effective date of Power Agency's termination of Base Load purchases shall not be any earlier than the Estimated Nuclear Integration Date, and (ii) the amount of reduction in Power Agency's Base Load purchases shall not exceed 25% of the estimated amount of capacity (in MW) as set forth in the Formal Notice. Power Agency's written notice provided in accordance with this Section 2.7.6 shall designate the Alternative Resource that will be used to serve the amount of capacity and energy associated with the amount of reduction in Power Agency's Base Load purchases, such amount to be included in the Alternative Base Load Capacity.

2.7.7 Notwithstanding any provision of this Agreement to the contrary, Power Agency's right to terminate a portion of its Base Load purchases pursuant to Section 2.7.6 is expressly subject to Power Agency's obligation to pay DEP the Compensation Payment. Power Agency shall be obligated to pay DEP the full amount of the Compensation Payment on or before the date that is sixty (60) days prior to the effective date of termination of Base Load purchases, as

noticed by Power Agency. If Power Agency's obligation to make the Compensation Payment is ruled by a Governmental Authority to be unenforceable in whole or in part in an order that has become final and non-appealable, Power Agency's right to terminate a portion of its Base Load purchases under Section 2.7 shall be deemed null and void.

2.8 Obligations of the Parties in the Event of Termination of any Portion of Service. Not later than eighteen (18) months prior to each of Power Agency's deadlines for providing written notice to DEP in connection with any of Power Agency's options to terminate various portions of its Supplemental Load and/or Base Load purchases pursuant to Sections 2.6 and 2.7, DEP and Power Agency shall be obligated to meet to discuss issues related to the potential termination of such purchases, taking into account the principles set forth in Section 2.9. At such meetings, Power Agency shall provide to DEP, in as much detail as possible, information related to the Alternative Resource(s) it contemplates utilizing in connection with the potential termination of purchases from DEP, including, but not limited to, (i) the amount of Supplemental Load and/or Base Load purchases to be terminated, (ii) the effective date of such potential termination, and (iii) the capacity of the Alternative Resource(s).

2.9 Principles Related to Early Termination of Supplemental Load and/or Base Load Purchases. The following principles will apply to any termination by Power Agency of all or any portion of its Supplemental Load and/or Base Load purchases in accordance with Sections 2.6 and 2.7 of this Agreement.

2.9.1 Any termination of all or a portion of Power Agency's Supplemental Load and/or Base Load purchases that is not a result of one or more Member's termination of its Member Power Sales Agreement(s) shall be irrevocable effective upon DEP's receipt of Power Agency's notice of such termination.

2.9.2 With respect to termination of all or a portion of Power Agency's Base Load purchases that is not a result of one or more Member's termination of its Member Power Sales Agreement(s), effective upon such termination, the portion of Base Load purchases that will be terminated will be deemed to be at the bottom portion of Power Agency's load (i.e., the base load portion). If Power Agency provides DEP notice that an Alternative Resource will be used to terminate all or a portion of Power Agency's Base Load purchases from DEP, effective upon the termination of such Base Load purchases (i) the Base Load purchases will be reduced by an amount that equals the capacity of the Alternative Resource designated by Power Agency ("Alternative Base Load Capacity"), and (ii) DEP shall be obligated to serve only that amount of Power Agency's Base Load, if any, that exceeds the Alternative Base Load Capacity ("Adjusted Base Block") until the end of the Delivery Period. For example, if Power Agency's Alternative Base Load Capacity is 300 MW and the Adjusted Base Block is 400 MW, then DEP will be obligated to provide Base Load service to Power Agency under this Agreement only during those periods when Power Agency's Hourly Demand is between 301 MW and 700 MW.

2.9.3 With respect to termination of all or a portion of Power Agency's Supplemental Load purchases that is not a result of one or more Member's termination of its Member Power Sales Agreement(s), effective upon such termination, the portion of Power Agency's Supplemental Load purchases that will be terminated will be deemed to be at the top portion of Power Agency's load (i.e., the peaking portion). If Power Agency provides DEP notice that an Alternative Resource will be used to terminate all or a portion of Power Agency's Supplemental Load purchases from DEP, Power Agency's notice(s) shall specify (i) the capacity designated by Power Agency for such Alternative Resource, and (ii) the amount of remaining Supplemental Load, for each Calendar Year remaining in the Delivery Period, that DEP will be obligated to serve, if any, under this Agreement effective upon such termination and until the end of the Delivery Period ("Adjusted Supplemental Load"). Effective upon the termination of Power Agency's Supplemental Load purchases, DEP shall be obligated to serve only the Adjusted Supplemental Load, if any. For example, if the Base Block is 700 MW, and Power Agency provides notice that the Adjusted Supplemental Load in a given Calendar Year is 300 MW, Power Agency shall be obligated to serve all Hourly Demand that is greater than 1,000 MW in such Calendar Year.

2.9.4 With respect to termination of a portion of Power Agency's Supplemental Load and/or Base Load purchases pursuant to Section 2.6.2 or Section 2.6.3

that is a result of one or more Member's termination of its Member Power Sales Agreement(s), effective upon such termination, the Base Block and the Adjusted Supplemental Load, if any, shall both be reduced by a percentage determined by the ratio of (i) the load of the terminating Member(s) in the hour of Power Agency's Annual Coincident Peak to (ii) Power Agency's Annual Coincident Peak, in each case as determined during Calendar Year, 2035.

2.9.5 Within twelve (12) months of Power Agency's notice of termination of all or a portion of its Supplemental Load and/or Base Load purchases, the Parties shall develop procedures to address issues relating to the operation of any and all applicable Alternative Resource(s).

2.9.6 If Power Agency terminates all or a portion of its Supplemental Load and/or Base Load purchases as provided for in accordance with Sections 2.6 and 2.7, the resulting Adjusted Base Block plus the resulting Adjusted Supplemental Load will represent the maximum quantity of capacity and associated energy that DEP will be required to serve in any given hour ("Supply Cap"). The Parties acknowledge and agree that any Alternative Resource(s) designated in accordance with the provisions of Sections 2.6 and 2.7 shall not be used to serve any portion of the Adjusted Base Block or the Adjusted Supplemental Load.

2.9.7 Any reductions in Supplemental Load and/or Base Load purchases that Power Agency elects to make in accordance with the provisions of Sections 2.6 and

2.7 shall be deemed a termination of the products and services associated with such reduction in Supplemental Load and/or Base Load purchases that is subject to the provisions of Section 2.4, and that for any such reductions in Supplemental Load and/or Base Load purchases (i) DEP shall have no further obligation to plan or procure resources to serve the terminated portion of service to Power Agency or to provide any products or services to Power Agency related to such terminated portion of service, and (ii) Power Agency shall have no further right or obligation to purchase from and pay DEP for any products or services related to the terminated service under this Agreement.

3. Requirements Service

3.1 Nature of Requirements Service. Requirements Service consists of firm capacity and energy in the amounts required by Power Agency to reliably serve the current and future electrical loads of its Members or such loads to the extent assumed by another entity. In accordance with the terms and subject to the conditions of this Agreement, DEP shall provide Requirements Service with the same degree of firmness and at the same level of service priority as the service DEP provides to its other Firm Native Load customers. Consistent with the nature of Requirements Service under this Agreement, Power Agency shall only have the right to engage in self-supply of capacity or energy, whether through SEPA Entitlement, other generating resources, Energy Injection Devices, or any other source, in the manner expressly provided for in this Agreement, and any manner of self-supply not specifically authorized herein is prohibited.

3.2 Obligation to Provide Service. Pursuant to the terms and conditions of this Agreement, DEP shall be obligated to provide and sell to Power Agency, and Power Agency shall be obligated to purchase and receive from DEP, Requirements Service, subject to the following limitations:

3.2.1 DEP shall not be obligated to provide Requirements Service, backstand service, or reserves for any portion of Power Agency's Supplemental Load or Base Load for which Power Agency has provided notice to DEP of the termination of such service pursuant to Section 2.6 or 2.7, and the prior notice period for such termination has elapsed; and

3.2.2 DEP shall not be obligated to provide Requirements Service for any loads that arise from an undertaking by Power Agency or any of its Members to serve: (i) a source of demand outside the geographical area served by DEP (provided, however, upon mutual written agreement between the Parties, and subject to regulatory approvals determined necessary by DEP in its sole discretion, DEP may provide Requirements Service for loads of a Member not located in the geographical area in which DEP serves, or in which DEP proposes to serve, if such loads are in an area adjacent to or in reasonable proximity to an area served by such a Member, and would be served directly by such Member); or, (ii) any load of a Member that was not such Member's load as of the Effective Date which, because of the type and size of such load, is not included, and would not be included, by DEP in planning its system and which, if DEP were

required to provide Requirements Service for such load, would, in DEP's judgment, (a) compel an enlargement of DEP's generating facilities not otherwise included by DEP in its system planning, including planning for Requirements Service; or (b) impair DEP's ability to render adequate service to its Firm Native Load customers.

3.2.3 DEP's additional charges applicable to the Interruptible Loads of a Commercial and Industrial Customer shall be governed by Section 9.7 of this Agreement.

3.3 Continuous Service.

3.3.1 In providing the Requirement Services pursuant to this Agreement, DEP does not guarantee continuous service to Power Agency, but DEP (i) shall exercise reasonable diligence consistent with Prudent Utility Practices to provide an uninterrupted supply of electricity, and (ii) shall not adversely distinguish between the provision of Requirements Service to Power Agency and the provision of service to its other Firm Native Load customers; and, having acted in accordance with clauses (i) and (ii), DEP shall not be liable to Power Agency for damages resulting from the failure, interruption or suspension of Requirements Service.

3.3.2 DEP shall exercise reasonable diligence consistent with Prudent Utility Practices to promptly restore Requirements Service that has failed or that has been interrupted or suspended. In taking actions to restore service, DEP shall

not adversely distinguish between the restoration of Requirements Service to Power Agency and the restoration of service to its other Firm Native Load customers; provided, however, that DEP has sole responsibility to design all curtailments and restorations of service, and it may order any manner of curtailment or restoration that DEP reasonably believes at the time of such curtailment or restoration is appropriate as long as the Power Agency load and DEP's Firm Native Load present in the electrical area are being restored on a non-unduly discriminatory basis. Power Agency shall cooperate with DEP in DEP's efforts to restore Requirements Service.

3.3.3 Neither Party shall be liable to the other Party for any damage or loss resulting from the interruption, prevention, suspension, or failure of service caused by: (i) Force Majeure; (ii) an emergency action due to an adverse condition or disturbance on a Party's system or on any other system directly or indirectly interconnected with a Party's system, which requires automatic or manual interruption of the supply of electricity to some customers or areas in order to limit the extent of, or damage caused by, the adverse condition or disturbance, or to prevent damage to generation, transmission or transformation facilities, or to expedite restoration of service, or to effect a reduction in service to compensate for an emergency condition on an interconnected system; and/or (iii) the making of necessary inspections of, adjustments to, changes in or repairs to a Party's lines, substations, or other facilities, and by discontinuing

service to avoid endangering persons or property. Neither Party shall be excused from its obligations under this Agreement on the grounds that its performance has become commercially impracticable.

3.4 Scheduling. In operating its system to meet the aggregate of its system obligations, DEP shall dynamically integrate the electrical loads that are served through the provision of Requirements Service with the loads of DEP's other customers. Requirements Service will follow and serve the instantaneous electrical requirements of Power Agency's Members.

3.5 Delivery to Transfer Point. DEP shall sell and deliver Requirements Service to Power Agency at the Transfer Point. DEP shall be responsible for making all arrangements necessary to deliver Requirements Service to the Transfer Point.

3.6 Transmission from Transfer Point. Power Agency shall purchase and receive Requirements Service from DEP at the Transfer Point. Power Agency shall be responsible for making all arrangements necessary to receive Requirements Service at the Transfer Point and to transmit and deliver Requirements Service from the Transfer Point to the Power Agency Delivery Points.

3.7 Passage of Title. Title to and risk of loss of Requirements Service shall pass from DEP to Power Agency at the Transfer Point.

3.8 Metering. Arrangements for metering and metering-related services shall be governed by the applicable provisions of the NITSA and NOA.

3.9 Operating Responsibility. Power Agency acknowledges and agrees that DEP shall remain solely responsible for operating its system pursuant to its regulatory and statutory obligations in order to meet DEP's obligations to serve DEP's Firm Native Load customers (including Power Agency under this Agreement), and nothing in this Agreement provides or confers upon Power Agency any rights and/or entitlements to manage, direct, control, or otherwise interfere with such responsibility of DEP.

3.10 Ancillary Services. DEP will provide Power Agency with an Ancillary Service Credit as set forth and defined in this Section 3.10.

3.10.1 Power Agency's "Ancillary Service Credit" for a month will be equal to: (a) the sum of the charges paid by Power Agency to the Transmission Provider under the Transmission Provider's OATT for Reactive Supply and Voltage Control from Generation Sources Service (OATT Schedule 2), Regulation and Frequency Response Service (OATT Schedule 3), Operating Reserve – Spinning Reserve Service (OATT Schedule 5) and Operating Reserve – Supplemental Reserve Service (OATT Schedule 6) for the Month, *multiplied by* (b) the DEP Supply Ratio (defined below) for the month.

3.10.2 In addition to the credits specified in Section 3.10.1, if and to the extent Power Agency has not terminated its Supplemental Load and/or Base Load purchases as provided for in Sections 2.6 or 2.7, Power Agency's "Ancillary Service Credit" for a month will include an additional amount equal to the charges paid by Power Agency to the Transmission Provider under the Transmission

Provider's OATT for Energy Imbalance Service (Schedule 4), if any. If Power Agency has given notice of a termination of a portion or all of its Supplemental Load and/or Base Load purchases pursuant to Sections 2.6 or 2.7, the operating procedures agreed to by the Parties in accordance with Section 2.9.5 shall address the extent to which a credit would be appropriate as a result of such termination.

3.11 DEP Supply Ratio. "DEP Supply Ratio" for the month shall be equal to the ratio (not to exceed 1.0) of: (a) the DEP-Supplied Load (defined below) for the month to (b) Power Agency's Network Load (as such term is defined and amount is determined under the OATT) for the month.

3.12 DEP-Supplied Load. "DEP-Supplied Load" for a month shall be equal to the portion of Power Agency's Network Load for the month that is served by DEP under this Agreement during the hour of the maximum firm usage over the DEP Transmission System in each calendar month (the Transmission Provider's Monthly Transmission System Peak as defined in the OATT).

3.13 GSU Loss Factor. The GSU Loss Factor shall be determined as set forth in this Section 3.13. The GSU Loss Factor shall be recalculated and adjusted on an annual basis as follows. After each calendar year, DEP shall calculate the applicable GSU Loss Factor in accordance with the Methodology for Calculation of GSU Loss Factor - DEP set forth in Exhibit VI hereto. By April 1 of the year immediately succeeding the 12-month loss factor calculation period, DEP shall give notice to Power Agency stating the revised

GSU Loss Factor (the "Revised GSU Loss Factor") along with supporting calculations and documentation in sufficient detail to enable Power Agency to verify the accuracy of the Revised GSU Loss Factor. The Revised GSU Loss Factor shall be effective June 1 following the giving of such notice. Any challenge or correction of the Revised GSU Loss Factor will be made in accordance with the provisions of Articles 7 and 16. The Revised GSU Loss Factor also shall be subject to Power Agency's audit rights as set forth in Sections 7.3 and 7.4. The calculation, notice, and audit procedure set forth in this Section 3.13 shall begin with the 12-month loss factor calculation period ending in 2016 with the first notice stating the GSU Loss Factor to be given by DEP by April 1, 2017 and with the first GSU Loss Factor to be effective June 1, 2017.

4. Qualified Resources, Edenton and Elizabeth City Generators, Economic Development Resources and PURPA Qualifying Facilities

4.1 Qualified Resources. Subject to the limitation on Qualified Resources in Section 4.1.4 and the other provisions of this Article 4, Qualified Resources may be used, and may only be used, in the following manner: (i) Customer Resources may be used to serve load at the site of such Customer Resources and the load served by such Customer Resources shall be excluded from Power Agency's Hourly Demand, and (ii) NCEMPA Generation and Member Resources may be connected to the electric system behind the Duke-owned wholesale revenue meter of a Member and the load served by such NCEMPA Generation and Member Resources shall be excluded from Power Agency's Hourly Demand. DEP shall have no obligation to schedule or dispatch Qualified

Resources; provided, however, that in the event of an emergency on the Combined System, if DEP reasonably believes that it is necessary to do so based on the facts available to DEP at the time of such emergency, DEP may request that Power Agency cause any such Qualified Resources to be dispatched as part of DEP's General Load Reduction and System Restoration Plan as an initial step in the phase providing for manual interruption of feeders. In such event, Power Agency shall request that its Members and/or its Members' customers take all reasonable and appropriate actions necessary to comply with DEP's request so long as such actions have results that treat similar customers of DEP and the Members in a consistent manner and that, in any event, are designed to achieve results on a comparable basis; provided, however, that neither Power Agency nor a Member nor a Member's customer shall be required or called upon to operate Qualified Resources in a manner deemed, in their sole discretion, to be unsafe, unreasonable or in violation of any operating permit. DEP shall have no obligation to bear any costs associated with the operation of Qualified Resources as part of DEP's General Load Reduction and System Restoration Plan.

4.1.1 Notice. Power Agency shall provide notice to DEP, in the form of notice set forth in Exhibit V, that a Qualified Resource will be installed. For an individual generating unit having a nameplate capacity rating of 2.5 megawatts or less, or an Energy Injection Device having a maximum capable injection capacity of 2.5 megawatts or less, as measured on the Alternating Current (AC) side of the inverter, such notice shall be provided to DEP at least three

(3) months prior to the date on which such Qualified Resource is scheduled to begin operation. For an individual generating unit having a nameplate capacity rating of more than 2.5 megawatts, or an Energy Injection Device having a maximum capable injection capacity of more than 2.5 megawatts, as measured on the Alternating Current (AC) side of the inverter, such notice shall be provided to DEP at least six (6) months prior to the date on which such Qualified Resource is scheduled to begin operation.

4.1.2 Operation and Safety. Qualified Resources intended to be, or capable of being, operated in parallel with the Combined System shall meet the Transmission Provider's requirements for the protection of the quality, reliability, and/or safety of the Combined System.

4.1.3 Reserve Charges. For each individual unit of Member Resources and Customer Resources having a capacity rating in excess of 2.5 megawatts, measured by nameplate capacity for generating units and by maximum capable injection capacity as measured on the Alternating Current (AC) side of the inverter for Energy Injection Devices, and for each individual generating unit of NCEMPA Generation having a nameplate capacity rating in excess of 6.0 megawatts, Power Agency shall pay to DEP a monthly charge per kW equal to the Reserve Capacity Rate, determined in accordance with Exhibit III, applied to the Reserve Capacity Billing kW, which shall be equal to .12 times the capacity rating of each such Qualified Resource. The

obligation of Power Agency to pay the charge set forth in this Section 4.1.3 shall terminate as of the month following the month in which such Qualified Resource is retired or otherwise permanently removed from service. Power Agency shall have no obligation to provide or pay for spinning reserves in connection with any Qualified Resources.

4.1.4 Limitation on Capacity of Qualified Resources. The aggregate amount of capacity (in megawatts) of Qualified Resources at any one time shall not exceed one point seven five percent (1.75%) of the Combined System Capacity ("Qualified Resource Factor") plus 25 MW ("Qualified Resource Addition").

4.1.4.1 In the event Power Agency exercises one or more of its rights to terminate all or a portion of its Supplemental Load purchases, as provided in Section 2.6, as a result of a decision by Power Agency to serve such terminated Supplemental Load from an Alternative Resource, the Qualified Resource Factor and the Qualified Resource Addition shall be reduced based on the ratio of (i) Power Agency's Annual Coincident Demand less the Base Block, determined for the Calendar Year immediately prior to the year in which the termination of Power Agency's Supplemental Load purchases takes effect, less the capacity of the Alternative Resource designated pursuant to Section 2.9.3(i), divided by (ii) Power Agency's Annual Coincident

Demand less the Base Block for the Calendar Year immediately prior to the year the reduction takes effect. For example, if the capacity of the Alternative Resource is 350 MW and Power Agency's Annual Coincident Demand for the immediately prior Calendar Year less the Base Block is 700 MW, the Qualified Resource Factor will be revised by multiplying such Qualified Resource Factor by 0.50 (700 MW-350 MW)/700 MW), resulting in a new Qualified Resource Factor of 0.875%. The revised Qualified Resource Addition amount would be 12.5 MW.

4.1.4.2 In the event Power Agency exercises one or more of its rights to terminate a portion of its Supplemental Load and/or Base Load purchases, as provided for in Section 2.6, as a result of one or more Members having terminated their service from Power Agency, the Qualified Resource Factor and the Qualified Resource Addition, as they may have been revised pursuant to Section 4.1.4.1, will be reduced based on the ratio of the terminating Members' annual coincident demand to the Power Agency's Annual Coincident Demand for the Calendar Year immediately prior to the year the termination takes effect. For example, if the terminating Member(s)' annual coincident demand is 150 MW, and Power Agency's Annual Coincident Demand is 1,500 MW, the Qualified Resource Factor will

be revised by multiplying the Qualified Resource Factor by 0.90 (1500 MW-150 MW)/1500 MW), resulting in a new Qualified Resource Factor of 1.575%). The revised Qualified Resource Addition amount would be 22.5 MW.

4.1.4.3 The Parties agree that any changes to the Qualified Resource Factor and Qualified Resource Addition made pursuant to Sections 4.1.4.1 and/or 4.1.4.2 will be incorporated in mutually agreed upon operating procedures.

4.1.4.4 For purposes of determining compliance with the limitation set forth in Section 4.1.4, the capacity of PURPA Qualifying Facilities, the capacity of the Edenton and Elizabeth City Generators, the capacity of Economic Development Resources, and the capacity of the Energy Injection Devices listed in Exhibit XI shall not be included in the calculation of Qualified Resources. In addition, the exclusion of the Energy Injection Devices listed in Exhibit XI from the calculation of Qualified Resources shall only apply to the Energy Injection Devices listed in Exhibit XI and shall not apply to either a replacement of such Energy Injection Devices or uprates to such Energy Injection Devices.

4.1.4.5 For purposes of applying the terms of Section 4.1.4: (A) "Combined System Capacity" shall mean (i) the capacity of the generation

resources, including the dependable capacity (as such term is established for purposes of DEP's Integrated Resource Planning) of Energy Injection Devices installed or purchased by DEP, that comprise the Combined System, provided, however, that any capacity of any generation resource constituting part of the Combined System but subsequently sold by DEP to any other power supplier within the DEP control area shall continue to be included in the capacity comprising the Combined System until such generation resource is retired, plus (ii) the capacity of any firm purchases being made by DEP, plus (iii) the capacity of all PURPA Qualifying Facilities purchased by DEP and all PURPA Qualifying Facilities purchased by Power Agency pursuant to Section 4.4.2 of this Agreement, less (iv) long-term (*i.e.*, one year or more) off-system sales of capacity, to the extent such sales result in a portion of the capacity described in (i), (ii), or (iii) above not being available to serve load in DEP's control area, which load for this purpose shall include the loads of the Power Agency Members served from the Dominion NC Power transmission system and load of others Members that may now or in the future be served under similar arrangements; in each case determined as of the time of DEP's Annual Peak Demand for the Calendar Year immediately preceding

the year in which a notice for Qualified Resource is given by Power Agency, and (B) for Qualified Resources, the capacity of each individual generating unit shall be the nameplate capacity rating of each such generating unit, and the capacity of each Energy Injection Device shall be the maximum capable injection capacity, as measured on the Alternating Current side of the inverter.

4.1.4.6 The determination required to be made pursuant to Section 4.1.4 shall be made as of the date of the notice for the Qualified Resources given by Power Agency pursuant to Section 4.1.1 and any such determinations shall be conclusive as of the date of such notice, and Power Agency shall not be required, thereafter, to reduce the aggregate amount of Qualified Resources due to a reduction in Combined System Capacity.

4.1.5 Limitation of Financing Activities. Power Agency acknowledges and agrees that it will not, directly or indirectly, advance funds, lend money, lend or extend its credit, or provide security for, the acquisition, installation or operation of Customer Resources; provided, however, that nothing contained herein shall prohibit or otherwise prevent a Member from directly or indirectly advancing funds, lending money, lending or extending its credit, or providing security for, or otherwise participating in, the financing of the acquisition, installation or operation of Customer Resources; provided further, however,

that nothing contained herein shall prohibit or otherwise prevent Power Agency from establishing a rate or rates for its Members that is intended to encourage the acquisition, installation and operation of Member Resources or Customer Resources.

4.1.6 NCEMPA Generation. Notwithstanding any provision of this Article 4 to the contrary, a total of thirty-eight (38) MW of NCEMPA Generation may be installed by Power Agency.

4.2 Edenton and Elizabeth City Generators. Notwithstanding any other provision of this Agreement to the contrary, during the term of this Agreement the output of the Edenton Generators and the Elizabeth City Generators may be used to serve load on the distribution systems of Edenton and Elizabeth City, respectively, and the load served is thereby excluded from the calculation of Power Agency's Hourly Demand. DEP shall have no obligation to schedule or dispatch the Edenton Generators or Elizabeth City Generators; provided, however, that in the event of an emergency on the Combined System, DEP may request that Power Agency cause the Edenton Generators and Elizabeth City Generators to be dispatched as part of DEP's General Load Reduction and System Restoration Plan as an initial step in the phase providing for manual interruption of feeders. In such event, Power Agency shall request that Edenton and Elizabeth City take all reasonable and appropriate actions necessary to comply with DEP's request so long as such actions have results that treat similar customers of DEP and the Members in a consistent manner and that, in any event, are designed to achieve

results on a comparable basis; provided, however, that neither Edenton nor Elizabeth City shall be required or called upon to operate such generators in a manner deemed, in their sole discretion, to be unsafe, unreasonable or in violation of any operating permit. DEP shall have no obligation to bear any costs associated with the operation of such generators as part of DEP's General Load Reduction and System Restoration Plan. Power Agency shall cause Edenton and Elizabeth City to operate the Edenton Generators and the Elizabeth City Generators in a manner that is compliant with the provisions of Section 4.1.2 (Operation and Safety). Notwithstanding the foregoing, if Power Agency has given notice of termination of all of its Supplemental Load purchases pursuant to Sections 2.6, the output of the Edenton Generators and the Elizabeth City Generators may not be used to reduce Power Agency's Monthly Coincident Billing Demand.

4.3 Economic Development Resources. In addition to Power Agency's and/or its Members' or its Members' customers' rights to install Qualified Resources pursuant to Section 4.1, in each Calendar Year during the term of this Agreement Power Agency and/or its Members or its Members' customers may collectively install up to an aggregate of three (3) MW of Economic Development Resources. Power Agency will provide notice to DEP of any generation or Energy Injection Device that meets the criteria for Economic Development Resources in the form of notice provided for in Exhibit V. If DEP agrees that the proposed Economic Development Resource meets the criteria, DEP will provide Power Agency with approval of the classification of the resource. The load served by

such Economic Development Resource will be excluded from the calculation of Power Agency's Hourly Demand. Notwithstanding the foregoing, however, Economic Development Resources shall not be installed to serve a customer requiring electric service that has a choice, under North Carolina law, to select DEP as its electric service provider. Notwithstanding the foregoing, if Power Agency has given notice of termination of all of its Supplemental Load purchases pursuant to Sections 2.6, the output of the Economic Development Resource may not be used to reduce Power Agency's Monthly Coincident Billing Demand.

4.4 PURPA Qualifying Facilities. In the event that Power Agency is required under PURPA to permit a PURPA Qualifying Facility to directly interconnect behind the Duke-owned wholesale revenue meter of a Member, Power Agency may purchase the output from such PURPA Qualifying Facility in accordance with the provisions of this Section 4.4.

4.4.1 Qualifying Facilities Below 500 kW. Any purchase of energy and capacity, if applicable, by Power Agency from a PURPA Qualifying Facility that has a nameplate capacity below 500 kW, or the amount of energy generated by and capacity, if applicable, of a PURPA Qualifying Facility owned by Power Agency that has a nameplate capacity below 500 kW, will be excluded from Power Agency's Monthly Coincident Billing Demand and Monthly Billing Energy for purposes of calculating Power Agency's charges for Requirements Service.

4.4.2 Qualifying Facilities 500 kW and Above. The hourly energy associated with any purchase of energy and capacity, if applicable, by Power Agency from a PURPA Qualifying Facility that has a nameplate capacity at or above 500 kW, and the hourly energy generated by a PURPA Qualifying Facility owned by Power Agency that has a nameplate capacity at or above 500 kW, will be added to Power Agency's Hourly Demand for purposes of determining the Monthly Coincident Billing Demand and Monthly Billing Energy to be used in calculating Power Agency's charges for Requirements Service.

4.4.2.1 For any such PURPA Qualifying Facility described in Section 4.4.2, DEP shall provide Power Agency a billing credit, on a monthly basis, equal to the rate that such PURPA Qualifying Facility would receive pursuant to the terms and conditions of DEP's applicable North Carolina filed rate tariff (the "Applicable Rate") applied to the energy and capacity, if applicable, from such PURPA Qualified Facility. For a PURPA Qualifying Facility subject to the provisions of Section 4.4.2, the Applicable Rate shall be either: (i) the energy-only rate under DEP's North Carolina filed rate tariff that the Qualified Facility would be eligible to receive from DEP for facilities not directly interconnected with DEP, or (ii) the energy and capacity, if applicable, rates that such facility would be eligible to receive from

DEP, based on DEP's PURPA avoided cost rates, as determined in accordance with the methodology adopted by the NCUC.

4.4.3 Operating Procedures. The provisions for administering Power Agency's purchases from a PURPA Qualifying Facility or Power Agency's use of a PURPA Qualifying Facility that it owns, and the energy and/or capacity, if any, billing credits related to such purchases or use, will be addressed in operating procedures to be developed by and agreed upon by the Parties.

4.4.4 Direct DEP Purchases. If DEP purchases the output of a PURPA Qualifying Facility that is directly interconnected to a Member's electrical system, then in such circumstances, in any month in which the PURPA Qualifying Facility was in operation and sold its output to DEP, the energy generated in each hour by the PURPA Qualifying Facility shall be added back to the Monthly Coincident Demand and Monthly Billing Energy to be used in calculating Power Agency's charges for Requirements Service.

4.4.5 Treatment of PURPA Qualifying Facilities in the Event of Early Termination of Supplemental Load and/or Base Load Purchases. Notwithstanding the provisions of this Section 4.4, if Power Agency has given notice of termination of all of its Supplemental Load purchases pursuant to Section 2.6, the output of any PURPA Qualifying Facility may not be used to reduce Power Agency's Monthly Coincident Billing Demand. In addition, notwithstanding the provision of this Section 4.4, if Power Agency has given notice of a

termination of any of its Supplemental Load and/or Base Load purchases pursuant to Sections 2.6 or 2.7, the Parties shall develop procedures to address the appropriate treatment, including the bill credits, as applicable, on and after the effective date of such termination, of PURPA Qualifying Facilities that are, or are proposed to be, directly interconnected to the electric system behind the Duke-owned wholesale revenue meter of a Member.

5. Charges for Capacity, Energy and CCR Costs

5.1 Capacity Charge. Each month during the Delivery Period, DEP shall charge Power Agency, and Power Agency shall pay DEP, a charge for capacity equal to (i) the Monthly Coincident Billing Demand multiplied by (ii) the Capacity Rate, calculated on the basis of the Monthly Coincident Billing Demand (the "Monthly Capacity Charge"). Notwithstanding the foregoing, if DEP exercises its right to implement the Allocation/Billing Change set forth in Section 2.5 of this Agreement, the Monthly Capacity Charge shall be equal to one twelfth (1/12) of (a) the Annual Coincident Billing Demand multiplied by (b) the Capacity Rate, calculated on the basis of the Annual Coincident Billing Demand. The estimated and actual Monthly Capacity Charge will be calculated as set forth in Section 5.2. The Parties agree that (i) the Monthly Capacity Charge for service provided during the period beginning January 1, 2019 through December 31, 2026 shall be reduced by the rate discounts set forth in Exhibit IX hereto, and (ii) the Monthly Capacity Charge for service provided during the period beginning January 1, 2021 through December 31, 2023 shall be reduced by the

rate discounts set forth in Exhibit X hereto, as such amounts are adjusted in accordance with the terms of Exhibit X.

5.2 Estimated Monthly Capacity Charges. Not later than the first Business Day of December of each Calendar Year during the Delivery Period, DEP will provide Power Agency with an estimate of the Capacity Rate for the next succeeding Calendar Year of service beginning on January 1st. The estimated Capacity Rate will be used in monthly billings of Monthly Capacity Charges for the service provided from January 1st through December 31st of such Calendar Year, and the Monthly Capacity Charges resulting from application of the estimated Capacity Rate during such period will be reconciled ("trued-up") each year with the Capacity Rate that results from incorporating actual values in the Capacity Rate Formula, as provided in Article 7 below. Any challenge or correction of the Capacity Rate or Monthly Capacity Charges will be made in accordance with the provisions of Articles 7 and 16.

5.3 Energy Charge. Each month during the Delivery Period, DEP shall charge Power Agency, and Power Agency shall pay DEP, a charge for the energy provided to Power Agency that is equal to (i) the Energy Rate, multiplied by (ii) Monthly Billing Energy (the "Monthly Energy Charge"). The estimated and actual Monthly Energy Charge will be calculated as set forth in Section 5.4.

5.4 Estimated Monthly Energy Charges. Not later than the first Business Day of December of each Calendar Year during the Delivery Period, DEP will provide Power Agency with an estimate of the Energy Rate for the next succeeding Calendar Year of service

beginning on January 1st. The estimated Energy Rate will be used in monthly billings of Monthly Energy Charges for the service provided from January 1st through December 31st of such Calendar Year, and the Monthly Energy Charges during such period will be reconciled ("trued-up") each year with the Energy Rate that results from incorporating actual values in the Energy Rate Formula, as provided in Article 7 below. Any challenge or correction of the Energy Rate or Monthly Energy Charges will proceed in accordance with the provisions of Articles 7 and 16.

5.5 Charges for CCR Costs. The Charge for Buyer CCR Costs for each Calendar Year shall be calculated in accordance with Section III of Exhibit VII. Notwithstanding the foregoing, if DEP exercises its right to implement the Allocation/Billing Change set forth in Section 2.5 of this Agreement, the Buyer's Production Demand Allocation Factor thereafter used to calculate the Charge for Buyer CCR Costs will be the Annual Coincident Billing Demand divided by DEP's Annual Peak Demand, as adjusted consistent with Exhibit I, page 16. The Parties agree that CCR Costs shall not include payments ordered in a final, non-appealable order, agreed upon in a final, non-appealable settlement, or sought by any third party and which Duke by a final, non-appealable settlement expressly agrees to assume or pay for third-party personal injury or property damage caused or alleged to have been caused by either: (a) Duke's activities in complying with the requirements of CAMA, the CCR Rule, and consent and/or settlement agreements/orders concerning the treatment, management and remediation of coal combustion residuals, or (b) the release or threatened release to the

environment of any of Duke's CCR under 42 U.S.C. § 9607 or 9613 (or any substantively similar state law), whether such payment liability for either (a) or (b) results from litigation or settlement. It is intended that the Capacity Rate Formula, the Energy Rate Formula, the Reserve Capacity Rate Formula and the Calculation of Coal Combustion Residual Costs shall exclude DOJ Settlement Costs and Neighbor Compensation Costs. If any of the cost items set forth in Exhibits I, II, III and/or VII contain DOJ Settlement Costs and/or Neighbor Compensation Costs, then such costs shall be excluded when calculating the Capacity Rate Formula, the Energy Rate Formula, the Reserve Capacity Rate Formula, and the Calculation of Coal Combustion Residual Costs under this Agreement.

5.5.1 Estimated Monthly CCR Charges. Not later than the first Business Day of December of each Calendar Year during the Delivery Period, DEP will provide Power Agency with an estimate of the Charge for Buyer CCR Costs for the next succeeding Calendar Year of service beginning on January 1st. The estimated Monthly Charge for Buyer's CCR Costs will be used in monthly billings for the service provided from January 1st through December 31st of such Calendar Year, and the resulting charges during such period will be reconciled ("trued-up") each year with the Charge for Buyer CCR Costs that results from incorporating actual values in the Calculation of Coal Combustion Residual Costs, as provided in Article 7 below. Any challenge or correction

of the Charge for Buyer CCR Costs will be made in accordance with the provisions of Articles 7 and 16.

5.5.1.1 The Parties also agree to, and hereby, establish a Buyer Maximum Annual CCR Billing Amount through December 31, 2027, as set forth in Exhibit VIII for CCR Costs, not including Beneficial Reuse Costs recorded in FERC Account No. 501. Beginning January 1, 2028, Buyer shall pay the Charge for Buyer CCR Costs as incurred.

5.5.1.2 For each year through December 31, 2027, Buyer shall be billed the lower of the estimated Charge for Buyer CCR Costs or the Buyer Maximum Annual CCR Billing Amount for the Calendar Year. Beginning January 1, 2028, Buyer shall be billed the estimated Charge for Buyer CCR Costs. Such annual amount shall be divided by 12 to determine the estimated Monthly Charge for Buyer's CCR Costs.

5.5.2 Annual True-up of Charge for Buyer CCR Costs. Calculations of the actual Charge for Buyer CCR Costs pursuant to Section III.A of Exhibit VII for the prior year shall be provided to Buyer in accordance with Section 7.1.

5.5.2.1 If Buyer payments under Section 5.5.1.2 for the prior year were less than the actual Charge for Buyer CCR Costs, Buyer shall:

(a) Pay the difference to Duke as a lump sum, or

(b) Pay the difference to Duke up to the Buyer Maximum Annual CCR Billing Amount, and defer the amount by which the actual Charge for Buyer CCR Costs exceeds the Buyer Maximum Annual CCR Billing Amount for the prior year for recovery in succeeding years ("Buyer Deferred CCR Costs").

5.5.2.2 If Buyer payments under Section 5.5.1.2 for the prior year were greater than the actual Charge for Buyer CCR Costs, then the difference shall:

(a) First be applied to reduce any outstanding balance of Buyer Deferred CCR Costs, and then

(b) Duke shall refund the remaining difference to the Buyer.

5.5.2.3 Payments made pursuant to the annual true-up of the Charge for Buyer CCR Costs shall include interest payable by Buyer or Duke, as applicable, on any refunds or surcharges calculated at the Interest Rate from the date on which any payment was made that included excess or deficient charges to the date on which the refund or surcharge is paid.

5.5.3 Buyer Deferred CCR Costs. Buyer Deferred CCR Costs that are permitted in accordance with Section 5.5.2.1 shall accrue interest (i) at the Interest Rate on any deferred amount less than twenty million dollars ($20,000,000), and (ii)

at the DEP Cost of Capital on any deferred amount that exceeds twenty million dollars ($20,000,000).

5.5.4 Buyer Payments. At its option, Buyer may make periodic lump-sum payments to reduce its Buyer Deferred CCR Costs balance. If a Buyer Deferred CCR Cost balance exists subsequent to the true-up for calendar year 2027 as provided pursuant to Section 7, Buyer then shall pay the then-outstanding Buyer Deferred CCR Costs within twelve (12) months of the date on which the true-up was rendered, with interest. If this Agreement expires or terminates at any time when a balance in the Buyer Deferred CCR Costs exists, Buyer shall pay the then-outstanding Buyer Deferred CCR Costs within ninety (90) days of the date on which this Agreement expired or terminated.

5.5.5 Buyer Deferred CCR Costs Example. Exhibit VIII provides examples of calculations of Buyer Deferred CCR Costs.

5.6 Beneficial Reuse Costs. Beneficial Reuse Costs shall be subject to any CCR Disallowance related to Beneficial Reuse Costs. Beneficial Reuse Costs that are recorded in FERC Account No. 501 shall be recovered as a component of the Monthly Energy Charges determined in accordance with Section 5.4, and shall not be included in CCR Costs for purposes of applying the methodology set forth in Exhibit VII. Beneficial Reuse Costs shall be subject to true-up in accordance with Section 7.1.

6. Charges for Reserve Capacity

6.1 Reserve Capacity Charge. Each month during the Delivery Period, DEP shall charge Power Agency, and Power Agency shall pay DEP, a charge for the Reserve Capacity provided to Power Agency that is equal to (i) the Reserve Capacity Rate, multiplied by (ii) Reserve Capacity Billing kW (the "Monthly Reserve Capacity Charge"). The estimated and actual Monthly Reserve Capacity Charge will be calculated as set forth in Section 6.2.

6.2 Estimated Monthly Reserve Capacity Charges. Not later than the first Business Day of December of each Calendar Year during the Delivery Period, DEP will provide Power Agency with an estimate of the Reserve Capacity Rate for the next succeeding Calendar Year of service beginning on January 1st. The estimated Reserve Capacity Rate will be used in monthly billings of Monthly Reserve Capacity Charges for the service provided from January 1st through December 31st of such Calendar Year, and the Monthly Reserve Capacity Charges during such period will be reconciled ("trued-up") each year with the Reserve Capacity Rate that results from incorporating actual values in the Reserve Capacity Rate Formula, as provided in Article 7 below. Any challenge or correction of the Reserve Capacity Rate or Monthly Reserve Capacity Charges will be made in accordance with the provisions of Articles 7 and 16.

7. True-Up Process

7.1 Capacity, Energy and Charges for CCR True-Up Process. Pursuant to Sections 5.2, 5.4, 5.5, 5.6, and 6.2, charges for service during any Calendar Year during the Delivery

Period shall be based on a calculation of the Monthly Capacity Charges, Monthly Energy Charges, Monthly Charge for Buyer's CCR Costs, and Monthly Reserve Capacity Charges, as applicable, that incorporate estimated values (to the extent actual values are not fixed or not known for such Calendar Year) in the Capacity Rate Formula, the Energy Rate Formula, the Calculation of Coal Combustion Residual Costs, and the Reserve Capacity Rate Formula, as applicable. On or about June 30th of each Calendar Year (or as soon thereafter as practicable), DEP will provide Power Agency with the following values for service rendered during the immediately preceding Calendar Year, calculated based on (a) actual values recorded and reported by DEP in its FERC Form No. 1 for such Calendar Year, (b) values that are reconcilable to the FERC Form No. 1 by the application of clearly identified and supported information, and (c) values calculated in accordance with schedules or other information set forth in the: (i) Capacity Rate and Monthly Capacity Charges, based on the inclusion of actual values in the Capacity Rate Formula; (ii) Energy Rate and Monthly Energy Charges, based on the inclusion of actual values in the Energy Rate Formula; (iii) Reserve Capacity Rate and Monthly Reserve Capacity Charges, based on the inclusion of actual values in the Reserve Capacity Rate Formula; (iv) Charge for Buyer CCR costs, based on the inclusion of actual values in the Calculation of Coal Combustion Residual Costs; and (v) Annual True-up Amount (defined below), if any.

7.1.1 Annual True-up Amount. Each Calendar Year, DEP shall reconcile the estimated Monthly Capacity Charges, Monthly Energy Charges, Monthly

Charge for Buyer's CCR Costs, and Monthly Reserve Capacity Charges that were billed to Power Agency during the immediately preceding Calendar Year with charges recalculated for such year in accordance with Section 7.1. The difference between the estimated amounts and the recalculated amounts for such charges represents the extent to which Power Agency overpaid or underpaid for those services during the immediately preceding Calendar Year. The sum of the monthly differences (the "Annual True-up Amount") will be invoiced, and paid or credited, as provided for herein.

7.1.2 Underpayment True-Up. If the Annual True-up Amount results in Power Agency owing an additional amount to DEP for services billed to Power Agency during the immediately preceding Calendar Year, Power Agency may, at its option, remit to DEP either: (i) a lump-sum payment of the Annual True-up Amount; or (ii) monthly payments over the twelve-month period following completion of the reconciliation, each such payment equaling 1/12th of the Annual True-up Amount, provided that at any time during such twelve-month payment period Power Agency may, at its option, remit to DEP any then-unpaid portion of the Annual True-up Amount. The Annual True-up Amount, whether paid through a lump-sum payment or through monthly payments, shall bear interest at the Interest Rate for the period of time between (i) the date on which Power Agency remitted payment to DEP of the invoice for each month of service in the immediately preceding Calendar Year, and (ii) the date

on which Power Agency remits to DEP payment of the portion of the Annual True-up Amount attributable to such month. Charges associated with the Annual True-up Amount shall be reflected in DEP's determination of the amount due from Power Agency in invoices prepared and submitted by DEP in accordance with Article 8.

7.1.3 Overpayment True-Up. If the Annual True-up Amount results in DEP owing an amount to Power Agency for services billed to Power Agency during the immediately preceding Calendar Year, then DEP may, at its option, provide to Power Agency either: (i) a single credit equal to the full amount of the Annual True-up Amount; or (ii) monthly credits over the twelve-month period following completion of the reconciliation, each such credit equaling 1/12th of the Annual True-up Amount, provided that at any time during such twelve-month credit period DEP may, at its option, provide to Power Agency a credit equaling the then-uncredited portion of the Annual True-up Amount. The Annual True-up Amount, whether credited through a single credit or through monthly credits, shall bear interest at the Interest Rate for the period of time between (i) the date on which Power Agency remitted payment to DEP of the invoice for each month of service in the immediately preceding Calendar Year and (ii) the date on which DEP provides to Power Agency a credit for the portion of the Annual True-up Amount attributable to such month. Credits associated with the Annual True-up Amount shall be reflected in DEP's

determination of the amount due from Power Agency in invoices prepared and submitted by DEP in accordance with Article 8.

7.1.4 CCR Disallowances that are ordered or determined under an applicable Law that are related to a year in which the annual true-up for the Monthly Energy Charge and/or the Monthly Charge for Buyer's CCR Costs has already occurred shall be reflected in charges to Buyer in accordance with Section IV.A of Exhibit VII. Adjustments for such additional CCR Disallowances shall survive termination of this Agreement as a payment obligation in accordance with Section 18.17.

7.2 Disputes of Charges. Power Agency may, in good faith, dispute the correctness of any invoice or any adjustment to an invoice (including the Annual True-up Amount and the calculation thereof) rendered by DEP pursuant to this Agreement within thirty-six (36) months following the date on which the invoice, or adjustment to an invoice, was rendered by DEP. Notwithstanding the foregoing, the thirty-six (36) months referenced herein shall not apply to the payment of billing credits to Buyer from Duke as a result of CCR Disallowances and/or CCR Insurance Proceeds in accordance with Section IV of Exhibit VII. In the event Power Agency seeks to initiate such a dispute, it shall follow the procedures set forth in Section 8.3.

7.3 Records and Audits. DEP shall keep and maintain such records and documents, including cost information used to calculate charges, as may be necessary in verifying the accuracy and correctness of any invoice, adjustment, charge, or computation

rendered pursuant to this Agreement. DEP shall preserve such records and documents for the longer of (i) thirty-six (36) months from and after the date on which DEP rendered the invoice, adjustment, charge, or computation to which the record or document relates, or (ii) the period of time records and documents are required to be preserved pursuant to DEP's corporate records retention policy. Notwithstanding the foregoing, the thirty-six (36) months referenced herein shall not apply to the payment of billing credits to Buyer from Duke as a result of CCR Disallowances and/or CCR Insurance Proceeds in accordance with Section IV of Exhibit VII. Power Agency and any designated representative of Power Agency shall be entitled to audit the records and documents of DEP, including records and documents in the custody of third parties, to the extent records and documents are reasonably related to any invoice, charge or computation rendered pursuant to this Agreement, subject to the following provisions.

7.3.1 If Power Agency seeks to initiate an audit, it shall do so by notifying DEP in writing that Power Agency is exercising its right to examine records and documents of DEP that are subject to Power Agency's audit right. Following its receipt of such notice, DEP shall retain and preserve the records and documents subject to such audit until the audit is complete.

7.3.2 Records of DEP that are kept in electronic form shall be made available to Power Agency in that same form. In addition, to the extent reasonably practicable, DEP shall make available to Power Agency copies or electronic scan files of any records or documents kept by DEC in paper form.

7.3.3 Power Agency shall be solely responsible for the costs of any independent auditor it may retain for purposes of conducting an audit hereunder.

7.3.4 If any audit or examination reveals an error or inaccuracy in any invoice rendered by DEP and if such error or inaccuracy resulted in an overpayment or underpayment by Power Agency, DEP shall promptly render to Power Agency a revised invoice reflecting such adjustments as are necessary to correct the error or inaccuracy, and shall either reimburse or charge Power Agency for any charges paid to DEP that are attributable to the error or inaccuracy. Unless otherwise requested by Power Agency, DEP shall provide any reimbursement as a credit on the next following monthly invoice. Any reimbursement or charge required under this Section 7.3.4 shall include interest on the adjustment at the Interest Rate from the date on which Power Agency remitted payment of the invoice that reflected the error or inaccuracy until the date on which the invoice that includes the reimbursement credit is provided by DEP to Power Agency or charged by DEP to Power Agency.

7.3.5 To the extent any non-public information disclosed to Power Agency in connection with an audit of DEP's records and documents constitutes Protected Information, as defined in Article 12 of this Agreement, Power Agency shall maintain the confidentiality of that information in accordance with Article 12.

7.4 Additional Rights to Obtain Information. In addition to its audit rights set forth in Section 7.3, Power Agency at any time may submit requests for information relating to DEP's calculation of the Monthly Capacity Rate, the Monthly Energy Rate, the Monthly Reserve Capacity Rate, and the Monthly Charge for Buyer's CCR Costs, and the basis for the values DEP incorporated in such calculations. DEP shall make good faith efforts to respond to any such information requests within thirty (30) Business Days of its receipt of a request. Any unresolved disagreement between DEP and Power Agency pertaining to such requests for information or responses thereto shall be subject to the informal dispute resolution process set forth in Section 17.1.

7.5 Projections of the Capacity Rate, the Energy Rate, the Reserve Capacity Rate, and the Charge for Buyer CCR Costs. Not later than September 1 of each Calendar Year during the Delivery Period, DEP shall provide its best projection of the Capacity Rate, the Energy Rate, the Reserve Capacity Rate, and the Charge for Buyer CCR Costs expected to be applied in calculating charges to Power Agency for a period of not less than five (5) years starting with the next-following Calendar Year. DEP shall provide an update to such five-year projections by December 1 of each Calendar Year. DEP shall provide such supporting documentation and calculations for its projection of rates and charges as may be agreed to by the Parties.

8. Billing & Payment

8.1 Invoicing and Payment. As promptly as practicable after the close of each month during the Delivery Period, DEP shall prepare and deliver to Power Agency an invoice

covering all amounts due from Power Agency to DEP pursuant to this Agreement for services provided during the preceding month, and all amounts that may be due from DEP to Power Agency. DEP may deliver each such invoice by mail, express mail, courier or electronic mail, and all such invoices shall be due and payable within fifteen (15) days of (i) the postmark date of the invoice (if delivered via U.S. mail or express mail), (ii) the date the invoice was received (if delivered by courier), or (iii) the date the invoice was sent (if delivered via electronic mail). Each invoice rendered by DEP shall be accompanied by an electronic data file containing metered hourly load data for each Member's Delivery Points for the month to which the invoice relates. Invoices not paid when due shall be deemed delinquent, and, in such circumstances, interest shall accrue at the Interest Rate on any amount that is due but unpaid. The Party from whom payment is due shall deliver said payment to the payee, or to the account of the payee at a bank designated by the payee, by electronic funds transfer or such other means as provides the payee immediately available funds.

8.2 Setoff and Netting of Amounts Due. The Parties agree to the automatic setoff and netting of all amounts due to or from each other arising out of the payment obligations under this Agreement. If, in a given month during the Delivery Period, DEP owes credits or payments to Power Agency under this Agreement, DEP may net the amounts of such credits or payments against the amounts that Power Agency otherwise owes DEP for such month, such that DEP will only invoice Power Agency for the amount that Power Agency owes DEP in excess of any amounts that DEP owes to Power

Agency, or it will credit Power Agency for the amount DEP owes in excess of any amounts Power Agency owes DEP, except for the invoice for the last month of the Delivery Period of this Agreement, for which each Party shall pay the other Party directly rather than set-off of net amounts due and owing. All outstanding obligations to make payment under this Agreement may be netted, offset, set off, or recouped therefrom, and payments and credits shall be made as set forth above.

8.3 Disputes Regarding Invoiced Charges.

8.3.1 If Power Agency disputes all or any portion of an invoice or adjustment, it shall provide written notice to DEP (the "Billing Dispute Notice") that (i) states the good faith basis for the dispute, and (ii) provides Power Agency's best estimate of the amount in dispute and the basis for that amount. Power Agency shall, at its option, (a) make payment to DEP of the full amount shown on the invoice, including any portion of the invoiced amount that is disputed by Power Agency, or (b) withhold one half (1/2) of the amount in dispute and make payment to DEP of the other one half (1/2) of the amount in dispute. Payment to DEP of one half (1/2) of the amount in dispute shall not relieve Power Agency of the obligation to pay interest on any amount withheld by Power Agency that is later determined to have been chargeable to Power Agency pursuant to the terms of this Agreement. Likewise, DEP shall not be relieved of the obligation to pay interest on any amount paid by Power Agency

that it is later determined was not chargeable to Power Agency pursuant to the terms of this Agreement.

8.3.2 DEP shall review Power Agency's Billing Dispute Notice and the disputed invoice or adjustment, and thereafter shall notify Power Agency in writing whether and to what extent it agrees with Power Agency's position as set forth in the Billing Dispute Notice (the "Response Notice"). DEP shall provide the Response Notice to Power Agency no later than forty-five (45) days after DEP's receipt of the Billing Dispute Notice.

8.3.3 If DEP agrees in whole or in part with Power Agency's position as set forth in the Billing Dispute Notice, DEP shall specify in the Response Notice the amount of any reimbursement that it believes in good faith is due Power Agency. Any such reimbursement shall be reflected as a credit on the next monthly invoice rendered by DEP, and shall include interest, calculated at the Interest Rate, from the date on which Power Agency paid the disputed invoice to the date on which Power Agency's payment of the invoice reflecting the reimbursement credit is due. If Power Agency disagrees with the amount of the reimbursement credit provided by DEP, Power Agency may pursue resolution of the matter in accordance with Article 17. Power Agency's acceptance of a reimbursement credit that is less than the amount it contends it is due shall not constitute a waiver of Power Agency's right to pursue additional reimbursement or other compensation, provided that Power Agency

provides DEP with notice of Power Agency's disagreement with the reimbursement credit within ninety (90) days of Power Agency's receipt of the Response Notice.

8.3.4 If DEP does not agree with Power Agency's position as set forth in the Billing Dispute Notice, either Party may submit the dispute for resolution in accordance with Article 17. Any reimbursement determined to be due Power Agency shall be furnished through the inclusion of a credit on the next monthly invoice rendered by DEP after completion of the applicable dispute resolution process, including interest. Except as provided in Section 8.3.1(ii)(b), no challenge, disagreement or dispute relating to the reasonableness or correctness of any such charge or fee shall permit Power Agency to delay or withhold any payment due hereunder. All adjustments made to invoices as a result of a challenge or initiation of a correction shall include interest calculated from the date of the payment of the invoice that was the subject of the challenge or the correction to the date of the invoice on which the charge or credit is reflected. If resolution of the dispute is obtained through the informal dispute resolution process or through arbitration, such interest shall be calculated at the Interest Rate from the date on which Power Agency paid the disputed invoice to the date on which Power Agency's payment of the invoice reflecting the reimbursement credit is due. If resolution of the dispute is obtained through submittal of the dispute to FERC, interest shall be

determined in accordance with FERC's regulations governing the payment of interest on refunds.

8.4 Taxes. DEP shall be liable for and shall pay, or cause to be paid, or reimburse Power Agency if Power Agency has paid, all Taxes imposed by a Governmental Authority on or with respect to the production, sale or transmission of energy provided hereunder arising prior to the Transfer Point. DEP shall indemnify, defend, and hold harmless Power Agency from any liability for such Taxes, including expenses related to audit and litigation of issues related to the Taxes described in the immediately preceding sentence. Power Agency shall be liable for and shall pay, or cause to be paid, or reimburse DEP if DEP has paid, all Taxes imposed by a Governmental Authority on or with respect to the transactions and services provided hereunder arising at and after the Transfer Point. Power Agency shall indemnify, defend, and hold harmless DEP from any liability for such Taxes, including expenses related to audit and litigation of issues related to the Taxes described in the immediately preceding sentence. The Parties agree that none of the Taxes described in this Section 8.4 are included in the charges under this Agreement and such Taxes shall be paid in addition to the charges under this Agreement.

9. Renewable Portfolio Standards, Demand & Efficiency Programs

9.1 Renewable Standard. The Parties agree that as of the Effective Date, DEP and Power Agency's Members have certain responsibilities under the Renewables Act. The Parties further acknowledge that additional legislation and/or regulations (state, federal and/or local) including, without limitation, a RPS, may be enacted after the Effective Date of

this Agreement and may apply to DEP and Power Agency's Members. The Parties agree that DEP shall be solely responsible, at its own cost, for satisfying the requirements of the Renewables Act, any RPS, or any other such legislation or regulation applicable to DEP, whether or not such requirements alter the Renewables Act or implement a RPS or other new or additional standards, and, that Power Agency and/or its Members shall be solely responsible, at their own cost, for satisfying the requirements of the Renewables Act, any RPS, or any other such legislation or regulation applicable to Power Agency and/or its Members, whether or not such requirements alter the Renewables Act or implement a RPS or other new or additional standards.

9.2 Renewable Resource Costs Incurred by DEP.

9.2.1 In calculating charges to Power Agency pursuant to the Capacity Rate Formula, the Energy Rate Formula and the Reserve Capacity Rate Formula, DEP may include a portion of the costs, as specified below, of renewable resources that are (i) generated or purchased by DEP to comply with the requirements of the Renewables Act or any RPS that may be applicable to DEP, and (ii) used to serve DEP's Firm Native Load.

9.2.1.1 The portion of the costs of renewable resources that DEP may include in charges to Power Agency shall be limited to the capacity and energy costs that DEP avoids through the generation of energy

from owned or purchased renewable resources that satisfy the criteria in Section 9.2.1.

9.2.1.2 Other than as provided for in Section 9.2.1.1, DEP shall not charge Power Agency for any costs that DEP incurs to comply with the requirements of the Renewables Act or any RPS that may be applicable to DEP, and Power Agency shall have no obligation to pay DEP for such compliance costs.

9.2.2 Notwithstanding any other provision of this Agreement, if DEP acquires power from a renewable resource (through purchase or ownership) that is not included in DEP's most recent compliance report filed with the NCUC pursuant to the NCUC's Rule R8-67(c)(1) as a source of renewable energy used to comply with requirements of the Renewables Act, then the cost of such purchase or resource may be included by DEP in calculating charges to Power Agency under the Capacity Rate Formula, the Energy Rate Formula and the Reserve Capacity Rate Formula.

9.2.3 Nothing in this Section 9.2 shall limit DEP's right to charge Power Agency for the cost of any purchase that DEP is required to make in accordance with PURPA or state or federal regulations or policies implementing PURPA.

9.3 Energy Efficiency Measures; Demand-Side Management; Demand Response. Nothing in this Agreement is intended to preclude Power Agency and/or its Members from implementing Energy Efficiency Measures, Demand-Side Management, or Demand

Response programs as defined in this Agreement. DEP shall have no responsibility and/or obligation relating to any Energy Efficiency Measures, Demand-Side Management, or Demand Response programs of Power Agency and/or its Members.

9.4 [Reserved].

9.5 [Reserved].

9.6 Energy Injection Devices. The use of Energy Injection Devices shall not qualify as Energy Efficiency, Demand-Side Management and/or Demand Response for purposes of this Agreement. Except as provided in Section 4.1.4.4 and Attachment XI, all Energy Injection Devices owned or operated by Power Agency, its Members, or by a retail or wholesale customer of a Member, or a retail customer of a wholesale customer of a Member shall be considered Qualified Resources. If Power Agency or its Members take any actions to aggregate, incent, or otherwise encourage the dispatch of batteries or other storage devices with a maximum capable injection capacity of less than 95 kW behind the Duke-owned wholesale revenue meter of a Member at the time of the Monthly Coincident Demand, DEP reserves the right to treat such devices as Energy Injection Devices and thus subject them to the cap on Qualified Resources in Section 4.1.4 of this Agreement, notwithstanding anything to the contrary in this Agreement.

9.7 Commercial and Industrial Customer Interruptible Service. Notwithstanding anything to the contrary in this Agreement, Power Agency shall be subject to additional charges for Interruptible Load of Commercial and Industrial Customers ("Interruptible Demand Charge") as provided in this Section 9.7. Effective January 1, 2023, Power Agency

shall notify DEP in writing at least 60 days before a Power Agency Member(s) commences service to: (a) any new Commercial and Industrial Customer with Interruptible Load in excess of one megawatt (1 MW) or, (b) any existing Commercial and Industrial Customer if that such Commercial and Industrial Customer has a new Interruptible Load in excess of one megawatt (1 MW). If the reported Interruptible Load is twenty-five megawatts (25 MW) or less, upon commencement of service to such Commercial and Industrial Customer for its Interruptible Load, DEP shall charge Power Agency, in addition to any other charges under this Agreement, an Interruptible Demand Charge equal to fifty percent (50%) of the Capacity Rate ("C&I Small Interruptible Rate") times the amount of Interruptible Load of such Commercial and Industrial Customer. For any Interruptible Load of a Commercial and Industrial Customer that exceeds twenty-five megawatts (25 MW), upon commencement of service to such Commercial and Industrial Customer for its Interruptible Load, DEP shall charge Power Agency, in addition to any other charges under this Agreement, an Interruptible Demand Charge equal to seventy percent (70%) of the Capacity Rate ("C&I Large Interruptible Rate") times the amount of Interruptible Load of such Commercial and Industrial Customer. For purposes of the Interruptible Demand Charge, the amount of Interruptible Load in any given Month shall be equal to (i) the maximum 60-minute integrated demand of such Commercial and Industrial Customer, less (ii) the 60-minute integrated demand of such Commercial and Industrial Customer as measured during the hour coincident with the hour of DEP's Monthly Peak Demand,

the resulting value adjusted to include an allowance for distribution system losses of five percent (5%) and Line Losses and GSU Losses. Interruptible Load shall not be less than zero in any Month. Power Agency shall be responsible for metering such Commercial and Industrial Customer, and the Parties shall develop procedures to address the timely exchange of metering data.

9.8 Future Compliance. Upon written notice from Power Agency to DEP, the Parties agree to engage in good faith discussions concerning Power Agency's desire to have DEP assume responsibility, and DEP's willingness to assume responsibility, on Power Agency's behalf, for satisfying the Members' obligations under the Renewables Act, any RPS, or any other such legislation or regulation. Neither Party, however, shall be under any obligation to agree to enter into any agreement to give effect to the provisions of this Section 9.6; provided however, that if the Parties do enter into such an agreement, DEP shall be under no obligation to assume such responsibilities sooner than three (3) years after the Parties enter into the definitive agreement setting forth each Party's respective obligations.

10. Transmission Organizations

10.1 Implementation of Transmission Organization. If, at any time after the Effective Date, an ISO, RTO, ITC or other organization, agency or authority is approved by FERC to serve as Transmission Provider for the DEP Transmission System or as operator for any centralized wholesale electricity market in which DEP intends to participate (hereinafter referred to as a "Transmission Organization"), DEP and Power Agency, within thirty

(30) days after FERC issues an order approving such Transmission Organization, will meet to discuss the implementation of this Agreement with respect to the rules and procedures adopted by the Transmission Organization. The Parties expressly acknowledge and agree that neither the implementation of a Transmission Organization nor the failure of the Parties to enter into any additional arrangements with respect to such Transmission Organization shall relieve either Party of any obligations under this Agreement. To the extent that the Parties determine that the implementation of a Transmission Organization will result in other requirements and/or costs associated with DEP's provision of Requirements Service in accordance with this Agreement, the Parties will meet to discuss the appropriate way to allocate such costs in a manner that reflects the economic bargain originally contemplated by the Parties when entering into this Agreement. If the Parties are unable to reach such an agreement, either Party may submit the matter to FERC for resolution after completing the informal dispute resolution process set forth in Section 17.1.

11. Assurances and Related Provisions

11.1 Creditworthiness. Either Party may review the creditworthiness of the other Party on an ongoing basis during the Term of this Agreement to ensure continued compliance with the other Party's credit requirements. For the duration of this Agreement, each Party will provide the other Party with complete audited financial statements within 180 days of the close of their fiscal year, except that, if such statements are available from

the Security and Exchange Commission's web site or other publicly available web site, this requirement will be deemed to be satisfied.

11.2 Material Adverse Change and Credit Protections.

11.2.1 If at any time both Parties are rated by Standard & Poor's Ratings Services or its successor ("S&P"), Fitch Ratings, Inc. or its successor ("Fitch") or Moody's Investors Service or its successor ("Moody's"), a Party shall be deemed to have experienced a material adverse change ("MAC") if it fails to maintain an issuer credit rating of either BBB- or better by S&P or Fitch or Baa3 or better by Moody's. In the event that a Party experiences a MAC (the "Providing Party"), then it shall provide to the other Party (the "Requesting Party") collateral in the amount of fifty million dollars ($50,000,000.00) and in the form set forth below in Section 11.4 (such collateral the "Performance Assurance") within five (5) Business Days after the date on which the MAC occurs.

11.3 Performance Assurance. If at any time either of the Parties is not rated by either S&P, Fitch or Moody's, if the Requesting Party has reasonable grounds to believe that the Providing Party is unable to perform its obligations hereunder, the Requesting Party may make a written request of the Providing Party, stating the grounds for its belief, to provide Performance Assurance. If the Providing Party disputes the grounds for the request for Performance Assurance, appropriate representatives of the Parties will meet within five (5) Business Days of such request to discuss the request to provide

Performance Assurance. Within two (2) Business Days after such meeting, the Requesting Party shall give notice to the Providing Party that it either confirms or retracts its request for Performance Assurance. Unless the Requesting Party retracts its request, the Providing Party shall provide the Performance Assurance within ten (10) Business Days from the date of the Requesting Party's initial request to provide the Performance Assurance. If the Providing Party disagrees with the Requesting Party's position after providing Performance Assurance, the Parties shall submit the dispute for resolution in accordance with Article 17.

11.4 Posting of Performance Assurance. Performance Assurance shall be in the form of cash or a letter of credit from a financial institution reasonably acceptable to the Requesting Party. Any such letter of credit shall be in a form satisfactory to the Requesting Party in its reasonable discretion. A financial institution providing a letter of credit entered into for purposes of this Section 11.4 shall be deemed reasonably acceptable by the Requesting Party if such financial institution has and maintains a minimum long-term credit rating of A- or better from S&P or Fitch or A3 or better from Moody's.

11.5 Interest on Cash Used as Performance Assurance. If cash collateral is posted as Performance Assurance, the Requesting Party shall pay interest to the Providing Party at the Interest Rate, calculated as of the first day of the applicable month. Each month during which a Party has posted cash as Performance Assurance, such Party shall invoice the Party holding the cash collateral as the Performance Assurance for interest

accrued during the previous month and the Party holding the cash Performance Assurance shall pay such amount within ten (10) Days of receipt of such invoice.

11.6 Continuing Nature of Performance Assurance Requirement. The Providing Party must continue to post the Performance Assurance as long as the MAC or the Requesting Party's grounds for insecurity continue in effect. The Requesting Party shall have the right to draw upon, use, and dispose of all Performance Assurance that is posted under this Article 11, if the Providing Party fails to fulfill any of its payment or performance obligations under this Agreement and such failure constitutes an Event of Default. In the event any Performance Assurance is drawn upon by the Requesting Party in accordance with the provisions of this Section 11.6, the Party experiencing the MAC shall within three (3) Business Days fully replenish the Performance Assurance to the full amount of the required Performance Assurance.

11.7 Return of Performance Assurance. In the event the MAC is no longer in effect, or in the event the Requesting Party's stated grounds for believing that the Providing Party is unable to perform its obligations hereunder no longer exist, the Providing Party shall provide written notice thereof to the Requesting Party, together with documentation from S&P, Fitch or Moody's that verifies that the MAC is no longer in effect, or documentation establishing, to the reasonable satisfaction of Requesting Party, that the stated grounds for believing that the Providing Party is unable to perform its obligations hereunder no longer exist, as applicable, the Requesting Party shall return the

Performance Assurance to the Providing Party within three (3) Business Days after receipt of such written notice from the Providing Party.

11.8 Grant of Security Interest. The Providing Party hereby grants to the Requesting Party a present and continuing security interest in, and lien on (and right of netting and set-off against), and assignment of, all Performance Assurance, including, without limitation, cash Performance Assurance and cash equivalent Performance Assurance and any and all proceeds resulting therefrom or the liquidation thereof, whether now or hereafter held by, on behalf of, or for the benefit of, the Requesting Party; and, furthermore the Providing Party agrees to take such action as the Requesting Party reasonably requires to perfect the Requesting Party's first-priority security interest in, and lien on (and right of netting and set-off against), such Performance Assurance and any and all proceeds resulting therefrom or from the liquidation thereof. Upon or any time after the occurrence or deemed occurrence and during the continuation of an Event of Default or an Early Termination Date, the Requesting Party (if it is the Non-Defaulting Party) may do any one or more of the following with respect to the Providing Party (if it is the Defaulting Party): (i) exercise any of the rights and remedies of a secured party with respect to all Performance Assurance, including any such rights and remedies under law then in effect; (ii) exercise its rights of netting and set-off against any and all property of the Providing Party in the possession of the Requesting Party or its agent; (iii) draw on any outstanding applicable forms of Performance Assurance issued for the benefit of the Requesting Party; and, (iv) liquidate all Performance Assurance then held by or for

the benefit of the Requesting Party free from any claim or right of any nature whatsoever of the Providing Party, including any equity or right of purchase or redemption by the Providing Party. The Requesting Party (if it is the Non-Defaulting Party) shall apply the proceeds of the Performance Assurance realized upon the exercise of any such rights or remedies to reduce the Providing Party's (if it is the Defaulting Party) obligations under the Agreement, with the Providing Party remaining liable for any amounts owing to the Requesting Party after such application, subject to the Requesting Party's obligation to return any surplus proceeds remaining after such obligations are satisfied in full.

12. Confidentiality

12.1 Protected Information. Subject to the provisions of this Section 12 and except as otherwise set forth in this Agreement, Power Agency, to the extent permitted by Law, shall not publish, disclose, or otherwise divulge any term or condition of this Agreement and, without limitation, any information relating to any transaction or documents exchanged between the Parties in connection with this Agreement (collectively, the "Protected Information") to a third person (other than the Party's employees, Affiliates, lenders, counsel, accountants or advisors who have a need to know such information and have agreed to keep such terms confidential), at any time during the Term of this Agreement or for two (2) years after the expiration or early termination of this Agreement, without DEP's prior written consent; provided, however, Protected Information shall (i) constitute a trade secret (as defined below), and (ii) be designated

by DEP as "confidential" or "trade secret" at the time it is delivered to Power Agency or included in this Agreement. For purposes of this Article 12, "trade secret" means business or technical information, including, but not limited to, a formula, pattern, program, device, compilation of information, method, technique, or process that (a) derives independent actual or potential commercial value from not being generally known or readily ascertainable through independent development or reverse engineering by persons who can obtain economic value from its disclosure or use, and (b) is subject to efforts by DEP that are reasonable under the circumstances to maintain its secrecy. DEP shall be entitled to all remedies available at Law or in equity (including, but not limited to, specific performance and/or injunctive relief) to enforce, or seek relief in connection with, this confidentiality obligation.

12.2 Non-Confidential Information. The following shall not be considered Protected Information, and Power Agency shall not be limited in its use or disclosure thereof: (a) information which is or becomes part of the public domain through no act or omission of Power Agency; (b) information which demonstrably was known or was in the possession of Power Agency without obligation to maintain confidentiality prior to the Effective Date of this Agreement; (c) information which is received by Power Agency from a third party who is not bound to maintain such information as confidential; and/or (d) information independently developed by Power Agency without reference to the Protected Information received under this Agreement.

12.3 Return of Confidential Information. Upon request of Disclosing Party, Receiving Party shall either (i) return the Protected Information, including all copies, or (ii) destroy the Protected Information, including all copies, and present written assurances of the destruction to Disclosing Party. Notwithstanding the foregoing, both Parties acknowledge that Protected Information transferred and maintained electronically (including e-mails) may be automatically archived and stored by Receiving Party on electronic devices, magnetic tape, or other media ("Back-Up Tapes"). Notwithstanding the terms of this Agreement, in no event shall Receiving Party be required to destroy Protected Information stored on Back-Up Tapes; provided, however, any Protected Information not returned or destroyed pursuant to this Article 12 shall be kept confidential during the Term of this Agreement and for two (2) years after the expiration or early termination of this Agreement. Furthermore, the Parties agree that receiving party may retain one (1) copy of such Protected Information in Receiving Party's files for audit and compliance purposes for the duration of its existence; provided, however, such Protected Information shall be kept confidential during the Term of this Agreement and for two (2) years after the expiration or early termination of this Agreement.

12.4 Required Disclosures. Notwithstanding the confidentiality requirements set forth herein, Power Agency may, subject to the limitations set forth herein, disclose Protected Information to satisfy compliance and/or regulatory obligations to which it is subject, any other applicable requirement of Law, any requirement imposed by NERC or SERC, any control area or independent system operator rule, in response to a court order, in

connection with any court or regulatory proceeding, or as otherwise required by any requirement of Law. Such disclosure shall not terminate the obligation of confidentiality unless the Protected Information thereafter falls within one of the exclusions provided herein. To the extent the disclosure of Protected Information is requested or compelled as set forth above, Power Agency agrees to give DEP reasonable notice of any discovery request or order, subpoena, or other legal process requiring disclosure of any Protected Information. Such notice by Power Agency shall give DEP an opportunity, at DEP's sole discretion and cost, to seek a protective order or similar relief. If such protective order or other appropriate remedy is not sought and obtained by DEP within at least thirty (30) days of Power Agency's notice, Power Agency shall disclose only that portion of the Protected Information that is required or necessary in the opinion of Power Agency's legal counsel; provided, however, Power Agency shall use reasonable efforts to obtain assurances that confidential treatment will be accorded to any Protected Information so disclosed.

13. Representations & Warranties

13.1 Power Agency's Representations, Warranties and Covenants. Power Agency hereby represents warrants and covenants to DEP as follows:

13.1.1 Each Member Power Sales Agreement is and shall be designed to provide Power Agency with funds sufficient to meet its obligations under this Agreement. In the event Power Agency shall enter into a Member Power Sales Agreement with a municipal system other than a Member of Power Agency as

of the Effective Date, Power Agency shall, forthwith upon execution of said agreement by both parties, notify DEP thereof and furnish DEP with a copy of such agreement. Power Agency covenants and agrees that it shall fix, charge and take all steps necessary to collect rents, rates, fees and charges for the sale of electric power and energy and other facilities and commodities sold, furnished or supplied to its Members pursuant to the Member Power Sales Agreements at a level sufficient to provide Power Agency with revenues adequate to meet its obligations under this Agreement and to pay any and all other amounts payable from or constituting a charge or lien upon such revenues.

13.1.2 Each Member Power Sales Agreement provides and shall provide as follows: (a) that the signatory Member shall fix, charge and collect rents, rates, fees and charges for the sale of electric power and energy and other services, facilities and commodities sold, furnished or supplied through its electric system at a level sufficient to provide revenues adequate to meet its obligations under such Member Power Sales Agreement and to pay any and all other amounts payable from or constituting a charge or lien upon such revenues; (b) that the signatory Member shall take no action the effect of which would be to prevent, hinder or delay Power Agency from the timely fulfillment of its obligations under this Agreement; (c) that Power Agency shall have the right to terminate such agreement as to the defaulting Member in accordance with the Member Power

Sales Agreement; and, (d) that upon failure of the Member to make any payment in full when due under the Member Power Sales Agreement or to perform any other obligation in such agreement, Power Agency shall make demand upon the Member for payment or performance and, if said failure is not cured in accordance with the terms and conditions of the Member Power Sales Agreement, it shall constitute a default by the Member. Each Member Power Sales Agreement shall further provide that it shall not be amended or rescinded with respect to the provisions specified in (a) through (d) of the preceding sentence without the prior written consent of DEP.

13.1.3 Power Agency shall continue each of such Member Power Sales Agreements in full force and effect and shall enforce all such Member Power Sales Agreements in accordance with their terms, as amended from time to time in accordance with their terms. Each Member Power Sales Agreement shall provide that the amounts payable by the Member for service by Power Agency under the Member Power Sales Agreement shall be set forth on a monthly bill and that the revenues received by Power Agency in any month as payment of a monthly bill, and of any monthly bill provided under a Member's Debt Service Support Contract (whether in full or partial payment of either hereof), shall be applied pro rata to each monthly bill in the ratio that each bears to the total of the monthly bills rendered by Power Agency to each Member.

13.1.4 Power Agency shall take no action the effect of which would be to pledge, assign, or otherwise create a right superior to DEP in any third party to any of the revenues it receives from any Member under the Member Power Sales Agreement or its obligations to make payments to DEP hereunder.

13.1.5 Power Agency shall promptly furnish DEP a copy of any notification to a Member of an event of default by such Member under the provisions of a Member Power Sales Agreement.

13.1.6 Power Agency's obligations to make payments hereunder are unsubordinated obligations and such payments are operating and maintenance costs (or similar designation); Power Agency's obligations to make payments hereunder do not constitute any kind of indebtedness or create any kind of lien on, or security interest in, any property or revenues of DEP.

13.1.7 With respect to its contractual obligations under this Agreement and performance of obligations under this Agreement, Power Agency will not claim immunity on the grounds of sovereignty or similar grounds with respect to itself or its revenues or assets from suit, jurisdiction of court (including a court located outside the jurisdiction of its organization), relief by way of injunction, order of specific performance or recovery of property, attachment of assets, or execution or enforcement of any judgment, or otherwise take, encourage, and/or support any efforts to cause the foregoing to cause to occur.

13.2 Mutual Representations, Warranties and Covenants. Each Party represents and warrants to the other that: (i) it is duly organized and validly existing under the laws of the jurisdiction of its organization; (ii) it has the power and authority to execute, enter into, and perform its obligations under this Agreement, and such action has been duly authorized; (iii) this Agreement constitutes a legal, valid, and binding obligation enforceable against it in accordance with the terms hereof; (iv) the person who executes this Agreement on behalf of such Party has the authority to do so, and that such Party will be bound by such execution; (v) it is a "forward contract merchant" and this Agreement constitutes a "forward contract" as such terms are defined in the United States Bankruptcy Code; and, (vi) that such Party is acting on its own behalf, has made its own independent decision to enter into this Agreement, has performed its own independent due diligence, is not relying upon the recommendations of the other Party, and understands and agrees to the provisions of this Agreement.

13.3 General Covenant by the Parties. Each Party hereto covenants and agrees that if any event shall occur or condition exists which constitutes, or which after notice, lapse of time, or both, would constitute an Event of Default on its part pursuant this Agreement, it shall immediately notify the other party thereof, specifying the nature thereof and any action taken or proposed to be taken with respect thereto.

13.4 Limitations. EXCEPT AS PROVIDED HEREIN, THE PARTIES MAKE NO OTHER REPRESENTATIONS, WARRANTIES OR GUARANTEES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, RELATING TO THEIR

PERFORMANCE OR OBLIGATIONS UNDER THIS AGREEMENT AND EACH PARTY DISCLAIMS ANY IMPLIED WARRANTIES OR WARRANTIES IMPOSED BY LAW INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

14. Events of Defaults

14.1 Event of Default. For purposes of this Agreement, an Event of Default shall mean, with respect to a Party (a "Defaulting Party"), the occurrence of any one or more of the following:

14.1.1 The failure to make, when due, any payment, credit, or reimbursement required by this Agreement or to post or maintain collateral required by this Agreement, if such failure is not remedied within three (3) Business Days after written notice of such failure is given to the Defaulting Party by the other Party ("Non-Defaulting Party");

14.1.2 Failure by DEP to provide or deliver Requirements Service in accordance with the requirements of Sections 3.1 and 3.3.1, or failure by DEP to restore service in accordance with the requirements of Section 3.3.2;

14.1.3 The failure to perform any material covenant or material obligation set forth in this Agreement (except to the extent constituting a separate Event of Default under this Section 14.1), if such failure is not remedied within three (3) Business Days after the provision of written notice thereof to the Defaulting Party;

14.1.4 A Party becomes Bankrupt;

14.1.5 The loss of any authorization from a governmental authority that is necessary for a Party to perform its obligations hereunder in accordance with the terms of this Agreement;

14.1.6 Any representation or warranty made by a Party is false or misleading in any material respect when made or when deemed made or repeated; and/or,

14.1.7 A Party transfers or assigns or otherwise conveys any of its rights or obligations under this Agreement to another person/entity in violation of the requirements of this Agreement.

14.2 Effect of Event of Default. If at any time an Event of Default with respect to a Defaulting Party has occurred and is continuing, the other Party (the "Non-Defaulting Party") may do one or more of the following:

14.2.1 If an Event of Default (other than an Event of Default under Section 14.1.1, Section 14.1.2, or Section 14.1.4) persists for sixty (60) days or longer, terminate this Agreement by providing written notice to the Defaulting Party specifying the effective date of termination; provided, however, that if the Defaulting Party is diligently pursuing cure but such Event of Default is not capable of being cured within sixty (60) days, then the period for the Defaulting Party to cure such Event of Default shall be extended from sixty (60) days to one hundred eighty (180) days before the Non-Defaulting Party

may exercise its right to terminate this Agreement pursuant to this Section 14.2.1.

14.2.2 If an Event of Default under Section 14.1.1, Section 14.1.2, or Section 14.1.4 occurs, terminate this Agreement by providing written notice to the Defaulting Party specifying the effective date of termination.

14.3 DEP's Additional Rights Upon Default of Power Agency. In addition to any other right provided for under and in accordance with this Agreement, whenever any Event of Default by Power Agency shall have occurred and shall not have been fully cured, DEP shall have the right to demand that Power Agency enforce any Member Power Sales Agreement to which Power Agency is a party and, if DEP seeks a temporary or permanent injunction specifically to enforce this obligation of Power Agency, Power Agency agrees that DEP need not prove the inadequacy of legal remedies. The enforcement of any such Member Power Sales Agreement, whether upon demand by DEP or pursuant to a court directive, shall not affect any rights of DEP against Power Agency whether arising under and in accordance with this Agreement, at law, in equity, provided by statute, or otherwise.

14.4 Disputes Concerning Default. If either Party shall dispute an asserted default by it, the following provisions shall apply:

14.4.1 If the asserted default involves a Party's failure to perform a disputed obligation, then such Party shall perform the disputed obligation but may do so under protest. The protest shall be in writing, shall precede or accompany

performance of the disputed obligation, and shall specify the reasons upon which the protest is based. In the event it is determined that the protesting Party is entitled to reimbursement of the cost of performing a disputed obligation theretofore made or performed, then the protesting Party shall be reimbursed such amount promptly with simple interest calculated at the Interest Rate from the date the protesting Party incurred the costs of performance to the date on which such payment or credit is made.

14.4.2 If the asserted default involves Power Agency's failure to pay all or a portion of a disputed invoice, Power Agency shall comply with the requirements and procedures set forth in Section 8.3 regarding resolution of billing disputes.

14.5 Additional Obligations Upon Default. With respect to any Party that has committed an Event of Default, such Defaulting Party shall make all reasonable efforts to take any and all such further actions and shall execute, and file where appropriate, any and all such further legal documents and papers as may be reasonable under the circumstances in order to facilitate the carrying out of this Agreement or otherwise effectuate its purposes including, but not limited to, action to seek any required governmental or regulatory approval and to obtain any other required consent, release, amendment or other similar documents. The Parties hereto agree not to take any action, or otherwise consent to any agreement or amendments to any agreement, which would prohibit, or the purpose of which is to make illegal or to prevent, hinder or delay, the taking of any action contemplated by this Agreement in the event of a Default.

14.6 No Remedy Exclusive. No remedy conferred upon or reserved to the Parties hereunder is intended to be exclusive of any other remedy or remedies available hereunder or now or hereafter existing at law, in equity, or by statute or otherwise, but each and every such remedy shall be cumulative and shall be in addition to every other such remedy. The pursuit by either Party of any specific remedy shall not be deemed to be an election of that remedy to the exclusion of any other or others, whether provided hereunder or by law, equity, statute or otherwise. The pursuit by either Party of an action for recovery of damages in the event of any breach of this Agreement shall be subject to the limitation of liability set forth in Section 14.8.

14.7 Waivers. No waiver of any default or Event of Default hereunder shall extend to or affect any subsequent default or Event of Default or shall impair any rights or remedies consequent thereon. No delay or omission to exercise any remedy available hereunder, including, without limitation, upon the occurrence of any Event of Default, shall impair either Party's right to exercise any right or remedy or shall be construed to be a waiver thereof, but any such right or remedy may be exercised from time to time and as often as may be deemed expedient. Any waiver of a default, Event of Default, or remedy hereunder shall be in writing signed by the waiving Party. In order to entitle a Party to exercise any remedy conferred upon or reserved to it hereunder, it shall not be necessary for such Party to give any notice, other than such notice as may be expressly required by this Agreement.

14.8 Limitation of Liability. IN THE EVENT OF ANY BREACH OF THIS AGREEMENT, THE OBLIGOR'S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY. NEITHER PARTY NOR ITS AFFILIATES, SUBSIDIARIES, OR PARENT SHALL BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, EVEN IF SUCH DAMAGES ARE ALLOWED OR PROVIDED BY STATUTE, IN TORT OR CONTRACT, OR OTHERWISE.

14.9 Duty to Mitigate. Each Party agrees that is has a duty to mitigate damages, and each covenants that it shall use commercially reasonable efforts to minimize any damages it may incur as a result of the other Party's performance or nonperformance of this Agreement.

15. Notices

15.1 Process. All notices, requests, or communications permitted or required to be given hereunder shall be in writing and shall be sent to the address of the applicable Party as specified below. A Party may change its information related to receiving notices by sending written notice to the other Party. Notices shall be delivered by hand, sent by certified mail, postage prepaid, return receipt requested, or sent by overnight mail or courier. Hand delivered notices shall be deemed delivered by the close of the Business Day on which it was hand delivered. Notices provided by certified mail, postage prepaid, return receipt requested, or by overnight mail or courier, shall be deemed to

have been received on the date noted as delivered on the receipt or tracking registry, as applicable. Notwithstanding the foregoing, if the day on which any notice is delivered or received is not a Business Day or is after 5:00 p.m. Eastern Prevailing Time on a Business Day, then it shall be deemed to have been received on the next following Business Day.

If to DEP:

Duke Energy Progress, LLC
411 Fayetteville Street
Raleigh, N.C. 27601
Mail Code: 12
Attn: VP – Wholesale Power Sales
Phone: (919) 546-6228
Email: Harold.James@duke-energy.com

With a copy to:

Duke Energy Progress, LLC
550 South Tryon Street
Charlotte, N.C. 28202
Attn: General Counsel

If to Power Agency:

North Carolina Eastern Municipal Power Agency
1427 Meadow Wood Blvd
Raleigh, North Carolina 27604
Attn: Kathy Moyer – Chief Operating Officer
Email: kmoyer@electricities.org

With a copy to:

North Carolina Eastern Municipal Power Agency
1427 Meadow Wood Blvd
Raleigh, North Carolina 27604
Attn: Jay Morrison – Chief Legal and Ethics Officer
Email: jmorriso@electricities.org

16. Proposed Changes in Rates, Terms and Conditions

16.1 Unilateral Filing Rights Preserved. Except as otherwise provided in this Article 16 and in Section 2.4.5, each Party expressly retains its right to make unilateral filings with FERC at any time, pursuant to Section 205 or 206 of the Federal Power Act (as applicable) for a change in the rates, terms and conditions of this Agreement (including, without limitation, a change in any formula, or a change in the components of any formula, used to calculate rates and charges hereunder). Each Party also reserves its rights with respect to any rate change submitted unilaterally by the other Party, including the right to oppose, or to seek rejection, modification, suspension or refunds, with respect to any such unilateral filing. Except as provided in Section 16.2, the standard of review for changes to any of the rates, terms and conditions of this Agreement, whether proposed by a Party, a non-Party or FERC acting *sua sponte*, shall be the "just and reasonable" standard of review.

16.2 Other Modifications. The Parties specifically intend and acknowledge and agree that this Section 16.2 and the items set out in Section 16.2.1 ("Excepted Provisions") shall not be subject to amendment or other modification, absent the written agreement of both Parties and that neither Party shall be permitted to make a filing with FERC under any provision of the Federal Power Act or the regulations promulgated thereunder that seeks to amend or otherwise modify, or requests FERC to amend or otherwise modify, the Exception Provisions at any time during the Term, except to implement an amendment or other modification to an Excepted Provision that has been reduced to writing and

signed by both Parties. In addition, to the extent a Party, any third party, or FERC acting *sua sponte* seeks to amend or otherwise modify, or requests FERC to amend or otherwise modify an Excepted Provision, the standard of review for any such proposed amendment or other modification shall be the "public interest" standard of review set forth in *United Gas Pipe Line Co. v. Mobile Gas Service Corp.*, 350 U.S. 332 (1956), and *Federal Power Commission v. Sierra Pacific Power Co.*, 350 U.S. 348 (1956), and as further defined in *Morgan Stanley Capital Group, Inc. v. Public Utility District No. 1 of Snohomish County*, 554 U.S. 527 (2008), and *NRG Power Marketing, LLC v. Maine Public Utilities Commission*, 558 U.S. 165 (2010).

16.2.1 Excepted Provisions.

16.2.1.1 Agreement. The Excepted Provisions in the Agreement are as follows: (a) Section 2.7.7 addressing the Compensation Payment; and (b) Section 16.2, including all subsections thereof, addressing Excepted Provisions.

16.2.1.2 Capacity Formula Rate. The Excepted Provisions of the Capacity Formula Rate are as follows: (a) the inclusion in rate base of the unamortized balance of the acquisition adjustment that DEP paid to Power Agency under the Asset Purchase Agreement for Power Agency's undivided ownership interests in the nuclear-fueled generation facilities known as the Shearon Harris Nuclear Plant, located in Wake County, North Carolina, and Brunswick Unit 1 and

Brunswick Unit 2, each located in Brunswick County, North Carolina, and the coal-fueled generation facilities known as the Mayo Plant and Roxboro Unit 4, each of which is located in Person County, North Carolina, (b) the amortization of such acquisition adjustment commencing at the start of the Delivery Period, and (c) the inclusion of the annual amortization of such acquisition adjustment as an expense.

16.3 Construction Work in Progress. Construction Work in Progress ("CWIP") associated with a specific production plant construction project ("Construction Project") may be included in calculating the Capacity Rate and the Reserve Capacity Rate if and only to the extent (i) DEP and Power Agency have agreed in writing that CWIP associated with such Construction Project may be included in applying the Capacity Rate Formula and the Reserve Capacity Rate Formula, and (ii) FERC has issued an order approving the inclusion of CWIP associated with such Construction Project in applying the Capacity Rate Formula and the Reserve Capacity Rate Formula. In accordance with FERC's Regulations, DEP will cease the accrual of AFUDC on expenditures related to any Construction Project permitted to be included as CWIP in applying the Capacity Rate Formula and the Reserve Capacity Rate Formula. The CWIP balance for any Construction Project that is used as an input to the Capacity Rate Formula or the Reserve Capacity Rate Formula may not be changed by DEP except through a filing pursuant to

Section 205 of the Federal Power Act or by Power Agency except pursuant to an order of FERC issued under Section 206 of the Federal Power Act.

16.4 Modification Process. A Party which seeks a modification under this Agreement in accordance with the provisions of this Article 16 will first provide the other Party with a written proposal that sets forth the proposed modification and the bases therefor. Thereafter, the Parties shall negotiate in an attempt to agree upon an amendment to the Agreement to implement such proposed modification and, if the Parties reach agreement on such amendment, shall execute and deliver such amendment contingent on acceptance by FERC, and DEP shall file such amendment with FERC under Section 205 of the Federal Power Act. If the Parties fail to reach agreement within sixty (60) days of the date that the written proposal is provided, then the Parties will first attempt to resolve the disagreement pursuant to Section 17.1. Except as provided in Section 16.2, in the event the Parties are unable to reach agreement pursuant to Section 17.1, then either Party may proceed to file an application with FERC under Section 205 or 206 of the Federal Power Act, as applicable, for the limited purpose of obtaining FERC acceptance or approval of the amendment proposed by such Party. In the event a Party files an application under Section 205 or 206, the other Party shall have all rights afforded by the Federal Power Act to intervene, comment, protest and oppose such filing.

17. Dispute Resolution

17.1 Informal Dispute Resolution Process. In the event of (i) a dispute arising from an inability by the Parties to reach agreement with respect to any issue arising in connection with the terms and conditions of this Agreement, including, but not limited to, an inability to reach agreement on operating procedures contemplated by the provisions of this Agreement, or (ii) any dispute under this Agreement, including, but not limited to, a challenge or correction to an invoice, the Parties shall make a good faith attempt to informally resolve the dispute. To aid in this resolution process, each Party shall provide, in a timely manner, all information and data reasonably requested by the other Party regarding the dispute raised, subject to confidentiality and the settlement privilege. The Parties shall use all commercially reasonable efforts to attempt to resolve the matter within sixty (60) days.

17.2 Formal Dispute Resolution Process. If the Parties are unable to reach agreement on the resolution of any dispute through the informal dispute resolution process set forth in Section 17.1, the following procedures shall apply:

17.2.1 No later than six (6) months after the end of the 60-day period set forth in Section 17.1, either Party may initiate the formal dispute resolution process by informing the other Party in writing that a formal dispute exists. If neither Party provides such notice that a formal dispute exists within such six (6) month period, then the dispute shall be waived and conclusively terminated

without any further effect or liability to either Party. If a formal dispute exists, either Party shall have the right to submit the dispute to FERC or the Parties may agree in writing to submit the dispute for arbitration pursuant to Section 17.3. If the Parties agree in writing that the dispute will be submitted for arbitration, then the procedures set forth in Sections 17.3 through 17.9 shall govern.

17.3 Arbitration. Except for the matters described in Sections 16.1 and 16.2 and except for the process described in Sections 16.4, if the Parties mutually agree in writing, any dispute arising out of or relating to this Agreement or the breach thereof (collectively "Disputes") that the Parties are unable to resolve pursuant to Section 17.1, shall be settled by arbitration between the Parties in accordance with the provisions of this Section 17.3; provided, however, if the Parties do not mutually agree in writing to pursue arbitration in accordance with this Section 17.3, either Party may seek to resolve the dispute by commencing an action before FERC. It is expressly acknowledged and agreed that neither Party will be required to agree to pursue binding arbitration of any dispute.

17.3.1 Arbitration Process. If the Parties agree to pursue arbitration as provided in Section 17.3, after the expiration of the time periods for informal dispute resolution provided for in Section 17.1, a Party may serve a demand for arbitration on the other Party by giving the other Party written notice of a Dispute that has not been resolved, which written notice shall include: (i) a

demand for arbitration, (ii) a statement of that Party's position, and (iii) a summary of that Party's arguments supporting such position. Within ten (10) Business Days after delivery of the notice demanding arbitration, the receiving Party shall give to the other Party (a) a statement of the receiving Party's position, and (b) a summary of the receiving Party's arguments supporting such position. Within fifteen (15) days after a Party serves a demand for arbitration on the other Party, each Party shall provide the other party with the names of the proposed arbitrator(s), each of whom shall have a favorable reputation, either nationally or in the Southeast region of the United States, for special skill, knowledge and experience in the electric utility industry (who shall not be a current or former officer, director, employee or agent of a Party or any of its Affiliates). Upon receipt of the lists of proposed arbitrators, each Party, within fifteen (15) days of receipt thereof, shall rank the arbitrators provided by the other Party in order of preference, with number 1 representing the most preferred and number 3 representing the least preferred. If the Parties' rankings identify one or more arbitrators with a ranking that is common to both Parties, the Parties shall select the arbitrator having the most preferred, common ranking. If the Parties' rankings do not identify an arbitrator with a ranking common to both, each Party shall select one arbitrator from the other Party's list of proposed arbitrators and the two arbitrators so selected shall select a third arbitrator. Upon selection of the arbitrator(s), as

the case may be, the Parties jointly shall submit the issue to the arbitrator(s), together with a copy of this Agreement and the joint request that the arbitrator(s) provide a ruling on the issue submitted as expeditiously as possible. The Parties may submit additional written documentation to the arbitrator(s) and/or present oral arguments and/or live testimony before the arbitrator(s), in each case only upon a request from the arbitrator(s). The ruling of the arbitrator(s) shall be binding on the Parties, unless otherwise mutually agreed upon by the Parties.

17.3.2 The arbitration shall be conducted in accordance with the AAA Commercial Arbitration Rules ("AAA CA Rules") then in effect. To the extent the AAA CA Rules conflict with any provision of Section 17.3 of this Agreement, the terms of this Agreement shall govern and control. All arbitration proceedings shall take place in Raleigh, North Carolina.

17.3.3 A single arbitrator selected by the Parties will arbitrate all Disputes where the amount in controversy is less than $500,000. A panel of three (3) arbitrators, selected as provided in Section 17.3.1, above, will conduct the proceeding when the amount in controversy is equal to or more than $500,000. In the event the Parties are unable to agree on a single arbitrator, either Party may apply to the Superior Court Division, General Court of Justice, Wake County, North Carolina, for the appointment of an arbitrator in accordance with the provisions of Section 1-569.11 of the General Statutes of North Carolina.

17.3.4 In rendering the decision, the arbitrator(s) shall interpret and apply the terms and conditions of this Agreement, and consider any relevant evidence and testimony, but the arbitrator(s) shall not have the power to add to or modify any provision of this Agreement or recommend any additions or modifications to this Agreement, including, without limitation, any rates or charges provided for and determined in accordance with this Agreement.

17.3.5 No demand for arbitration shall be made or permitted after the date when the institution of a civil action based on the Dispute would be barred by the applicable statute of limitations or repose.

17.3.6 If any arbitrator resigns, becomes incapacitated or otherwise refuses or fails to serve or to continue to serve as an arbitrator, the Party entitled to designate such arbitrator or the two arbitrators who selected such arbitrator, as the case may be, shall designate a successor arbitrator.

17.4 Discovery. Either Party may apply to the arbitrators for the privilege of conducting discovery. The right to conduct discovery shall be granted by the arbitrators in their sole discretion with a view to avoiding surprise and providing reasonable access to necessary information or to information likely to be presented during the course of the arbitration, provided that such discovery period shall not exceed sixty (60) Business Days.

17.5 Binding Nature. The arbitrator(s)' decision shall be by majority vote (or by the single arbitrator if a single arbitrator is used) and shall be issued in a writing that sets forth in

separately numbered paragraphs all of the findings of fact and conclusions of law necessary for the decision. Findings of fact and conclusions of law shall be separately designated as such. The arbitrator(s) shall not be entitled to deviate from the construct, procedures or requirements of this Agreement. The award rendered by the arbitrator(s) in any arbitration shall be final and binding upon the Parties, unless otherwise mutually agreed by the Parties in writing, and judgment may be entered on the award in accordance with applicable law in any court having jurisdiction over the Parties.

17.6 Consolidation. No arbitration arising under the Agreement shall include, by consolidation, joinder, or any other manner, any person not a party to the Agreement.

17.7 Mediation. At any time prior or subsequent to a Party initiating arbitration, the Parties may mutually agree to (but are not obligated to) attempt to resolve their Dispute by non-binding mediation, using a mediator selected by mutual agreement. Any such mediation shall be completed within thirty (30) Business Days from the date on which the Parties agree to mediate. Unless mutually agreed by the Parties, any mediation agreed to by the Parties shall not delay arbitration. The Parties shall pay their own costs associated with mediation and shall share any mediator's fee equally. The mediation shall be held in Raleigh, North Carolina, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction over the Parties.

17.8 Preservation of Remedies. Either Party may file a judicial claim or action on issues of statute of limitations or repose, subject to and in accordance with the provisions of

Section 18.12 (Venue/Consent to Jurisdiction). Preservation of these remedies does not limit each Party's obligation to be bound by the dispute resolution procedures set forth in this Article 17, and notwithstanding the initiation of such aforementioned judicial claim or action, but subject to such judicial claim or action, the Parties will continue to participate in and be bound by the applicable dispute resolution procedures set forth in this Article 17.

17.9 Settlement Discussions. The Parties at any time may engage in discussions aimed at reaching a consensual resolution of any matter arising under this Agreement that is in dispute. Any such negotiations and discussions between the Parties shall be confidential and will be treated as compromise and settlement negotiations for purposes of applicable rules of evidence and procedure. No statement of position or offer of settlement made in the course of such settlement discussions will be admissible into evidence for any purpose (except to enforce the terms of a settlement agreement resulting from such discussions), nor will any such statements of positions or offers of settlement be used in any manner against either Party. Further, no statement of position or offer of settlement will constitute an admission or a waiver of rights by either Party.

17.10 Survival. This Article 17 will survive any expiration or termination of this Agreement to the extent applicable to any dispute that arose, or the basis for which occurred, while this Agreement was in effect.

18. Other Provisions

18.1 Combined System Load Signal. During the Delivery Period, and for so long as Power Agency's billing demands for Supplemental Load are determined at the time of DEP's Monthly Peak Demand or DEP's Annual Peak Demand and a load signal for the Combined System exists, DEP will furnish to Power Agency the Combined System load signal, and waives its right to terminate the Combined System load signal during the Term of this Agreement. Power Agency may share the Combined System load signal with its Members. Power Agency and its Members shall not share or disclose the Combined System load signal with other parties including, but not limited to, power marketers, investor owned utilities, independent power producers, consultants or other entities engaged in the business of generating, marketing and trading energy and energy related products. DEP does not guarantee the accuracy of the Combined System load signal or any associated data or information.

18.2 New Industrial Customers. To the extent a Member of Power Agency attracts a new industrial load customer requiring electric service that (i) does not have a choice, under North Carolina law, to select DEP as its electric provider, and (ii) such Member has the authority to legally offer and provide retail service to such customer, then, at the written request of Power Agency, such Member, Power Agency, and DEP will engage in good faith discussions to explore whether DEP could provide an economic development rate or other incentive under this Agreement in connection with Power Agency's Member

providing service to such potential industrial load customer; provided, however, DEP will have no obligation to provide any economic development rate or incentive.

18.3 Reasonableness. Each Party agrees that it shall use commercially reasonable efforts or exercise reasonable diligence consistent with Prudent Utility Practices, as applicable, to implement and administer the provisions of this Agreement, including without limitation for the purpose of minimizing any applicable damages and Taxes associated with the transactions contemplated by this Agreement. Neither Party guarantees the correctness of any estimated or projected information that is made available pursuant to this Agreement, and each Party expressly acknowledges and agrees that the Party providing such estimated or projected information shall have no liability to the other Party should any of the estimated or projected information turn out to be different from the actual information once such actual information is known.

18.4 Permitted Assignment. This Agreement shall be binding upon and inure to the benefit of the permitted successors and assigns of the Parties hereto. Neither Party shall assign its interest in this Agreement, in whole or in part, without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed; provided, however, DEP may assign this Agreement without the prior written consent of Power Agency to its parent, or to any direct or indirect wholly-owned subsidiary of such parent, if such parent or subsidiary shall have (i) sources of generation capacity that will enable it to perform hereunder with at least the same degree of firmness as DEP, and (ii) a creditworthiness that provides reasonable assurance of its ability to fulfill DEP's

responsibilities under this Agreement. Any assignment made without fulfilling the requirements of this Agreement shall be null and void.

18.5 Safe Harbor. The Parties acknowledge, agree, and intend that, as applicable: (a) all transactions under this Agreement constitute "forward contracts" as defined in 11 U.S.C. §101(25); (b) the electric energy supplied under this Agreement is a "commodity" as that term is used in 11 U.S.C. §101(25)(A); (c) all payments made or to be made by Power Agency to DEP under this Agreement with respect to the supply of electric energy constitute "settlement payments" as used in 11 U.S.C. §546(e); (d) Power Agency is a "forward contract merchant" as defined in 11 U.S.C. §101(26); (e) all transfers of credit assurances, if any, by one Party to the other Party under this Agreement constitute "margin payments" as used in 11 U.S.C. §546(e); and, (f) without limitation, each Party's rights under this Agreement constitute contractual rights "to liquidate, terminate, or accelerate." Further, each Party agrees that it will not assert, and hereby waives any right to assert, that the other Party in performing hereunder is not doing so as a "utility" as such term is used in 11 U.S.C. § 366. Further each Party hereby waives and agrees not to assert that 11 U.S.C. § 366 applies to this Agreement or any transaction hereunder in any bankruptcy proceeding. In any such proceeding, each Party further waives the right to assert and agrees that it will not assert that the other Party is a provider of last resort with respect to this Agreement or any transaction hereunder or otherwise limit contractual rights to liquidate, terminate, or accelerate. Without limiting the binding nature of any other provision of this Agreement on permitted successors and

assigns, this provision is intended to be binding upon all successors and assigns of the Parties, including judgment lien creditors, receivers, estates in possession, and trustees thereof.

18.6 Amendments. No amendment or change to this Agreement shall be valid, binding or enforceable unless agreed upon in writing executed by both Parties, and to the extent applicable, approved or accepted by FERC.

18.7 Drafting. Each Party agrees that it has completely read, fully understands, and agrees to every provision hereof. Each Party agrees that this Agreement shall be considered for all purposes as prepared through the joint efforts of the Parties, and no Party shall have any provision hereof construed against such Party by reason of such Party drafting, negotiating, or proposing any provision hereof, or execution of this Agreement. Each Party irrevocably waives the benefit of any rule of contract construction that disfavors the drafter of a contract or the drafter of specific language in a contract. All section headings in this Agreement are included herein for convenience of reference only and shall not constitute a part of this Agreement for any other purpose.

18.8 Waiver. No waiver by any Party of any of its rights with respect to the other Party or with respect to any matter or default arising in connection with this Agreement shall be construed as a waiver of any subsequent right, matter or default whether of a like kind or different nature. Any waiver as between the Parties shall be in writing signed by the waiving Party.

18.9 Severability of Provisions. Except as provided for in Section 2.2.1, if FERC or any other Governmental Authority or court having jurisdiction over the Parties or arbitrator holds that any provision of this Agreement is invalid, and if no Party withdraws from this Agreement as provided for hereunder, then the remainder of this Agreement shall not be affected thereby and shall continue in full force and effect.

18.10 Partnership. Nothing contained in this Agreement shall be construed or constitute any Party as the employee, agent, partner, or contractor of any other Party, or as being in a joint venture with the other Party.

18.11 Third Parties. This Agreement is made and entered into for the sole protection and legal benefit of the Parties hereto, and each Party's permitted successors and assigns, and no other person or entity shall be a direct or indirect legal beneficiary of, or have any direct or indirect cause of action or claim in connection with or under this Agreement. This Agreement shall not be construed to create any third-party beneficiary rights of any sort.

18.12 Governing Law. THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NORTH CAROLINA, WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW THAT WOULD REQUIRE THE APPLICATION OF ANY OTHER LAW EXCEPT AS EXPRESSLY PROVIDED HEREIN, AND, TO THE EXTENT APPLICABLE, BY THE FEDERAL LAW OF THE UNITED STATES OF AMERICA.

18.13 Venue/Consent to Jurisdiction. To the extent that FERC does not have exclusive jurisdiction or does not assert its concurrent jurisdiction with respect to the subject

matter of any action arising out of, resulting from, or in any way relating to, this Agreement, any judicial action, suit, or proceedings pertaining to such subject matter or to any alleged breach or default under this Agreement or the representations and warranties contained herein, shall be brought only in a state or federal court having jurisdiction over the Parties located in Wake County, North Carolina. The Parties hereby irrevocably consent to the jurisdiction of any federal or state court within Wake County, North Carolina and hereby submit to venue in such courts. Without limiting the generality of the foregoing, the Parties waive and agree not to assert by way of motion, defense, or otherwise in such suit, action, or proceeding, any claim that (i) such Party is not subject to the jurisdiction of the state or federal Courts within Wake County, North Carolina; or (ii) such suit, action, or proceeding is brought in an inconvenient forum; or (iii) the venue of such suit, action, or proceeding is improper. The Parties further agree that the exclusive forum for the resolution of any dispute arising under this Agreement that is not subject to FERC's jurisdiction or Arbitration shall occur in federal or state court within Wake County.

18.14 Costs. Each Party shall be responsible for its own costs and fees associated with negotiating or disputing or taking any other action with respect to this Agreement.

18.15 Computation of Time. In computing any period of time under this Agreement, the day of the act, event, or default from which the designated period of time begins to run shall be included. If the last day of the period so computed is a Saturday, a Sunday or a legal

holiday in North Carolina, then the period will run until the end of the next day which is not a Saturday, a Sunday or a legal holiday in North Carolina.

18.16 Further Documentation. From time to time after the execution of this Agreement, the Parties hereto shall within their legal authority execute any other documents as may be necessary, helpful or appropriate to carry out the terms of this Agreement.

18.17 Survivorship of Obligations. The termination of this Agreement shall not discharge any Party from any obligation it owes to the other Party under this Agreement by reason of any transaction, loss, cost, damage, expense or liability which shall occur or arise (or the circumstances, events or bases which shall occur or arise) prior to such termination. It is the intent of the Parties hereby that any such obligation owed (whether the same shall be known or unknown at the termination of this Agreement or whether the circumstances, events or bases of the same shall be known or unknown at the termination of this Agreement) will survive the termination of this Agreement. Notwithstanding the foregoing, Duke shall remain obligated to pay Buyer an amount equal to Buyer's Allocable Share of CCR Disallowances and/or CCR Insurance Proceeds, if any, that arise after the expiration or termination of this Agreement; provided, however that Duke's obligation to pay such CCR Disallowance shall be strictly limited to CCR Costs that were incurred by Duke during years in which Duke provided service to Buyer under this Agreement.

18.18 Entire Agreement. This Agreement shall constitute the entire understanding between the Parties hereto, superseding any and all previous understandings, oral or written,

pertaining to the subject matter contained herein. The Parties hereto have entered into this Agreement in reliance upon the representations and mutual undertakings contained herein and not in reliance upon any oral or written representation or information provided to one Party by any representative of the other Party.

18.19 Force Majeure. Unless otherwise provided in this Agreement, to the extent that the Party claiming a Force Majeure event ("Claiming Party") is prevented by Force Majeure from carrying out, in whole or in part, its obligations under this Agreement and the Claiming Party gives notice and details of the Force Majeure to the other Party ("Non-Claiming Party") as soon as reasonably practicable under the circumstances, then the Claiming Party shall be excused from the performance of its obligations other than the obligation to make payments then due or becoming due in respect to performance prior to the Force Majeure. The Claiming Party shall make reasonable efforts to remove such inability within a reasonable time.

18.20 Counterparts. This Agreement may be executed in several counterparts, each of which shall be deemed to be an original and all of which constitute one and the same instrument.

SIGNATURE PAGE FOLLOWS

IN WITNESS WHEREOF, DEP and Power Agency have caused this Agreement to be executed by their respective duly authorized officers as of the Execution Date.

DUKE ENERGY PROGRESS, LLC

BY: _____

NAME: Harold L. James, Jr.

TITLE: Vice President – Utility and Large Commercial & Industrial Sales

DATE: June 8, 2023

NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY

BY: _____

NAME: Roy L. Jones

TITLE: Chief Executive Officer

DATE: _____

IN WITNESS WHEREOF, DEP and Power Agency have caused this Agreement to be executed by their respective duly authorized officers as of the Execution Date.

DUKE ENERGY PROGRESS, LLC

BY: _____

NAME: Harold James, Jr.

TITLE: Vice President – Utility and Large Commercial & Industrial Sales

DATE: _____

NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY

BY: _____

NAME: Roy Jones

TITLE: Chief Executive Officer

DATE: June 27, 2023

Exhibit I

Capacity Rate Formula

(Exhibit Follows)

NCEMPA

Year Ending 12/31/XX

DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Summary of Rates

Line		Reference	Total (with adjustments)	Allocation Factor	Production Capacity Allocation
1	**Gross Revenue Requirement**	*Page 3*			
	Less: Revenue Credits				
	Sales for Resale (G.L. 447)				
2	Demand Charges- Non-RQ	*311.*.NonRQ.h*			
3	Energy Charges- Non-RQ	*311.*.NonRQ.i*			
4	Other Charges - Non-RQ	*311.*.NonRQ.j*			
5	Less: Energy Cost of Sales	*EC 1.6*			
6	Sales for Resale- Net				
7	NCEMPA Backstand	*Note A*			
8	Rental Revenues (GL 454)- Allocated	*Page 6*			
9	Other Electric Revenues (GL 456)- Allocated	*Page 7*			
9A	Gain (Loss) from Disposition of Allowances (G.L. 411.8, 411.9)	*114.22+23 (c)*			
9B	[1] Gain (Loss) on Disposition of Property (G.L. 421.1, 421.2)	*Note A, Page 10*			
10	Other Revenue Credits				
11	**Total Revenue Credits**			D/A	
12	**Net Revenue Requirements** (Line 1 - Line 11)				
13	**Sum of Monthly kW System Peaks**	*Page 16*			
14	**Monthly Capacity Rate: $/kW-month**	*Line 12 / 13*			
15	**Annual Capacity Rate: $/kW-year**	*Line 14 * 12*			

Notes:

It is the intent of this Production Capacity Rate Formula ("Formula Rate"), including the supporting explanations and allocations described herein, that each input to the Formula Rate either will be (i) taken directly from the FERC Form No. 1 or (ii) reconcilable to the FERC Form No. 1 by the application of clearly identified and supported information. State and federal tax rates are inputs to the Formula Rate that are not covered by these two conditions, as the Formula Rate template has separate lines for state and federal tax rates inputs and then a calculation of the overall tax rate. Adjustments to FERC Form 1 inputs will be set forth in the "Adjustment" columns of this Formula Rate template and will be those amounts necessary to (i) maintain all applicable DEP hold harmless commitments to FERC, (ii) remove the effect of certain retail ratemaking orders on DEP's FERC Form 1 inputs so that the Formula Rate calculates DEP's production cost of service on a wholesale basis, and (iii) comply with the provisions of the formula rate (e.g., Note K). This note is applicable to all pages of the Formula Rate template included herein.

[1] Account reviewed to identify production related items.

Inputs to the Production Capacity Rate formula have been adjusted as appropriate to exclude merger related costs and other retail specific impacts. These adjustments are detailed across pages 10(a), 10(b), 9(a) and 9(b).

LINE REFERENCES MAY CHANGE BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

NCEMPA

DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Rate Base

Line		Reference	Beginning Balance (with adjustments)	Ending Balance (with adjustments)	Average	Allocation Factor	Production Capacity Allocation
	Gross Plant in Service:						
1	Production Plant in Service- Total	205.46.g					
2	CWIP	Page 15					
2A	Acquisition Adjustments (114)	Note K					
	Adjustments:						
3	Asset Retirement Costs- Steam	205.15.g					
4	Asset Retirement Costs- Nuclear	205.24.g					
4A	Asset Retirement Costs- Hydro	205.34.g					
5	Clean Smokestack Compliance	Note I					
6	Less: Premium on Renewable Energy	Note J					
7	Production Plant - Adjusted					PP	
8	Transmission Plant	207.58.g				Other	
9	Distribution Plant	207.75.g				Other	
10	General Plant - Net of Asset Retirement	207.99-98.g				LABOR	
11	Intangible Plant	205.5.g				LABOR	
12	**Total Gross Plant**					GP =	
	Accumulated Depreciation:						
13	Production Depreciation Reserve	219.20-24.c					
14	Adjustment: Harris Accelerated Depreciation	Note A	[1]				
15	Adjustment: Decommissioning (ARO)	Note B, Page 10					
16	Clean Smokestack Compliance	Note I					
16A	Amort of Plant Acquisition Adj (115)	Note K					
17	Production Reserve- Adjusted					PP	
18	Transmission Depreciation Reserve	219.25.c				Other	
19	Distribution Depreciation Reserve	219.26.c				Other	
20	General Depreciation Reserve	219.28.c				LABOR	
21	Intangible Amortization Reserve	200.21.c				LABOR	
22	**Total Accumulated Depreciation**						
	Net Plant in Service						
23	Net Production Plant	Line 7 - Line 17					
24	Net Transmission Plant	Line 8 - Line 18					
25	Net Distribution Plant	Line 9 - Line 19					
26	Net General Plant	Line 10 - Line 20					
27	Net Intangible Plant	Line 11 - Line 21					
28	**Total Net Plant**					NP =	
	Adjustments to Rate Base - Deferred Taxes						
29	ADIT - 190	234.8.c				Page 11	
30	ADIT - 282 (Negative)	275.2.k				Page 12	
31	ADIT - 283 (Negative)	277.9.k				Page 13	
32							
33	Adjustment: Harris AD ADIT	Note A	[1]			PP	
34	**Total Deferred Tax Adjustments**						
35	**Plant Held for Future Use - Prod. Rel.**	214.7+10.d				Note G	
36	**Prelim. Survey and Investigation Charges**	111.73.c				Note A	
	Fuel Inventories						
37	Nuclear Fuel Stock	203.14.f					
38	Fuel Stock	227.1.c					
39	Allowances (158.1, 158.2)	229.29.m					
40	Adjustment: Nuclear Fuel in Process	203.6.f					
41	**Total Fuel Inventories**					D/A	
	Other Rate Base Adjustments						
42	Labor Related Net Deferred Credits	Page 14					
43	Other Regulatory Assets	232.18.f				NP	
43A	Unrecovered Plant & Regulatory Study Costs	Page 10				D/A	
44	Other Regulatory Liabilities (254)	Note A				NP	
45	Decommissioning Internal Reserve	Note B				D/A	
46	Net Deficient/ Excess ADIT Rate Base	Page 10				Page 10	
47	**Other Rate Base Adjustments**						
	Working Capital:						
48	Capacity Related O&M	Page 3					
49	Energy Related Production O&M	EC 1.7					
50	Cash Working Capital (1/8 O&M)					1/8	
51	M&S - Production	227.5(assigned)&7.c				PP	
52	M&S - Stores Expense	227.16.c				LABOR	
53	Prepayments	111.57.c				GP	
54	**Total Working Capital**						
55	**Total Rate Base (Sum of Lines 28, 34, 35, 36, 41, 47 and 54)**						$ -

Notes:
Inputs to the Production Capacity Rate formula have been adjusted as appropriate to exclude merger related costs and other retail specific impacts.
These adjustments are detailed across pages 10(a), 10(b), 9(a) and 9(b).

[1] The adjustments for Harris Accelerated Depreciation consist of the unamortized balance of $491,774,665 of accelerated depreciation charges and associated unamortized balance of accumulated deferred income tax in accordance with Attachment 4 of the Settlement Agreement filed in Docket No. ER13-1313 on 10/24/14.

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERNECES OR EQUIVALENT REFERENCES.

NCEMPA

DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Development of Revenue Requirements

Line	Expenses	Reference		Total (with adjustments)	Allocation Factor	Production Capacity Allocation
	O&M Expense (Capacity Related)					
1	TOTAL Production Expenses	321.80.b				
2	Less Total Fuel Burned	EC 1.4				
3	Less Energy Related Production O&M	EC 1.7				
4	Less Other Power Supply Expense (555 + 557)	321.76 + 78.b				
5	Net Production O&M (Capacity Related)				D/A	
6	OM Adjustment (Re-classified Transmission)	Page 4				
7	Net Production O&M After Adjustment (Capacity Related)					
8	Total Admin & General Expenses	323.197.b				
9	Less Property Insurance (924)	323.185.b				
10	Less Regulatory Commission Expenses (928)	323.189.b				
11	Less General Advertising Expenses (930.1)	323.191.b				
12	Less Industry Dues,R&D and Nuc Assoc Exp	335.1-3.b				
13	Net Labor Related A&G				LABOR	
14	Property Insurance (924)	323.185.b			GP	
15	Production Related Regulatory Expense	350.6-6.h			D/A	
16	Transmission of Electricity by others (565)	332.Total.h			D/A	
17	**Total Capacity O&M (Sum of Lines 7, 13, and 14 thru 16)**					
	Depreciation (Net of Decommissioning)					
18	Production Depreciation Expense	336.2-6.b	Note L		PP	
19	Adjustment: Harris Accelerated Depreciation	Note A	[1]		PP	
20	Adjustment:ARO Impacts in Depreciation Expense	336 Footnote and Note A Footnote to line 2 on FF1			D/A	
21	Adjustment: Clean Smokestack Compliance	p. 336			PP	
22	General Depreciation Expense	336.10.b	Note L		LABOR	
22A	Amortization of Unrecovered Plant & Reg. Costs	Page 10			D/A	
23	Intangible Amortization	336.1.f	Note L		LABOR	
23A	Amort of Utility Plant Acq. Adj. (406)	Note K			PP	
24	**Total Depreciation**					
25	**Decommissioning**	Note H			D/A	
26	**Purchased Power Capacity Expense**	327.*.Total.j			D/A	
	Taxes Other Than Income	Note C				
27	Labor Related	263.i			LABOR	
28	Property Related	263.i			GP	
29	**Total Other Taxes**					
	Return:					
30	Rate Base (Page 2, Line 54) * Rate of Return (Page 4, Line 43)					
	Income Taxes:					
31	NC/SC Composite	Note D				
32	Federal	Note D				
33	Composite T = State + Federal * (1 - State)					
34	Tax Rev.Req't Factor = T / (1 -T) * (1 - Wtd.Debt.Cost/R)					
35	Tax Gross Up Factor = 1 / (1 -T)					
36	Amortized ITC (Negative)	266.8.f				
37	ITC Adjustment (Line 35 * Line 36)				NP	
37a	Net Excess/Deficient Deferred Tax Expense	Page 10				
37b	Deferred Tax Adjustment (Line 35 * Line 37a)					
38	Income Taxes Calculated (Line 30 * Line 34)					
39	**Total Income Taxes (Sum of Lines 37, 37b, and 38)**					
40	**TOTAL REVENUE REQUIREMENT (Sum of Lines 17, 24, 25, 26, 29, 30, and 39)**					

Notes:
Inputs to the Production Capacity Rate formula have been adjusted as appropriate to exclude merger related costs and other retail specific impacts.
These adjustments are detailed across pages 10(a), 10(b), 9(a) and 9(b).

[1] The adjustment for Harris Accelerated Depreciation expense consists of the annual amortization of the $491,774,665 of accumulated Harris Accelerated depreciation. All items related to Harris Accelerated Depreciation will be included in the formula rate in accordance with Attachment 4 of the Settlement Agreement filed in Docket No. ER13-1313 on 10/24/14.

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Supporting Allocation Factor and Return Calculations

Line			Reference		Total (with adjustments)
	Production Plant Adjustment:				
1	Production Plant - Adjusted		Page 2, Line 7 Average		
	Allocation Adjustments:				
2	Generation Step-up Transformers in 353		Note A		
3	Interconnection Facilities (Order 2003)		Page 8		
4	Production Plant- with Allocation Adjustments				
5	**PP Allocation Factor (Line 4 / Line 1)**	Note E	PP	=	
	Production OM Adjustment				
6	Transmission Plant		Page 2, Line 8 Average		
7	*Allocation Adjustments:*				
8	Generation Step-up Transformers in 353		Note A		
9	Interconnection Facilities (Order 2003)		Page 8		
9A	Mitigation Projects prior to 7/2/17		Note A		
10	Transmission Plant- with Allocation Adjustments				
11	**Transmission OM Allocation Factor (1 - Line 10 / Line 6)**				
12	Transmission OM		321.112.b		
13	Less Account 561-561.4		321.84-88.b		
14	Less Account 565		332.Total.h		
15	Net Transmission OM				
16	**Transmission OM Adjustment**		Line 15 x Line 11		
	Labor Allocation Factor				
17	Total Direct Payroll - O&M Labor		354.28.b		
18	Less: A&G Labor		354.27.b		
18A	Adj. - Production related RCO Marketing Labor in A&G Labor		Note A		
19	Adjusted Labor w/o A&G (Line 17 - Line 18 + Line 18A)				
20	Production O&M Labor plus RCO Marketing labor in A&G		354.20.b	+ Line18A	
21	**Production Labor Factor (Line 20 / Line 19)**				
22	**Adjusted Production Labor Factor (Line 5 * Line 21)**		LABOR	=	
	Return and Capitalization				
	Net Interest on Long Term Debt				
23	Long Term Interest Expense		257.33.i		
24	Other Long Term Interest Expense		117.63-67.c		
25	Less: Short-term Interest on Debt to Assoc. Companies (430)		117.67.c		
26	Less Interest on Securitization Bonds		Note F		
27	**Net Long Term Interest Expense**		Line 23+24-25-26		
28	**Preferred Dividends (positive)**		118.29.c		

Line		Reference	Beginning Balance (with adjustments)	Ending Balance (with adjustments)	Average / Total
29	**Long Term Debt**	112.24.c			
30	Less Loss on Reacquired Debt	111.81.c			
31	Plus Gain on Reacquired Debt	113.61.c			
32	Less Securitization Bonds	Note F			
33	**Net Long Term Debt**	Line 29-30+31-32			
34	**Preferred Stock**	112.3.c			
	Common Stock				
35	Proprietary Capital	112.16.c			
36	Less Preferred Stock	112.3.c			
37	Less Account 216.1	112.12.c			
38	**Total Common Stock**				
39	**Total Capitalization (Sum Lines 33, 34, 38)**				

Line	**Cost of Capital**	Weight	Cost	Weighted Cost
40	Long term Debt			
41	Preferred Stock			
42	Common Equity		9.85% [1]	
43	**Weighted Cost of Capital:**		R_0=	

Notes:
Inputs to the Production Capacity Rate formula have been adjusted as appropriate to exclude merger related costs and other retail specific impacts.
These adjustments are detailed across pages 10(a), 10(b), 9(a) and 9(b).

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

Additional Allocation Factors
"Other" indicates a non-production related item, such as transmission or distribution. Allocation within the formula rate computation for "Other" will equal 0.
"GP" is the Gross Plant allocation factor and it is determined on Page 2 by taking the "Production Capacity Allocation" column divided by the "Average" column.
"NP" is the Net Plant allocation factor and it is determined on Page 2 by taking the "Production Capacity Allocation" column divided by the "Average" column.
"D/A" is Direct Assignment. See associated Reference for additional information.

[1] - The Cost of Common Equity is fixed at 9.85% per the provisions of the contract.

DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Notes

Note A: Analysis of Company books.

Note B: Annual Reconciliation of FERC Form 1 to Cost of Service Study (NCUC Docket E-2, Sub 826) and analysis of Company books.

Note C: Excludes all income and gross receipts taxes. Labor related other taxes include FICA and unemployment taxes. Property related taxes include county and local property taxes, highway use, and intangible taxes.

Note D: Determined by annual apportionment factors provided by Tax Department.

Note E: The "PP" factor is the percent of gross production plant after inclusion of interconnections and generator step-up transformer investment. Factor used to adjust production-related labor expenses and other amounts.

Note F: To the extent DEP is authorized by state utility commission(s) and issues bonds to securitize retail recovery of extraordinary property losses, associated principal and interest expense are excluded in capitalization and return basis.

Note G: Include FERC Form 1 Schedule 214 Production related amounts of Plant Held for Future Use.

Note H: In accordance with the decommissioning study on file as FERC Rate Schedule No. 381.

Note I: Analysis of Company books. The adjustments are limited to the amount direct assigned to NC Retail.

Note J: The purpose of this item is to adjust out any premium included in formula for DEP owned renewable generation. Customer will only be required to pay the avoided cost for these resources, so any premium needs to be adjusted from the formula. The balance for this item is from Page 15 of the formula rate.

Note K: These acquisition adjustments are limited to the acquisition of NCEMPA generating assets pursuant to the Asset Purchase Agreement by and between DEP and NCEMPA dated September 5, 2014.

Note L: Depreciation and amortization expense on page 3, on the lines for which Note L is inserted, shall be determined using the depreciation and amortization rates set forth in FERC Rate Schedule No. 199 and such rates will only be subject to change for ratemaking purposes pursuant to a filing under sections 205 or 206 of the Federal Power Act.

Note M: This line includes amounts recorded in Account Nos. 182.2 and 407 for the Early-Retired Plants, as defined by Note N, in accordance with the Settlement Agreement filed in Docket No. ER13-1313 on 10/24/14, and additional amounts recorded in Account Nos. 182.2 and 407 if accepted or approved by FERC in a Section 205 proceeding. With respect to the Early-Retired Plants, the amounts included in Account No. 182.2 shall be amortized to Account No. 407 in accordance with the amortization schedule set forth in Attachment 6 to the Settlement Agreement filed in Docket No. ER13-1313 on 10/24/14. Unless otherwise agreed by DEP and the Customer, DEP may seek to include in this line item amounts recorded to Account Nos. 182.2 and 407 that are in addition to the amounts recorded for the Early-Retired Plants (or otherwise currently included in the Formula Rate PPAs), only by submitting a Section 205 filing to FERC in which the sole issue that can be addressed is whether DEP 's inclusion of such costs in rates is just and reasonable ; provided that such single issue filing will not limit any party 's right to challenge the request for regulatory treatment, including, but not limited to the amount included in the request, the amortization period of the assets included in the request, and the proposed fixed carrying charges applicable to the assets included in the request (including the cost of debt and the ROE applicable to the assets in the request). The proceeding commenced in response to such a single issue Section 205 filing shall not include or allow for consideration or examination of any other aspects of the Formula Rate or other issues associated with the Formula Rate. The standard of review in such proceeding shall be the just and reasonable standard as opposed to the "public interest " standard .

Note N: The "Early-Retired Plants ", as used in this Formula Rate , are DEP 's Cape Fear Fossil (Units #1-6), Cape Fear Internal Combustion (Unit #4), Lee Fossil (Units #1-3), Lee Internal Combustion (Units #1-4), Robinson Fossil (Unit #1),Weatherspoon Fossil (Units #1-3), Morehead City Combustion Turbine (Unit #1), and Sutton Fossil (Units #1-3 and Fossil Common) as approved in Docket No. ER13-1313. "Early-Retired Plants" shall also include Asheville Fossil (Units #1-2), as accepted in Docket No. ER20-931,and Roxboro Wastewater Treatment System, as accepted in Docket No. ER22-2255.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Account 454 Reconciliation - Rents

		Total (before adjustments)	Adjustments	Note	Total (with adjustments)	Allocation Factor	Production Capacity Allocation
1	NORTH CAROLINA						
2	FACILITY CHARGES						
3	RESIDENCES - COMPANY EMPLOYEES						
4	POLE RENTAL						
5	BUILDING & LAND RENTAL					LABOR	
6	OTHER						
7	PT HOLDINGS IRU/REVENUE SHARING						
8	4543001 - NCEMC LEASED FACILITIES						
9	454300A - LEASED FACILITIES - PA3						
10	4543100 - TELEMETRY CHARGES - PA3					PROD	
11	4549000 - CO-GENERATION - TRANSMISSION						
12	4549000 - CO-GENERATION - DISTRIBUTION						
13	TOTAL NORTH CAROLINA						
14	SOUTH CAROLINA						
15	FACILITY CHARGES						
16	POLE RENTAL						
17	4549000 - CO-GENERATION - TRANSMISSION						
18	4549000 - CO-GENERATION - DISTRIBUTION						
19	TOTAL SOUTH CAROLINA						
20	TOTAL						

Notes for adjustments:

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Other Electric Revenues (G.L. 456)

	Reference		Total (before adjustments)	Adjustments	Note	Total (with adjustments)	Allocation Factor	Production Capacity Allocation
1	**Other Electric Revenues**	300.21.b						
2	BUILDING & LAND LEASE						LABOR	
3	POLE RENT						OTHER	
4	GYPSUM FEES						PROD	
5	SALE OF TIMBER						PROD	
6	PIEDMOND/HAYWOOD SCHEDULING FEE						PROD	
7	REPS - PENALTY REVENUE						OTHER	
8	DEMAND PROFILE PLOT						OTHER	
9	SOUTH CAROLINA SALES TAX REFUND						OTHER	
10	MAGNETIC PULSE DATA						OTHER	
11	CO-GENERATION						PROD	
12	RENEWABLE ENERGY INTERCONNECTION FEE						OTHER	
13	NCEMPA INVENTORY CARRY						PROD	
14	NCEMPA ADMINISTRATIVE CHARGE						PROD	
15	NCEMPA - RETURN ON GENERAL PLANT						LABOR	
16	NCEMPA DISPATCH FEE						PROD	
17	NCEMPA SITE REP						PROD	
18	OTHER ELEC REVENUE-BY-PRODUCTS (GYPSUM)						ENERGY	
19	NCEMC ADMINISTRATIVE CHARGES						PROD	
20	EPRI Royalties						OTHER	
21	1101 (Billed Rev other)						OTHER	
22	INTERCOMPANY COAL BLENDING SAVINGS - DEC						ENERGY	
23	OTHER						OTHER	
24	Buy for Resale Transmission						TP	
25	**Other Electric Revenues (GL 456)**							

Notes for adjustments:

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Interconnection Facilities for Generation In-Service After March 15, 2000 per FERC Order 2003

	Project	Balance Beginning	Ending	B/E Average
1	Wayne County 1 - 4			
2	Asheville Unit 4			
3	Richmond - Phase 1			
4	Richmond - Phase 2			
5	Brunswick #1 Uprate			
6	Brunswick #2 Uprate			
7	Wayne County / Lee CC			
8	Richmond County			
9	Sutton CC			
10	**Total Interconnection Facilities**			

Note: Excludes Step-up Transformers accounted for on Exhibit A, page 4, line 2.

NOTE: PROJECTS AND AMOUNTS LISTED ABOVE ARE SUBJECT TO CHANGE BASED ON ADDITIONS YOY

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

FERC Form-1 Inputs

Page	Row	Column	Description	Reference	Previous Year/ Year End (before adjustments)	Current Year/ Year End (before adjustments)
111	57	c	Prepayments	111.57.c		
111	73	c	Prelim. Survey and Investigation Charges	111.73.c		
111	81	c	Loss on Reacquired Debt	111.81.c		
112	3	c	Preferred Stock Issued	112.3.c		
112	12	c	Account 216.1	112.12.c		
112	16	c	Proprietary Capital	112.16.c		
112	24	c	Long Term Debt	112.24.c		
112	27	c	Accum. Prov. for Property Insurance (GL 228.1)	112.27.c		
112	28	c	Accum. Prov. for Injuries & Damages (GL 228.2)	112.28.c		
112	29	c	Accum. Prov. for Pensions & Benefits (GL 228.3)	112.29.c		
113	61	c	Gain on Reacquired Debt	113.61.c		
114	9	c	Amort of Utility Plant Acq. Adj. (406)	114.9.c and Note K		
117	63-67	c	Other Long Term Interest Expense	117.63-67.c		
118	29	c	Preferred Dividends (positive)	118.29.c		
200	12	c	Acquisition Adjustments (114)	200.12.c and Note K		
200	21	c	Intangible Amortization Reserve	200.21.c		
200	32	c	Amort of Plant Acquisition Adj (115)	200.32.c and Note K		
203	14	f	Nuclear Fuel Stock	203.14.f		
203	6	f	Nuclear Fuel In Process	203.6.f		
205	5	g	Intangible Plant	205.5.g		
205	46	g	Production Plant	205.46.g		
205	15	g	Asset Retirement Costs- Steam	205.15.g		
205	24	g	Asset Retirement Costs- Nuclear	205.24.g		
205	34	g	Asset Retirement Costs- Hydro	205.34.g		
207	58	g	Transmission Plant	207.58.g		
207	75	g	Distribution Plant	207.75.g		
207	99-98	g	General Plant - Net of Asset Retirement	207.99-98.g		
214	7+10	d	Plant Held for Future Use- Production	214.7+10.d		
219	20-24	c	Production Depreciation Reserve	219.20-24.c		
219	25	c	Transmission Depreciation Reserve	219.25.c		
219	26	c	Distribution Depreciation Reserve	219.26.c		
219	28	c	General Depreciation Reserve	219.28.c		
227	1	c	Fuel Stock	227.1.c		
227	4	c	Plant Materials and Operating Supplies (154) net of M&S - Production	227.4.c		
227	5(assigned)&7	c	M&S - Production	227.5(assigned)&7.c		
227	16	c	M&S - Stores Expense	227.16.c		
229	29	m	Allowances (158.1, 158.2)	229.29.m		
232	18	f	Other Regulatory Assets	232.18.f		
232	3	f	SFAS 158 Regulatory Assets	232.3.f		
234	8	c	ADIT - 190	234.8.c		
257	33	i	Long Term Interest Expense	257.33.i		
263	3	i	Other Taxes - FICA / Unemployment	263.3.i		
263	4	i	Other Taxes - Highway Use	263.4.i		
263	11&22	i	Other Taxes - Real & Personal Property	263.11&22.i		
263	13&24	i	Other Taxes - State Unemployment	263.13&24.i		
266	8	f	Amortized ITC (Negative)	266.8.f		
273	8	k	ADIT - 281 (Negative)	273.8.k		
275	2	k	ADIT - 282 (Negative)	275.2.k		
277	9	k	ADIT - 283 (Negative)	277.9.k		
278		f	Other Regulatory Liabilities (254)	Page 278 and Note A		
311.*	NonRQ	h	Demand Charges- Non-RQ	311.*.NonRQ.h		
311.*	NonRQ	i	Energy Charges- Non-RQ	311.*.NonRQ.i		
311.*	NonRQ	j	Other Charges-Non-RQ	311.*.NonRQ.j		
321	76 + 78	b	Other Power Supply Expense (555 + 557)	321.76 + 78.b		
321	80	b	TOTAL Production Expenses	321.80.b		
321	84-88	b	Account 561-561.4	321.84-88.b		
321	112	b	TOTAL Transmission OM	321.112.b		
323	185	b	Property Insurance (924)	323.185.b		
323	189	b	Regulatory Commission Expenses (928)	323.189.b		
323	191	b	General Advertising Expenses (930.1)	323.191.b		
323	197	b	Total Admin & General Expenses	323.197.b		
327.*	Total	j	Purchased Power Demand Charges	327.*.Total.j		
332	Total	h	Transmission of Electricity by Others (565)	332.Total.h		
336	1-3	b	Industry Dues, R&D, C-V Nuc Pwr Assoc	336.1-3.b		
336	1	f	Intangible Amortization	336.1.f		
336	2-6	b	Production Depreciation Expense	336.2-6.b		
336	10	b	General Depreciation Expense	336.10.b		
336	3	Footnote and Note A	ARO Impacts in depreciation expense	336 Footnote and Note A		
350	5-6	h	Production Related Regulatory Commiss. Exp.	350.5-6.h		
354	20	b	Production O&M Labor	354.20.b		
354	27	b	A&G Labor	354.27.b		
354	28	b	Total Direct Payroll - O&M Labor	354.28.b		

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

FERC Form-1 Inputs

Page	Row	Column	Description	Reference	Previous Year/ Year End (before adjustments)	Adjustments	Note	Previous Year/ Year End (with adjustments)
111	57	c	Prepayments	111.57.c				
111	73	c	Prelim. Survey and Investigation Charges	111.73.c				
111	81	c	Loss on Reacquired Debt	111.81.c				
112	3	c	Preferred Stock Issued	112.3.c				
112	12	c	Account 216.1	112.12.c				
112	16	c	Proprietary Capital	112.16.c				
112	24	c	Long Term Debt	112.24.c				
112	27	c	Accum. Prov. for Property Insurance (GL 228.1)	112.27.c				
112	28	c	Accum. Prov. for Injuries & Damages (GL 228.2)	112.28.c				
112	29	c	Accum. Prov. for Pensions & Benefits (GL 228.3)	112.29.c				
113	61	c	Gain on Reacquired Debt	113.61.c				
114	9	c	Amort of Utility Plant Acq. Adj. (406)	114.9.c and Note K				
117	63-67	c	Other Long Term Interest Expense	117.63-67.c				
118	29	c	Preferred Dividends (positive)	118.29.c				
200	12	c	Acquisition Adjustments (114)	200.12.c and Note K				
200	21	c	Intangible Amortization Reserve	200.21.c				
200	32	c	Amort of Plant Acquisition Adj (116)	200.32.c and Note K				
203	14	f	Nuclear Fuel Stock	203.14.f				
203	6	f	Nuclear Fuel In Process	203.6.f				
205	5	g	Intangible Plant	205.5.g				
205	46	g	Production Plant	205.46.g				
205	15	g	Asset Retirement Costs- Steam	205.15.g				
205	24	g	Asset Retirement Costs- Nuclear	205.24.g				
205	34	g	Asset Retirement Costs- Hydro	205.34.g				
207	58	g	Transmission Plant	207.58.g				
207	75	g	Distribution Plant	207.75.g				
207	99-98	g	General Plant - Net of Asset Retirement	207.99-98.g				
214.	7+10	d	Plant Held for Future Use- Production	214.7+10.d				
219	20-24	c	Production Depreciation Reserve	219.20-24.c				
219	25	c	Transmission Depreciation Reserve	219.25.c				
219	26	c	Distribution Depreciation Reserve	219.26.c				
219	28	c	General Depreciation Reserve	219.28.c				
227	1	c	Fuel Stock	227.1.c				
227	4	c	Plant Materials and Operating Supplies (154) net of M&S - Production	227.4.c				
227	5(assigned)&7	c	M&S - Production	227.5(assigned)&7.c				
227	16	c	M&S - Stores Expense	227.16.c				
229	29	m	Allowances (158.1, 158.2)	229.29.m				
232	18	f	Other Regulatory Assets	232.18.f				
232	3	f	SFAS 166 Regulatory Assets	232.3.f				
234	8	c	ADIT - 190	234.8.c				
257	33	i	Long Term Interest Expense	257.33.i				
263	3	i	Other Taxes - FICA / Unemployment	263.3.i				
263	4	i	Other Taxes - Highway Use	263.4.i				
263	11&21	i	Other Taxes - Real & Personal Property	263.11&21.i				
263	13&23	i	Other Taxes - State Unemployment	263.13&23.i				
266	8	f	Amortized ITC (Negative)	266.8.f				
273	8	k	ADIT - 281 (Negative)	273.8.k				
275	2	k	ADIT - 282 (Negative)	275.2.k				
277	9	k	ADIT - 283 (Negative)	277.9.k				
278		f	Other Regulatory Liabilities (254)	Page 278 and Note A				
311.*	NonRQ	h	Demand Charges- Non-RQ	311.*.NonRQ.h				
311.*	NonRQ	i	Energy Charges- Non-RQ	311.*.NonRQ.i				
311.*	NonRQ	j	Energy Charges- Other Charges	311.*.NonRQ.j				
321	76 + 78	b	Other Power Supply Expense (555 + 557)	321.76 + 78.b				
321	80	b	TOTAL Production Expenses	321.80.b				
321	84-88	b	Account 561-561.4	321.84-88.b				
321	112	b	TOTAL Transmission OM	321.112.b				
323	185	b	Property Insurance (924)	323.185.b				
323	189	b	Regulatory Commission Expenses (928)	323.189.b				
323	191	b	General Advertising Expenses (930.1)	323.191.b				
323	197	b	Total Admin & General Expenses	323.197.b				
327.*	Total	j	Purchased Power Demand Charges	327.*.Total.j				
332	Total	h	Transmission of Electricity by Others (565)	332.Total.h				
335	1-3	b	Industry Dues, R&D, C-V Nuc Pwr Assoc	335.1-3.b				
336	1	f	Intangible Amortization	336.1.f				
336	2-6	b	Production Depreciation Expense	336.2-6.b				
336	10	b	General Depreciation Expense	336.10.b				
336	3	Footnote and Note A	Nuclear Decommissioning Amortization	336 Footnote and Note A				
350	5-6	h	Production Related Regulatory Commiss. Exp.	350.5-6.h				
354	20	b	Production O&M Labor	354.20.b				
354	27	b	A&G Labor	354.27.b				
354	28	b	Total Direct Payroll - O&M Labor	354.28.b				

Notes for adjustments:

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

FERC Form-1 Inputs

Page	Row	Column	Description	Reference	Current Year/ Year End (before adjustments)	Adjustments	Note	Current Year/ Year End (with adjustments)
111	57	c	Prepayments	111.57.c				
111	73	c	Prelim. Survey and Investigation Charges	111.73.c				
111	81	c	Loss on Reacquired Debt	111.81.c				
112	3	c	Preferred Stock Issued	112.3.c				
112	12	c	Account 216.1	112.12.c				
112	16	c	Proprietary Capital	112.16.c				
112	24	c	Long Term Debt	112.24.c				
112	27	c	Accum. Prov. for Property Insurance (GL 228.1)	112.27.c				
112	28	c	Accum. Prov. for Injuries & Damages (GL 228.2)	112.28.c				
112	29	c	Accum. Prov. for Pensions & Benefits (GL 228.3)	112.29.c				
113	61	c	Gain on Reacquired Debt	113.61.c				
114	9	c	Amort of Utility Plant Acq. Adj. (406)	114.9.c and Note K				
117	63-67	c	Other Long Term Interest Expense	117.63-67.c				
118	29	c	Preferred Dividends (positive)	118.29.c				
200	12	c	Acquisition Adjustments (114)	200.12.c and Note K				
200	21	c	Intangible Amortization Reserve	200.21.c				
200	32	c	Amort of Plant Acquisition Adj (115)	200.32.c and Note K				
203	14	f	Nuclear Fuel Stock	203.14.f				
203	6	f	Nuclear Fuel in Process	203.6.f				
205	5	g	Intangible Plant	205.5.g				
205	46	g	Production Plant	205.46.g				
205	15	g	Asset Retirement Costs- Steam	205.15.g				
205	24	g	Asset Retirement Costs- Nuclear	205.24.g				
205	34	g	Asset Retirement Costs- Hydro	205.34.g				
207	58	g	Transmission Plant	207.58.g				
207	75	g	Distribution Plant	207.75.g				
207	99-98	g	General Plant - Net of Asset Retirement	207.99-98.g				
214	7+10	d	Plant Held for Future Use- Production	214.7+10.d				
219	20-24	c	Production Depreciation Reserve	219.20-24.c				
219	25	c	Transmission Depreciation Reserve	219.25.c				
219	26	c	Distribution Depreciation Reserve	219.26.c				
219	28	c	General Depreciation Reserve	219.28.c				
227	1	c	Fuel Stock	227.1.c				
227	4	c	Plant Materials and Operating Supplies (154) net of M&S - Production	227.4.c				
227	5(assigned)&7	c	M&S - Production	227.5(assigned)&7.c				
227	16	c	M&S - Stores Expense	227.16.c				
229	29	m	Allowances (158.1, 158.2)	229.29.m				
232	18	f	Other Regulatory Assets	232.18.f				
232	3	f	SFAS 158 Regulatory Assets	232.3.f				
234	8	c	ADIT - 190	234.8.c				
257	33	i	Long Term Interest Expense	257.33.i				
263	3	i	Other Taxes - FICA / Unemployment	263.3.i				
263	4	i	Other Taxes - Highway Use	263.4.i				
263	11&22	i	Other Taxes - Real & Personal Property	263.11&22.i				
263	13&24	i	Other Taxes - State Unemployment	263.13&24.i				
266	8	f	Amortized ITC (Negative)	266.8.f				
273	8	k	ADIT - 281 (Negative)	273.8.k				
275	2	k	ADIT - 282 (Negative)	275.2.k				
277	9	k	ADIT - 283 (Negative)	277.9.k				
278		f	Other Regulatory Liabilities (254)	Page 278 and Note A				
311.*	NonRQ	h	Demand Charges- Non-RQ	311.*.NonRQ.h				
311.*	NonRQ	i	Energy Charges- Non-RQ	311.*.NonRQ.i				
311.*	NonRQ	j	Other Charges-Non-RQ	311.*.NonRQ.j				
321	76 + 78	b	Other Power Supply Expense (555 + 557)	321.76 + 78.b				
321	80	b	TOTAL Production Expenses	321.80.b				
321	84-88	b	Account 561-561.4	321.84-88.b				
321	112	b	TOTAL Transmission OM	321.112.b				
323	185	b	Property Insurance (924)	323.185.b				
323	189	b	Regulatory Commission Expenses (928)	323.189.b				
323	191	b	General Advertising Expenses (930.1)	323.191.b				
323	197	b	Total Admin & General Expenses	323.197.b				
327.*	Total	j	Purchased Power Demand Charges	327.*.Total.j				
332	Total	h	Transmission of Electricity by Others (565)	332.Total.h				
335	1-3	b	Industry Dues, R&D, C-V Nuc Pwr Assoc	335.1-3.b				
336	1	f	Intangible Amortization	336.1.f				
336	2-6	b	Production Depreciation Expense	336.2-6.b				
336	10	b	General Depreciation Expense	336.10.b				
336	3	Footnote and Note A	ARO impacts in depreciation expense	336 Footnote and Note A				
350	5-6	h	Production Related Regulatory Commiss. Exp.	350.5-6.h				
354	20	b	Production O&M Labor	354.20.b				
354	27	b	A&G Labor	354.27.b				
354	28	b	Total Direct Payroll - O&M Labor	354.28.b				

Notes for adjustments:

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Other Inputs

Source	Row	Column	Description	Reference	Previous Year/ Year End (with adjustments)	Current Year/ Year End (with adjustments)
EC 1	4		Total Fuel Burned	EC 1.4		
EC 1	6		Energy Cost of Sales to Other Utilities	EC 1.6		
EC 1	7		Energy Related Production O&M	EC 1.7		
Note A			NCEMPA Backstand			
Note A			Allowance for Decommissioning Expense			
Note B			Internal Decommissioning			
Note B			Less: ADIT asset on Internal Decommissioning Reserve			
			Internal Decommissioning net of ADIT adjustment			
Note B			External Decommissioning (ARO)			
Note B			External Decommissioning (ARO)	GL 108.0150		
Note B			External Decommissioning (ARO)	GL 108.155		
Note B			External Decommissioning (ARO)	GL 108.40TB		
Note A			Clean Smokestack Compliance			
Note A			Accum. Dep. Adjst.: Harris Accel. Dep.			
Note A			Adjustment: Harris AD ADIT			
Note A			Generation Step Up Transformers			
Note A			Securitization Bonds			
			Deferred Credits (GL 228.4):			
Note A			Coal Mines			
Note A			Est. PA Scrubber Charge			
Note A			Deferred Compensation			
Note A			Environmental			
FERC Form 1			Unrecovered Plant & Regulatory Study Costs			
			Rate Base Adjustment			
230 (b)	21	(f)	Mayo 2 Abandonment Loss (wholesale specific)			
			Wholesale load allocation factor			
			Grossed up to System equivalent cost			
230 (b)	24	(f)	Robinson Nuclear Plant			
230 (b)	26	(f)	Brunswick Nuclear Plant			
[1]			Costs the Commission has authorized DEP to record in Account 182.2	Note M		
			Total Unrecovered Plant & Regulatory Study Costs			
			Associated Amortization Adjustment			
230 (b)	21	(e)	Mayo 2 Abandonment Loss (wholesale specific)			
			Wholesale load allocation factor			
			Grossed up to System equivalent cost			
230 (b)	24	(e)	Robinson Nuclear Plant			
230 (b)	26	(e)	Brunswick Nuclear Plant			
[1]			Amortization to Account 407 of costs recorded in Account 182.2	Note M		
			Total Unrecovered Plant & Regulatory Study Costs			
			Sum of Monthly Peaks net of SEPA & PA Entitlement			
Note A			Wholesale Load net of SEPA			
Page 16			System			
			Wholesale Load Allocation Factor			
Note A			Wholesale marketing labor included in A&G labor			

Source	Row	Column	Description	Reference	Previous Year/ Year End (with adjustments)	Current Year/ Year End (with adjustments)	Average	Alloc Factor	Allocated Total
			Excess and Deficient Accumulated Deferred Income Taxes						
(2), (3)			Regulatory Asset for Deficient ADIT - Protected					Note (3)	See Note (3)
(2), (3)			Regulatory Asset for Deficient ADIT - Unprotected Property, Plant & Equipment (PPE)					Note (3)	See Note (3)
(2), (3)			Regulatory Asset for Deficient ADIT - Unprotected Non-PPE					Note (3)	See Note (3)
(2), (3)			Regulatory Liability for Excess ADIT - Protected					Note (3)	See Note (3)
(2), (3)			Regulatory Liability for Excess ADIT - Unprotected PPE					Note (3)	See Note (3)
(2), (3)			Regulatory Liability for Excess ADIT - Unprotected Non-PPE					Note (3)	See Note (3)
			Net Deficient/Excess ADIT Rate Base						
(2), (3)			Collection of Deficient Deferred Tax Expenses - Protected					Note (3)	See Note (3)
(2), (3)			Collection of Deficient Deferred Tax Expenses - Unprotected PPE					Note (3)	See Note (3)
(2), (3)			Collection of Deficient Deferred Tax Expenses - Unprotected Non-PPE					Note (3)	See Note (3)
(2), (3)			Amortization of Excess Deferred Tax Expenses - Protected					Note (3)	See Note (3)
(2), (3)			Amortization of Excess Deferred Tax Expenses - Unprotected PPE					Note (3)	See Note (3)
(2), (3)			Amortization of Excess Deferred Tax Expenses - Unprotected Non-PPE					Note (3)	See Note (3)
			Net Excess/Deficient Deferred Tax Expense						

Footnotes:

(1) Costs recorded in Account 182.2 shall be approved for recovery by FERC pursuant to a Section 205 filing, and each set of such costs shall be reflected as a separate line item identified by the FERC docket number in which recovery of those costs was authorized. For each line, the amount of the costs entered will be calculated consistent with the methodology approved by FERC in the docket in which authorization to recover such costs was requested and obtained.

(2) Excess/Deficient Deferred Tax Expense shall equal the return or collection of excess or deficient deferred taxes as shown in Pages 17 - 19 of this Exhibit, and the return or collection of excess or deficient deferred taxes that result from any future federal or state income tax rate change, as shown in the format of Pages 20 - 21, which DEP will populate and provide subsequent to such tax change.

(3) The allocation factor to be applied to TCJA balances is 0.73226 and is based on historic 2016 system-wide deferred income tax balances that were allocated to Production. Excess/ Deficient Deferred Income Tax balances due to future tax rate changes will be allocated using an allocation factor determined at the time of the tax rate change.

Source	Row	Column	Description	Reference	Previous Year/ Year End (with adjustments)	Current Year/ Year End (with adjustments)
Note A			Applicable adjustments for Merger related costs			
			FERC Mitigation Sales Included In Off System Sales to Other Utilities			Dr (Cr)
Note A			Demand Revenue (a/c 447)			
Note A			Energy Revenue + loss sharing adjustment with DEC (a/c 447)			
			Net Adjusted Revenues			
Note A			Incremental Fuel Costs to Serve (a/c 5473000)			
Note A			Incremental Purchase Power Costs (a/c 555)			
Note A			Non- Fuel Energy O&M on Sales to Other Utilities			
			Energy Cost of Sales			
			Off- System Sales Loss			
			Other Merger Related Costs			
Note A			Prepayments to Dominion in a/c 165			
Note A			Payroll Tax expense in a/c 408			
Note A			Deferred Debt Amortization exp. in a/c 428			
Note A			Mitigation sale loss sharing adjustment with DEC (502 a/c)			
Note A			A&G (920 - 930 a/cs)			
Note A			Transmission O&M (566 - 571 a/cs)			
Note A			Other applicable adjustments			
			Adjustments to Remove RECs/ DSM / DSDR / EE Costs			
Note A			Unexpensed REC premium in M&S a/c 1549132			
Note A			REC prepayments in a/c 165			
Note A			RECS Expense in a/c 5090004			
Note A			Gross Intangible Plant (101 a/c)			
Note A			Gross General Plant (101 a/c)			
Note A			Accumulated Amortization on Intangible Plant (108 a/c)			
Note A			Accumulated Depreciation on General Plant (108 a/c)			
Note A			Amortization Expense on Intangible Plant			
Note A			Depreciation Expense on General Plant			
Note A			Property Tax Expense (408 a/c)			
Note A			Insurance Expense			
Note A			A&G Expense			
Note A			Payroll Tax expense in a/c 408			
			Adjustments to remove impacts of NC Retail specific treatment of DOE refunds			
Note A			Labor related taxes			
Note A			Production O&M, demand related			
Note A			A&G			
FERC Form 1						
114	22+23	(c)	Gain (Loss) from Disposition of Allowances (G.L. 411.8, 411.9)			
Note A			Gain (Loss) on Disposition of Property (G.L. 421.1, 421.2): Production Related			
			Gains on Disposition of Property (G.L. 421.1)			
			Loss on Disposition of Property (G.L. 421.2)			

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Other Inputs

Source	Row	Column	Description	Reference	Previous Year End (before adjustments)	Adjustments	Note	Previous Year End (with adjustments)
EC 1	4		Total Fuel Burned	EC 1.4				
EC 1	6		Energy Cost of Sales to Other Utilities	EC 1.6				
EC 1	7		Energy Related Production O&M	EC 1.7				
Note A			NCEMPA Backstand					
Note A			Allowance for Decommissioning Expense					
Note B			Internal Decommissioning					
Note B			Less: ADIT asset on Internal Decommissioning Reserve					
			Internal Decommissioning net of ADIT adjustment					
Note B			External Decommissioning (ARO)					
Note B			External Decommissioning (ARO)	GL 108.0150				
Note B			External Decommissioning (ARO)	GL 108.155				
Note B			External Decommissioning (ARO)	GL 108.40TB				
Note A			Clean Smokestack Compliance					
Note A			Accum. Dep. Adjst.: Harris Accel. Dep.					
Note A			Adjustment: Harris AD ADIT					
Note A			Generation Step Up Transformers					
Note A			Securitization Bonds					
			Deferred Credits (GL 228.4):					
Note A			Coal Mines					
Note A			Est. PA Scrubber Charge					
Note A			Deferred Compensation					
Note A			Environmental					
		Unrecovered Plant & Regulatory Study Costs						
FERC Form 1			Rate Base Adjustment					
230 (b)	21	(f)	Mayo 2 Abandonment Loss (wholesale specific)					
230 (b)	24	(f)	Robinson Nuclear Plant					
230 (b)	26	(f)	Brunswick Nuclear Plant					
[1]			Costs the Commission has authorized DEP to record in Account 182.2	Note M				
			Annual Amortization					
230 (b)	21	(e)	Mayo 2 Abandonment Loss (wholesale specific)					
230 (b)	24	(e)	Robinson Nuclear Plant					
230 (b)	26	(e)	Brunswick Nuclear Plant					
[1]			Amortization to Account 407 of costs recorded in Account 182.2	Note M				
Note A			Adjustments for Merger Related Costs					
			A&G Costs					
Note A			Other applicable adjustments					
			Adjustments to Remove RECs/ DSM / DSDR / EE Costs assigned to Retail					
Note A			Unexpensed REC premium in M&S a/c 1649132					
Note A			REC prepayments in a/c 165					
Note A			RECS Expense in a/c 5090004					
Note A			Gross Intangible Plant					
Note A			Gross General Plant					
Note A			Accumulated Amortization on Intangible Plant					
Note A			Accumulated Depreciation on General Plant					
			Excess and Deficient Accumulated Deferred Income Taxes					
[2]			Regulatory Asset for Deficient ADIT - Protected		See Note [2]			
[2]			Regulatory Asset for Deficient ADIT - Unprotected Property, Plant & Equipment (PPE)		See Note [2]			
[2]			Regulatory Asset for Deficient ADIT - Unprotected Non-PPE		See Note [2]			
[2]			Regulatory Liability for Excess ADIT - Protected		See Note [2]			
[2]			Regulatory Liability for Excess ADIT - Unprotected PPE		See Note [2]			
[2]			Regulatory Liability for Excess ADIT - Unprotected Non-PPE		See Note [2]			
			Net Deficient/Excess ADIT Rate Base					
[2]			Collection of Deficient Deferred Tax Expenses - Protected		See Note [2]			
[2]			Collection of Deficient Deferred Tax Expenses - Unprotected PPE		See Note [2]			
[2]			Collection of Deficient Deferred Tax Expenses - Unprotected Non-PPE		See Note [2]			
[2]			Amortization of Excess Deferred Tax Expenses - Protected		See Note [2]			
[2]			Amortization of Excess Deferred Tax Expenses - Unprotected PPE		See Note [2]			
[2]			Amortization of Excess Deferred Tax Expenses - Unprotected Non-PPE		See Note [2]			
			Net Excess/Deficient Deferred Tax Expense					

Notes for adjustments:

[1] Costs recorded in Account 182.2 shall be approved for recovery by FERC pursuant to a Section 205 filing, and each set of such costs shall be reflected as a separate line item identified by the FERC docket number in which recovery of those costs was authorized. For each line, the amount of the costs entered will be calculated consistent with the methodology approved by FERC in the docket in which authorization to recover such costs was requested and obtained.

[2] Excess/Deficient Deferred Tax Expense shall equal the return or collection of excess or deficient deferred taxes as shown in Pages 17 - 19 of this Exhibit, and the return or collection of excess or deficient deferred taxes that result from any future federal or state income tax rate change, as shown in the format of Pages 20 - 21, which DEP will populate and provide subsequent to such tax change.

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Other Inputs

Source	Row	Column	Description	Reference	Current Year/ Year End (before adjustments)	Adjustments	Note	Current Year/ Year End (with adjustments)
EC 1	4		Total Fuel Burned	EC 1.4				
EC 1	6		Energy Cost of Sales to Other Utilities	EC 1.6				
EC 1	7		Energy Related Production O&M	EC 1.7				
Note A			NCEMPA Backstand					
Note A			Allowance for Decommissioning Expense					
Note B			Internal Decommissioning					
Note B			Less: ADIT asset on Internal Decommissioning Reserve					
			Internal Decommissioning net of ADIT adjustment					
Note B			External Decommissioning (ARO)					
Note B			External Decommissioning (ARO)	GL 108.0150				
Note B			External Decommissioning (ARO)	GL 108.155				
Note B			External Decommissioning (ARO)	GL 108.40TB				
Note A			Clean Smokestack Compliance					
Note A			Accum. Dep. Adjst.: Harris Accel. Dep.					
Note A			Adjustment: Harris AD ADIT					
Note A			Generation Step Up Transformers					
Note A			Securitization Bonds					
			Deferred Credits (GL 228.4):					
Note A			Coal Mines					
Note A			Est. PA Scrubber Charge					
Note A			Deferred Compensation					
Note A			Environmental					
			Unrecovered Plant & Regulatory Study Costs					
FERC Form 1			Rate Base Adjustment					
230 (b)	21	(f)	Mayo 2 Abandonment Loss (wholesale specific)					
230 (b)	24	(f)	Robinson Nuclear Plant					
230 (b)	26	(f)	Brunswick Nuclear Plant					
[1]			Costs the Commission has authorized DEP to record in Account 182.2	Note M				
			Annual Amortization					
230 (b)	21	(e)	Mayo 2 Abandonment Loss (wholesale specific)					
230 (b)	24	(e)	Robinson Nuclear Plant					
230 (b)	26	(e)	Brunswick Nuclear Plant					
[1]			Amortization to Account 407 of costs recorded in Account 182.2	Note M				
			Sum of Monthly Peaks net of SEPA & Entitlement					
Note A			Wholesale Load net of SEPA					
Note A			Wholesale marketing labor included in A&G labor					
Note A			Applicable adjustments for Merger related costs					
			FERC Mitigation Sales Included in Off System Sales to Other Utilities		Dr (Cr)			Dr (Cr)
Note A			Demand Revenue (a/c 447)					
Note A			Energy Revenue + loss sharing adjustment with DEC (a/c 447)					
			Net Adjusted Revenues					
Note A			Incremental Fuel Costs to Serve (a/c 6473000)					
Note A			Incremental Purchase Power Costs (a/c 555)					
Note A			Non- Fuel Energy O&M on Sales to Other Utilities					
			Energy Cost of Sales					
			Off- System Sales Loss					
			Other Merger Related Costs					
Note A			Prepayments to Dominion in a/c 165					
Note A			Payroll Tax expense in a/c 408					
Note A			Deferred Debt Amortization exp. in a/c 428					
Note A			Mitigation sale loss sharing adjustment with DEC (502 a/c)					
Note A			A&G (920 - 930 a/cs)					
Note A			Transmission O&M (566 - 571 a/cs)					
			Excess and Deficient Accumulated Deferred Income Taxes					
[2]			Regulatory Asset for Deficient ADIT - Protected		See Note [2]			
[2]			Regulatory Asset for Deficient ADIT - Unprotected Property, Plant & Equipment (PPE)		See Note [2]			
[2]			Regulatory Asset for Deficient ADIT - Unprotected Non-PPE		See Note [2]			
[2]			Regulatory Liability for Excess ADIT - Protected		See Note [2]			
[2]			Regulatory Liability for Excess ADIT - Unprotected PPE		See Note [2]			
[2]			Regulatory Liability for Excess ADIT - Unprotected Non-PPE		See Note [2]			
			Net Deficient/Excess ADIT Rate Base					
[2]			Collection of Deficient Deferred Tax Expenses - Protected		See Note [2]			
[2]			Collection of Deficient Deferred Tax Expenses - Unprotected PPE		See Note [2]			
[2]			Collection of Deficient Deferred Tax Expenses - Unprotected Non-PPE		See Note [2]			
[2]			Amortization of Excess Deferred Tax Expenses - Protected		See Note [2]			
[2]			Amortization of Excess Deferred Tax Expenses - Unprotected PPE		See Note [2]			
[2]			Amortization of Excess Deferred Tax Expenses - Unprotected Non-PPE		See Note [2]			
			Net Excess/Deficient Deferred Tax Expense					

Footnotes:

[1] Costs recorded in Account 182.2 shall be approved for recovery by FERC pursuant to a Section 205 filing, and each set of such costs shall be reflected as a separate line item identified by the FERC docket number in which recovery of those costs was authorized. For each line, the amount of the costs entered will be calculated consistent with the methodology approved by FERC in the docket in which authorization to recover such costs was requested and obtained.

[2] Excess/Deficient Deferred Tax Expense shall equal the return or collection of excess or deficient deferred taxes as shown in Pages 17 - 19 of this Exhibit, and the return or collection of excess or deficient deferred taxes that result from any future federal or state income tax rate change, as shown in the format of Pages 20 - 21, which DEP will populate and provide subsequent to such tax change.

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

Source	Row	Column	Description	Reference	Current Year/ Year End (before adjustments)	Adjustments	Note	Current Year/ Year End (with adjustments)
Note A			Other applicable adjustments					
			Adjustments to Remove RECs/ DSM / DSDR / EE Costs					
Note A			Unexpensed REC premium in M&S a/c 1549132					
Note A			REC prepayments in a/c 165					
Note A			RECS Expense in a/c 5090004					
Note A			Gross Intangible Plant (101 a/c)					
Note A			Gross General Plant (101 a/c)					
Note A			Accumulated Amortization on Intangible Plant (108 a/c)					
Note A			Accumulated Depreciation on General Plant (108 a/c)					
Note A			Amortization Expense on Intangible Plant					
Note A			Depreciation Expense on General Plant					
Note A			Property Tax Expense (408 a/c)					
Note A			Insurance Expense					
Note A			A&G Expense					
Note A			Payroll Tax expense in a/c 408					
			Adjustments to remove impacts of NC Retail specific treatment of DOE refunds			Less: Impacts in SAE		Demand Related
Note A			Labor related taxes					
Note A			Production O&M, demand related					
Note A			A&G					
			Total					
FERC Form 1								
114	22+23	(c)	Gain (Loss) from Disposition of Allowances (G.L. 411.8, 411.9)					
Note A			Gain (Loss) on Disposition of Property (G.L. 421.1, 421.2): Production Related			Non- Production Related loss		
			Gain on Disposition of Property (G.L. 421.1)					
			Loss on Disposition of Property (G.L. 421.2)					

Notes for adjustments:

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 190)

		Previous Year End (with adjustments)	Current Year End (with adjustments)	Average	Allocation Factor	Production Allocation Amount
1	Accrued Litigation				Other	
2	ARO - 190				Other	
3	Audit Reserve/FIN48				Other	
4	Bond Premium Discount				NP	
5	Broad River Adjustment				PP	
6	Charitable Contribution Carryforward				Other	
7	Charitable Contributions Addback				Other	
8	CIAC Gross Up Refund Reserve				Other	
9	Compensation Plan				LABOR	
10	Comprehensive Income				NP	
11	Corporate Life Insurance Reserve				Other	
12	Deferred Compensation				LABOR	
13	DOE Settlement - PEC NC retail refund				Other	
14	Earnings on Employee Benefit Trust				LABOR	
15	Emission Allowances-Basis Diff				PROD	
16	Environmental Accrual				Other	
17	FAS 109-Excess				Other	
18	FAS 109-ITC				Other	
19	FAS 112				LABOR	
20	Federal NOL - NonOperating				Other	
21	Federal NOL - Operating				Other	
22	Imputed Interest Income				NP	
23	Insurance Reserve				NP	
24	Interest Rate Hedging				Other	
25	Inventory Reserve				NP	
26	IRS Audit Interest Accrual				Other	
27	Leslie/McInnes Coal Reserves				PROD	
28	Low Income Housing Credits				Other	
29	Mark to Market Accrual				Other	
30	NC NOL - Operating				Other	
31	NC NOL - NonOperating				Other	
32	Nuclear Decommissioning				Other	
33	OPEB Expense				LABOR	
34	Operating Reserve (workers comp)				LABOR	
35	Pension Expense				LABOR	
36	Pension Restoration Exp.				LABOR	
37	Reg Liability ARO Asbestos				Other	
38	Reg. Liability NDT Unrealized G/L				Other	
39	Reg Liability - Renewable Energy Deferral NC				Other	
40	Renewable Energy Certifications				Other	
41	Research & Alt Motor Credits				Other	
42	Severance Pay				LABOR	
43	TMAS - Production				PP	
44	Unbilled Rev.				Other	
45	Uncollectible Accounts				Other	
46	Vacation Accrual				LABOR	
47	Wages: Year End Accrual				LABOR	
48	Misc Prov/Round Adjustment				Other	
49	**GL 190 - Electric**					

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 190)

		Previous Year End (before adjustments)	Adjustments	Note	Previous Year End (with adjustments)
1	Accrued Litigation				
2	ARO - 190				
3	Audit Reserve/FIN48				
4	Bond Premium Discount				
5	Broad River Adjustment				
6	Charitable Contribution Carryforward				
7	Charitable Contributions Addback				
8	CIAC Gross Up Refund Reserve				
9	Compensation Plan				
10	Comprehensive Income				
11	Corporate Life Insurance Reserve				
12	Deferred Compensation				
13	DOE Settlement - PEC NC retail refund				
14	Earnings on Employee Benefit Trust				
15	Emission Allowances-Basis Diff				
16	Environmental Accrual				
17	FAS 109-Excess				
18	FAS 109-ITC				
19	FAS 112				
20	Federal NOL - NonOperating				
21	Federal NOL - Operating				
22	Imputed Interest Income				
23	Insurance Reserve				
24	Interest Rate Hedging				
25	Inventory Reserve				
26	IRS Audit Interest Accrual				
27	Leslie/McInnes Coal Reserves				
28	Low Income Housing Credits				
29	Mark to Market Accrual				
30	NC NOL - Operating				
31	NC NOL - NonOperating				
32	Nuclear Decommissioning				
33	OPEB Expense				
34	Operating Reserve (workers comp)				
35	Pension Expense				
36	Pension Restoration Exp.				
37	Reg Liability ARO Asbestos				
38	Reg. Liability NDT Unrealized G/L				
39	Reg Liability - Renewable Energy Deferral NC				
40	Renewable Energy Certifications				
41	Research & Alt Motor Credits				
42	Severance Pay				
43	TMAS - Production				
44	Unbilled Rev.				
45	Uncollectible Accounts				
46	Vacation Accrual				
47	Wages: Year End Accrual				
48	Misc Prov/Round Adjustment				
49	**GL 190 - Electric**				

Notes for adjustments:

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

NCEMPA

DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 190)

		Current Year End (before adjustments)	Adjustments	Note	Current Year End (with adjustments)
1	Accrued Litigation				
2	ARO - 190				
3	Audit Reserve/FIN48				
4	Bond Premium Discount				
5	Broad River Adjustment				
6	Charitable Contribution Carryforward				
7	Charitable Contributions Addback				
8	CIAC Gross Up Refund Reserve				
9	Compensation Plan				
10	Comprehensive Income				
11	Corporate Life Insurance Reserve				
12	Deferred Compensation				
13	DOE Settlement - PEC NC retail refund				
14	Earnings on Employee Benefit Trust				
15	Emission Allowances-Basis Diff				
16	Environmental Accrual				
17	FAS 109-Excess				
18	FAS 109-ITC				
19	FAS 112				
20	Federal NOL - NonOperating				
21	Federal NOL - Operating				
22	Imputed Interest Income				
23	Insurance Reserve				
24	Interest Rate Hedging				
25	Inventory Reserve				
26	IRS Audit Interest Accrual				
27	Leslie/McInnes Coal Reserves				
28	Low Income Housing Credits				
29	Mark to Market Accrual				
30	NC NOL - Operating				
31	NC NOL - NonOperating				
32	Nuclear Decommissioning				
33	OPEB Expense				
34	Operating Reserve (workers comp)				
35	Pension Expense				
36	Pension Restoration Exp.				
37	Reg Liability ARO Asbestos				
38	Reg. Liability NDT Unrealized G/L				
39	Reg Liability - Renewable Energy Deferral NC				
40	Renewable Energy Certifications				
41	Research & Alt Motor Credits				
42	Severance Pay				
43	TMAS - Production				
44	Unbilled Rev.				
45	Uncollectible Accounts				
46	Vacation Accrual				
47	Wages: Year End Accrual				
48	Misc Prov/Round Adjustment				
49	**GL 190 - Electric**				

Notes for adjustments:

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 282)

	Previous Year End (with adjustments)	Current Year End (with adjustments)	Average	Allocation Factor	Production Allocation Amount
1 AFUDC Equity - FAS 109				Other	
2 ARO - Net Property				Other	
3 Clean Smokestacks				Other	
4 NC Direct Disallowance				Other	
5 NC Indirect Disallowance				Other	
6 Non Utility Property Dep.				Other	
7 PA Depr Diff Exc Harris				PP	
8 PA Depr Diff Harris				PP	
9 PA Direct Disallowanc Contra				Other	
10 SC Indirect Disallowance				Other	
11 SC Rate Difference				Other	
12 Tax Depr - Distribution Plant				Other	
13 Tax Depr - General Plant				LABOR	
14 Tax Depr - Intangible Plant				LABOR	
15 Tax Dep - Nuclear Fuel				PROD	
16 Tax Depr - Production Plant				PP	
17 Tax Depr - Transmission Plant				TP	
18 Tax Depr - Unfunctionalized Plant				NP	
19 WH Direct Disallowance				PROD	
20 WH Indirect Disallowance				PROD	
21 Wholesale Dep Diff - Distribution				Other	
22 Wholesale Dep Diff - General				LABOR	
23 Wholesale Dep Diff - Production				PP	
24 Wholesale Dep Diff - Transmission				TP	
25 Misc Prov/Round Adjustment				Other	
26 **Total GL 282**					

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 282)

		Previous Year End (before adjustments)	Adjustments	Note	Previous Year End (with adjustments)
1	AFUDC Equity - FAS 109				
2	ARO - Net Property				
3	Clean Smokestacks				
4	NC Direct Disallowance				
5	NC Indirect Disallowance				
6	Non Utility Property Dep.				
7	PA Depr Diff Exc Harris				
8	PA Depr Diff Harris				
9	PA Direct Disallowanc Contra				
10	SC Indirect Disallowance				
11	SC Rate Difference				
12	Tax Depr - Distribution Plant				
13	Tax Depr - General Plant				
14	Tax Depr - Intangible Plant				
15	Tax Dep - Nuclear Fuel				
16	Tax Depr - Production Plant				
17	Tax Depr - Transmission Plant				
18	Tax Depr - Unfunctionalized Plant				
19	WH Direct Disallowance				
20	WH Indirect Disallowance				
21	Wholesale Dep Diff - Distribution				
22	Wholesale Dep Diff - General				
23	Wholesale Dep Diff - Production				
24	Wholesale Dep Diff - Transmission				
25	Misc Prov/Round Adjustment				
26	**Total GL 282**				

Notes for adjustments:

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 282)

		Current Year End (before adjustments)	Adjustments	Note	Current Year End (with adjustments)
1	AFUDC Equity - FAS 109				
2	ARO - Net Property				
3	Clean Smokestacks				
4	NC Direct Disallowance				
5	NC Indirect Disallowance				
6	Non Utility Property Dep.				
7	PA Depr Diff Exc Harris				
8	PA Depr Diff Harris				
9	PA Direct Disallowanc Contra				
10	SC Indirect Disallowance				
11	SC Rate Difference				
12	Tax Depr - Distribution Plant				
13	Tax Depr - General Plant				
14	Tax Depr - Intangible Plant				
15	Tax Dep - Nuclear Fuel				
16	Tax Depr - Production Plant				
17	Tax Depr - Transmission Plant				
18	Tax Depr - Unfunctionalized Plant				
19	WH Direct Disallowance				
20	WH Indirect Disallowance				
21	Wholesale Dep Diff - Distribution				
22	Wholesale Dep Diff - General				
23	Wholesale Dep Diff - Production				
24	Wholesale Dep Diff - Transmission				
25	Misc Prov/Round Adjustment				
26	**Total GL 282**				

Notes for adjustments:

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 283)

		Previous Year End (with adjustments)	Current Year End (with adjustments)	Average	Allocation Factor	Production Allocation Amount
1	Comprehensive Income				NP	
2	EMC OPEB				LABOR	
3	FASB 109 AFUDC Equity Reg Asset				Other	
4	FAS158 OPEB - Reg Asset				LABOR	
5	FAS158 Pension - Reg Asset				LABOR	
6	FAS158 Pension Restoration Reg Asset				LABOR	
7	FAS158 SERP - Reg Asset				LABOR	
8	Fay/Muni OPEB				LABOR	
9	Grid South-NC				Other	
10	Grid South-SC				Other	
11	Grid South-WH				Other	
12	IRS Audit Reserve				Other	
13	Market to Market				Other	
14	Market to Market - Reg Asset				Other	
15	Miscellaneous Investments				Other	
16	NC Deferred Fuel				Other	
17	Nuc Decom Unrealized Gains				Other	
18	Reg Asset-Accrued Vacation				Other	
19	Reg Asset-ARO Asbestos				Other	
20	Reg Asset-ARO Landfill				Other	
21	Reg Asset - DSM Costs NC				Other	
22	Reg Asset - DSM Costs SC				Other	
23	Reg Asset-Design Basis Brunswick				PROD	
24	Reg Asset-Design Basis Robinson				PROD	
25	Reg Asset-Nuc Decom				Other	
26	Reg Asset-PCF Deferral SC				Other	
27	Renewable Energy Deferral - NC				Other	
28	SC Deferred Fuel				Other	
29	Stock Overhead Adjustment-Prod				PROD	
30	Stock Overhead Adjustment-Unfunct				NP	
31	Storm Damage Deferral NC				Other	
32	Storm Damage Deferral SC				Other	
33	Wholesale Deferred Fuel				Other	
34	Deferred Rate Case Expense				Other	
35	Round Adjustment				Other	
36	**Total GL 283**					

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 283)

		Previous Year End (before adjustments)	Adjustments	Note	Previous Year End (with adjustments)
1	Comprehensive Income				
2	EMC OPEB				
3	FASB 109 AFUDC Equity Reg Asset				
4	FAS158 OPEB - Reg Asset				
5	FAS158 Pension - Reg Asset				
6	FAS158 Pension Restoration Reg Asset				
7	FAS158 SERP - Reg Asset				
8	Fay/Muni OPEB				
9	Grid South-NC				
10	Grid South-SC				
11	Grid South-WH				
12	IRS Audit Reserve				
13	Market to Market				
14	Market to Market - Reg Asset				
15	Miscellaneous Investments				
16	NC Deferred Fuel				
17	Nuc Decom Unrealized Gains				
18	Reg Asset-Accrued Vacation				
19	Reg Asset-ARO Asbestos				
20	Reg Asset-ARO Landfill				
21	Reg Asset - DSM Costs NC				
22	Reg Asset - DSM Costs SC				
23	Reg Asset-Design Basis Brunswick				
24	Reg Asset-Design Basis Robinson				
25	Reg Asset-Nuc Decom				
26	Reg Asset-PCF Deferral SC				
27	Renewable Energy Deferral - NC				
28	SC Deferred Fuel				
29	Stock Overhead Adjustment-Prod				
30	Stock Overhead Adjustment-Unfunct				
31	Storm Damage Deferral NC				
32	Storm Damage Deferral SC				
33	Wholesale Deferred Fuel				
34	Deferred Rate Case Expense				
35	Round Adjustment				
36	**Total GL 283**				

Notes for adjustments:

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Deferred Income Tax Balances (GL 283)

		Current Year End (before adjustments)	Adjustments	Note	Current Year End (with adjustments)
1	Comprehensive Income				
2	EMC OPEB				
3	FASB 109 AFUDC Equity Reg Asset				
4	FAS158 OPEB - Reg Asset				
5	FAS158 Pension - Reg Asset				
6	FAS158 Pension Restoration Reg Asset				
7	FAS158 SERP - Reg Asset				
8	Fay/Muni OPEB				
9	Grid South-NC				
10	Grid South-SC				
11	Grid South-WH				
12	IRS Audit Reserve				
13	Market to Market				
14	Market to Market - Reg Asset				
15	Miscellaneous Investments				
16	NC Deferred Fuel				
17	Nuc Decom Unrealized Gains				
18	Reg Asset-Accrued Vacation				
19	Reg Asset-ARO Asbestos				
20	Reg Asset-ARO Landfill				
21	Reg Asset - DSM Costs NC				
22	Reg Asset - DSM Costs SC				
23	Reg Asset-Design Basis Brunswick				
24	Reg Asset-Design Basis Robinson				
25	Reg Asset-Nuc Decom				
26	Reg Asset-PCF Deferral SC				
27	Renewable Energy Deferral - NC				
28	SC Deferred Fuel				
29	Stock Overhead Adjustment-Prod				
30	Stock Overhead Adjustment-Unfunct				
31	Storm Damage Deferral NC				
32	Storm Damage Deferral SC				
33	Wholesale Deferred Fuel				
34	Deferred Rate Case Expense				
35	Round Adjustment				
36	**Total GL 283**				

Notes for adjustments:

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Labor Related Deferred Credits- Net

	Description	Reference	Previous Year End (with adjustments)	Current Year End (with adjustments)	Average	Allocation Factor	Production Allocation Amount
1	Accumulated Provision Prop. Ins. (GL 228.1)	p 112, Line 28c					
2	Accumulated Provision for I&D (GL 228.2)	p 112, Line 28c				LABOR	
3	Accumulated Provision for P&B (GL 228.3) [2]	p 112, Line 29c				LABOR	
4	Accumulated Misc. Op. Provisions (GL 228.4)						
5	Coal Mines					PROD	
6	Est. Excess PA Scrubber Charge					PROD	
7	Deferred Compensation					LABOR	
8	Environmental					Other	
9	Total GL 228.4	p 112, Line 30c					
10	SFAS 158 Regulatory Assets [1]	p 232, Line 3f				LABOR	
11	**Total - Labor-related Deferred Credits**						

Notes:
[1] Offset for amount in GL 228.3 not expensed.

[2] If all or portions of the "Accumulated Provision for P&B" become a prepaid position and are moved to an asset account for proper balance sheet classification, the applicable balance moved to the associated asset account will be included within this line item.

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

NOTE: LINE ITEMS ABOVE ARE INDICATIVE OF AMOUNTS IN REFERENCED ACCOUNT BUT ARE SUBJECT TO ADDITIONS OR DELETIONS YOY.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Labor Related Deferred Credits- Net

	Description	Reference	Previous Year End (before adjustments)	Adjustment	Note	Previous Year End (with adjustments)
1	Accumulated Provision Prop. Ins. (GL 228.1)	*112.27.c*				
2	Accumulated Provision for I&D (GL 228.2)	*112.28.c*				
3	Accumulated Provision for P&B (GL 228.3) [2]	*112.29.c*				
4	Accumulated Misc. Op. Provisions (GL 228.4)					
5	Coal Mines					
6	Est. Excess PA Scrubber Charge					
7	Deferred Compensation					
8	Environmental					
9	Total GL 228.4	p 112, Line 30c				
10	SFAS 158 Regulatory Assets [1]	232.3.f				
11	**Total - Labor-related Deferred Credits**					

Notes:

[1] Offset for amount in GL 228.3 not expensed.

[2] If all or portions of the "Accumulated Provision for P&B" become a prepaid position and are moved to an asset account for proper balance sheet classification, the applicable balance moved to the associated asset account will be included within this line item.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Labor Related Deferred Credits- Net

	Description	Reference	Current Year End (before adjustments)	Adjustment	Note	Current Year End (with adjustments)
1	Accumulated Provision Prop. Ins. (GL 228.1)	*112.27.c*				
2	Accumulated Provision for I&D (GL 228.2)	*112.28.c*				
3	Accumulated Provision for P&B (GL 228.3) [2]	*112.29.c*				
4	Accumulated Misc. Op. Provisions (GL 228.4)					
5	Coal Mines					
6	Est. Excess PA Scrubber Charge					
7	Deferred Compensation					
8	Environmental					
9	Total GL 228.4	p 112, Line 30c				
10	SFAS 158 Regulatory Assets [1]	232.3.f				
11	**Total - Labor-related Deferred Credits**					

Notes:
[1] Offset for amount in GL 228.3 not expensed.

[2] If all or portions of the "Accumulated Provision for P&B" become a prepaid position and are moved to an asset account for proper balance sheet classification, the applicable balance moved to the associated asset account will be included within this line item.

LINE REFERENCES MAY BE CHANGED BY SUCCESSOR REFERENCES OR EQUIVALENT REFERENCES.

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Production Plant Adjustments for Construction Work in Progress (CWIP) and Renewable Energy Investments

	Description	Beginning	Ending	Average/Total	Allocation Factor	Production Allocation Amount
1	Construction Work In Progress (CWIP)					
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16	Total CWIP					
17	Renewable Energy/Other Governmental Requirements					
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32	Total REPS/EE					

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DUKE ENERGY PROGRESS, LLC
Production Capacity Rate Formula Template Using Form-1 Data

Monthly System Peak Demands (kW)

Line		Total kW *(before adjustments)*	Adjustment	Note	Total kW *(with adjustments)*	
1	January				-	
2	February				-	
3	March				-	401b, d. &
4	April				-	Analysis of
5	May				-	Company
6	June				-	Books
7	July				-	
8	August				-	
9	September				-	
10	October				-	
11	November				-	
12	December				-	
13	**Average Monthly Peak Demand**				-	
14	**Joint Ownership Entitlement**					
15	**SEPA**					
16	**SEPA Losses**				-	
17	**SEPA Grossed up for Losses**				-	
18	**Net System Average Monthly Peak**				-	
19	**Sum of Twelve Monthly Peaks**				-	

Note:

The Monthly System Peak Demands listed above agree with the Monthly Peak Demand as listed on the DEP FERC Form 1 page 401b, subject to adjustments for joint ownership in DEP's generation units.

Notes for adjustments:

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Illustrative Example to be Updated Annually

DUKE ENERGY PROGRESS, LLC
Return of Excess Deferred Taxes - Protected portion (1)

Account 190	$	30,538,455
Account 282	$	(1,076,768,929)
Account 283	$	-
Adjusted System-level balance (2)	$	(1,046,230,474)

Year (3)	(A) Est. ARAM Rate Used (4)	(B) Beginning year balance	(A) x (Adj. System-level balance) (C) Current year amortization (5)	(B)-(C) (D) Remaining Balance
2018	3.57%	(1,046,230,474)	$ (37,350,427.92)	(1,008,880,046)
2019	3.57%	(1,008,880,046)	$ (37,350,427.92)	(971,529,618)
2020	3.57%	(971,529,618)	$ (37,350,427.92)	(934,179,190)

(1) The return of the protected portion of excess Federal ADIT generated by the 2017 Tax Cuts and Jobs Act will begin effective January 1, 2018 and continue through the term of the contract using the agreed upon methodology until the balance in the Remaining Balance Column is $0.

(2) Balance adjusted to add back EDIT related to fixed rate wholesale PPAs.

(3) The total number of years necessary for the return of the Protected portion of excess federal ADIT to customers will be determined by the ARAM rate, which will change over time.

(4) Represents the estimated amortization rate using the Average Rate Assumption Method, ("ARAM rate") per DEP's PowerTax system. Revised ARAM rates are calculated during the 4th quarter of each year. DEP will use the best available ARAM rate when setting estimated billing rates on December 1st of each year, and will incorporate the then current best available ARAM rate into each year's true-up. For example, 3.57%, which was calculated in 4th quarter 2019, will be used in the estimated rate for 2020. The true-up for 2020, which will be completed in June/July 2021, will incorporate the ARAM rate calculated in the 4th quarter of 2020, and an updated schedule reflecting the revised ARAM rate will be provided to customers each year as part of the true-up.

(5) The goal is to return the wholesale load ratio share of the total protected portion of the excess deferred taxes, initially determined to be ($1,046,230,474) over the appropriate period using ARAM. This amount will be determined annually by multiplying ($1,046,230,474) by the ARAM rate from column (A). This amount will not be impacted by the gross-up factor nor the net plant allocator used to determine the actual amount returned to customers annually.

DUKE ENERGY PROGRESS, LLC
Return of Excess Deferred Taxes - Unprotected PPE portion (1)

Account 190	$	-
Account 282	$	(400,321,666)
Account 283	$	-
Adjusted System-level balance (2)	$	(400,321,666)

Year	(A) Amortization Rate (20 years)	(B) Beginning year balance	(A) x (Adj. System-level balance) (C) Current year amortization	(B-C) (D) Remaining Balance
2018	5.00%	(400,321,666)	$ (20,016,083.30)	(380,305,583)
2019	5.00%	(380,305,583)	$ (20,016,083.30)	(360,289,499)
2020	5.00%	(360,289,499)	$ (20,016,083.30)	(340,273,416)
2021	5.00%	(340,273,416)	$ (20,016,083.30)	(320,257,333)
2022	5.00%	(320,257,333)	$ (20,016,083.30)	(300,241,250)
2023	5.00%	(300,241,250)	$ (20,016,083.30)	(280,225,166)
2024	5.00%	(280,225,166)	$ (20,016,083.30)	(260,209,083)
2025	5.00%	(260,209,083)	$ (20,016,083.30)	(240,193,000)
2026	5.00%	(240,193,000)	$ (20,016,083.30)	(220,176,916)
2027	5.00%	(220,176,916)	$ (20,016,083.30)	(200,160,833)
2028	5.00%	(200,160,833)	$ (20,016,083.30)	(180,144,750)
2029	5.00%	(180,144,750)	$ (20,016,083.30)	(160,128,666)
2030	5.00%	(160,128,666)	$ (20,016,083.30)	(140,112,583)
2031	5.00%	(140,112,583)	$ (20,016,083.30)	(120,096,500)
2032	5.00%	(120,096,500)	$ (20,016,083.30)	(100,080,417)
2033	5.00%	(100,080,417)	$ (20,016,083.30)	(80,064,333)
2034	5.00%	(80,064,333)	$ (20,016,083.30)	(60,048,250)
2035	5.00%	(60,048,250)	$ (20,016,083.30)	(40,032,167)
2036	5.00%	(40,032,167)	$ (20,016,083.30)	(20,016,083)
2037	5.00%	(20,016,083)	$ (20,016,083.30)	0

(1) The unprotected PPE portion of excess federal ADIT generated by the 2017 Tax Cuts and Jobs Act will be returned to customers over a 20 year period, effective January 1, 2018.

(2) Balance adjusted to add back EDIT related to fixed rate wholesale PPAs.

DUKE ENERGY PROGRESS, LLC
Collection of Deficient Deferred Taxes - Unprotected non-PPE portion (1)

Account 190	$	645,896,216
Account 282	$	-
Account 283	$	(639,986,722)
Adjusted System-level balance (2)	$	5,909,494

Year	(A) Amortization Rate (5 years)	(B) Beginning year balance		(A) x (Adj. System-level balance) (C) Current year amortization	(B-C) (D) Remaining Balance
2018	20.00%	5,909,494	$	1,181,898.80	4,727,595
2019	20.00%	4,727,595	$	1,181,898.80	3,545,696
2020	20.00%	3,545,696	$	1,181,898.80	2,363,798
2021	20.00%	2,363,798	$	1,181,898.80	1,181,899
2022	20.00%	1,181,899	$	1,181,898.80	0

(1) The unprotected non-PPE portion of deficient federal ADIT generated by the 2017 Tax Cuts and Jobs Act will be collected from customers over a 5 year period, effective January 1, 2018.

(2) Balance adjusted to add back EDIT related to fixed rate wholesale PPAs.

Formula Rate Template - *Generic* Page 20 - *[Return/Collection of Future Excess/Deficient]* Deferred Taxes - *[Protected/Unprotected PPE/Unprotected Non-PPE]* Portion

DUKE ENERGY PROGRESS, LLC
Illustrative Worksheet to be Updated Annually

	Amount
Account *xxx* (1)	
System-level balance (2)	*XX*

Year	(A) Amortization Rate *([Est. ARAM Rate Used (3)] or [X years])*	(B) Beginning year balance	(A) x (System-level balance) (C) Current year amortization	(B-C) (D) Remaining Balance
20XX		XX		
20XX+1				

(1) Account will be populated with the ADIT account remeasured as a result of the federal or state tax law change and the amount will be the excess or deficient ADIT contained therein.

(2) The *[Protected/Unprotected PPE/Unprotected Non-PPE]* portion of *[excess/deficient]* ADIT generated by *[Insert Name of Federal or State Tax Law]* will be returned to or recovered from customers over a [X] year period, effective [Insert Date].

(3) The total number of years necessary for the *[return of the Protected portion of excess ADIT]* or *[recovery of the Protected portion of deficient ADIT]* to customers will be determined by the ARAM rate, which will change over time. Represents the estimated ARAM rate per DEP's PowerTax system.

NCEMPA

Page 21 - Generic Reconciliation of Re-measurements related to Future Federal or State Tax Rate Changes

DUKE ENERGY PROGRESS, LLC
Tax Rate Change Re-measurement Reconciliation

(Dr)Cr ADIT Offset Account Category	Description	Dr(Cr) 190	Dr(Cr) 282	Dr(Cr) 283	Dr(Cr) Other	Dr(Cr) Total
Excess/Deficient ADIT						
Balance Sheet Items - Other Than Excess/Deficient ADIT						
Income Statement						
Grand Total						

Note: Supplemental informational schedule to be provided to customers with each future federal or state tax rate change.

Exhibit II

Energy Rate Formula

(Exhibit Follows)

DUKE ENERGY PROGRESS
System Average Energy Rate Template
For the month ending XX/XX/XXXX

Line	Description		Source	Reference	Total (before adjustments)	Adjustment	Note	Amount (with adjustments)
	Burned Fuel							
1	Fossil	Acct 5013	[2]				[4]	$ -
2	Nuclear	Acct 5183, 5188, 51882	[2]					$ -
3	Other Power	Acct 5473	[2]					$ -
4	Total Burned Fuel			Add L.1 thru L.3	$ -	$ -		$ -
5	Purchased Power		[3]	Page 1			[5]	$ -
6	Sales to Other Utilities			Page 2, L.12				$ -
7	Energy-related Production O&M			Page 3, Col. 5, L.64	$ -			$ -
8	Total Energy-related Production Costs			L.4 + L.5 - L.6 + L.7	$ -	$ -		$ -
9	Total Generated and Purchased MWh			Page 6, L.7		-		MWh
10	Annual System Average Energy Rate ($/MWh)			L.8 / L.9				/MWh

Note: [1] The expenses presented on this exhibit represent energy-related expenses currently recorded in existing production operation and maintenance FERC accounts on DEP's books. If new production FERC accounts are established subsequent to the execution of this Agreement, this exhibit will be amended to include the energy related expenses recorded in such accounts, subject to FERC approval in accordance with Section 15.1 of the Agreement. The Monthly Energy Rate in this exhibit is to be calculated as provided in Section 5.2 of the Agreement. Adjustments shall be made consistent with Section 5.2 and 5.3, as amended and clarified. No costs or adjustments shall be incorporated in the Monthly Energy Rate that differentiate NCEMPA from CP&L's native load service (including NCEMPA's load served under the Agreement) unless approved by FERC.

[2] Analysis of Company Books

[3] Schedule 3, NCUC

[4] Merger saving adjustment for coal blending credits recorded in Acct 456.

[5] InterCompany Purchased Power Expenses - Other represent intercompany transfers between Progress Energy and Duke Energy for margins on off-system sales. Formula provides credits for fuel and variable O&M components of off-system sales. Off-system sales margins are not credited.

It is the intent of this System Average Energy Rate Template Formula ("Formula"), including the supporting explanations and allocations described herein, that each input to the Formula either will be (i) taken directly from the FERC Form No. 1 or (ii) reconcilable to the FERC Form No. 1 or other appropriate documentation by the application of clearly identified and supported information. Adjustments to the inputs will be set forth in the "Adjustment" columns of this Formula template and will be those amounts necessary to (i) maintain all applicable DEP hold harmless commitments to FERC and (ii) remove the effect of retail ratemaking orders on DEP's inputs so that the Formula calculates DEP's system average energy cost on a purely wholesale basis. This note is applicable to all pages of the Formula template included herein.

DUKE ENERGY PROGRESS
System Average Energy Rate Template
For the month ending XX/XX/XXXX
Energy-related Costs of Sales to Other Utilities

Line	Description	Source	Reference	Total (before adjustments)	Adjustment	Note	Amount (with adjustments)
1	Sales to Other Utilities MWh	[1]					- MWh
2	Sales to Other Utilities Fuel Cost	[1]					$ -
	Energy-related O&M Calculation						
3	Energy-related Fossil O&M		Page 3, Col.5, L.19	$ -			$ -
4	Total Other Power O&M		Page 3, Col. 1, L. 63	$ -			$ -
5	80% of Other Power O&M		Line 4 x 80%	$ -			$ -
6	Total Energy-related O&M		L.3 + L.5	$ -			$ -
7	Fossil Steam Net Generation MWh	FF1	Page 401A, L.3				- MWh
8	Other Power Net Generation MWh	FF1	Page 401A, L.7				- MWh
9	Total Fossil Net Generation MWh		L.7 + L.8	-			- MWh
10	Energy-related O&M Rate		L.6 / L.9				/MWh
11	Energy-related O&M		L.1 x L.10				$ -
12	Total Energy-related Cost of Sales to Other Utilities		L.2 + L.11				$ -

Note: [1] Schedule 3, NCUC

DUKE ENERGY PROGRESS
System Average Energy Rate Template
For the month ending XX/XX/XXXX
Energy-related Production O&M Expenses

Line	Account Description	FERC Account	Col. 1 Total Production O & M Expenses *(with adjustments)*	Col. 2 Labor Component *(with adjustments)*	Col. 3 Labor % To Total	Col. 4 Allocated S & E O & M	Col. 5 Total Energy O & M	Col. 6 Total Demand O & M
	STEAM POWER GENERATION							
1	Operating Supervision & Engr.	500	$ -	N/A	N/A	N/A	$ -	$ -
2	Fuel - Labor & Misc. Expense	5012	0.00			0.00	0.00	0.00
3	Steam Expense (excl Ammonia/Limestone, Gypsum)	502	0.00	-		0.00	0.00	0.00
4	Steam Expense - Ammonia	502	0.00	-		0.00	0.00	0.00
5	Steam Expense - Limestone	502	0.00	-		0.00	0.00	0.00
6	Steam Expense - Gypsum Disposal/Sales	502/456	0.00	-		0.00	0.00	0.00
7	Steam Expense - Magnesium Hydroxide	502	0.00	-		0.00	0.00	0.00
8	Electric Expense	505	0.00	-		0.00	0.00	0.00
9	Misc. Steam Power Expense	506	0.00	-		0.00	0.00	0.00
10	Rents	507	0.00	-		0.00	0.00	0.00
11	Allowances	509	0.00	-		0.00	0.00	0.00
12	Total Operation	L. 1 thru 11	$ -	$ -	0.0000%	$ -	$ -	$ -
13	Maintenance Supervision & Engr.	510	$ -	N/A	N/A	N/A	$ -	$ -
14	Maint. of Structures	511	0.00	-		0.00	0.00	0.00
15	Maint. of Boiler Plant	512	0.00	-		0.00	0.00	0.00
16	Maint. of Electric Plant	513	0.00	-		0.00	0.00	0.00
17	Maint. of Misc. Steam Plant	514	0.00	-		0.00	0.00	0.00
18	Total Maintenance	L. 13 thru 17	$ -	$ -	0.0000%	$ -	$ -	$ -
19	Total Steam Power Generation	L. 12 + L. 18	$ -				$ -	$ -
	NUCLEAR POWER GENERATION							
20	Operating Supervision & Engr.	517	$ -	N/A	N/A	N/A	$ -	$ -
21	Fuel Handling	51823	0.00	-		0.00	0.00	0.00
22	Coolants & Waters	519	0.00	-		0.00	0.00	0.00
23	Steam Expenses	520	0.00	-		0.00	0.00	0.00
24	Steam from Other Sources	521	0.00	-		0.00	0.00	0.00
25	Steam Transferred - Cr	522	0.00	-		0.00	0.00	0.00
26	Electric Expenses	523	0.00	-		0.00	0.00	0.00
27	Misc. Nuclear Power Expenses	524	0.00	-		0.00	0.00	0.00
28	Rents	525	0.00	-		0.00	0.00	0.00
29	Total Operation	L. 20 thru 28	$ -	$ -	0.0000%	$ -	$ -	$ -
30	Maintenance Supervision & Engr.	528	$ -	N/A	N/A	N/A	$ -	$ -
31	Maint. of Structures	529	0.00	-		0.00	0.00	0.00
32	Maint. of Reactor Plant Equip.	530	0.00	-		0.00	0.00	0.00
33	Maint. of Electric Plant	531	0.00	-		0.00	0.00	0.00
34	Maint. of Misc. Nuclear Plant	532	0.00	-		0.00	0.00	0.00
35	Total Maintenance	L. 30 thru 34	$ -	$ -	0.0000%	$ -	$ -	$ -
36	Total Nuclear Power Generation	L. 29 + L. 35	$ -				$ -	$ -
	HYDRAULIC POWER GENERATION							
37	Operating Supervision & Engr.	535	$ -	N/A	N/A	N/A	$ -	$ -
38	Water for Power	536	0.00	-		-	0.00	0.00
39	Hydraulic Expenses	537	0.00	-		-	0.00	0.00
40	Electric Expenses	538	0.00	-		-	0.00	0.00
41	Misc. Hydro Power Gen. Expenses	539	0.00	-		-	0.00	0.00
42	Rents	540	0.00	-		-	0.00	0.00
43	Total Operation	L. 37 thru 42	$ -	$ -	0.0000%	$ -	$ -	$ -
44	Maintenance Supervision & Engr.	541	$ -	N/A	N/A	N/A	$ -	$ -
45	Maint. of Structures	542	0.00	-		-	0.00	0.00
46	Maint. of Reservoirs, Dams & Waterways	543	0.00	-		-	0.00	0.00
47	Maint. of Electric Plant	544	0.00	-		-	0.00	0.00
48	Maint. of Misc. Hydraulic Plant	545	0.00	-		-	0.00	0.00
49	Total Maintenance	L. 44 thru 48	$ -	$ -	0.0000%	$ -	$ -	$ -
50	Total Hydraulic Power Generation	L. 43 + L. 49	$ -				$ -	$ -
	OTHER POWER GENERATION							
51	Operating Supervision & Engr.	546	$ -	N/A	N/A	N/A	$ -	$ -
52	Fuel - Labor & Misc. Expense	5472	0.00	-		-	0.00	0.00
53	Generation Expense(Excluding Ammonia)	548	0.00	-		-	0.00	0.00
54	Generation Expense-Ammonia	548	0.00	-		-	0.00	0.00
55	Misc. Other Power	549	0.00	-		-	0.00	0.00
56	Rents	550	0.00	-		-	0.00	0.00
57	Total Operation	L. 51 thru 56	$ -	$ -	0.0000%	$ -	$ -	$ -
58	Maintenance Supervision & Engr.	551	$ -	N/A	N/A	N/A	$ -	$ -
59	Maint. of Structures	552	0.00	-		-	0.00	0.00
60	Maint. of Gen. & Electric Plant	553	0.00	-		-	0.00	0.00
61	Maint. of Misc. Other Power	554	0.00	-		-	0.00	0.00
62	Total Maintenance	L. 58 thru 62	$ -	$ -	0.0000%	$ -	$ -	$ -
63	Total Other Power Generation	L. 57 + L. 62	$ -				$ -	$ -
64	Total Production O&M Expenses	.18+L.36+L.50+L.63	$ -				$ -	$ -

DUKE ENERGY PROGRESS
System Average Energy Rate Template
For the month ending XX/XX/XXXX
Energy-related Production O&M Expenses

Line	Account Description	FERC Account	Source	Reference	Col. 1 Total Production O & M Expenses *(before adjustments)*	Col. 2 Adjustments	Col. 3 Note	Col. 4 Total *(after adjustments)*
	STEAM POWER GENERATION							
1	Operating Supervision & Engr.	500	FF1	P. 320, L.4, Col. (b)				$ -
2	Fuel - Labor & Misc. Expense	5012	[1]					0.00
3	Steam Expense (excl Ammonia/Limestone, Gypsum)	502	[1]					0.00
4	Steam Expense - Ammonia	502	[1]					0.00
5	Steam Expense - Limestone	502	[1]					0.00
6	Steam Expense - Gypsum Disposal/Sales	502/456	[1]					0.00
7	Steam Expense - Magnesium Hydroxide	502	[1]					0.00
8	Electric Expense	505	FF1	P. 320, L.9, Col. (b)				0.00
9	Misc. Steam Power Expense	506	FF1	P. 320, L.10, Col. (b)				0.00
10	Rents	507	FF1	P. 320, L.11, Col. (b)				0.00
11	Allowances	509	FF1	P. 320, L.12, Col. (b)			[2]	0.00
12	Total Operation	L. 1 thru 11			$ -	$ -		$ -
13	Maintenance Supervision & Engr.	510	FF1	P. 320, L.15, Col. (b)				$ -
14	Maint. of Structures	511	FF1	P. 320, L.16, Col. (b)				0.00
15	Maint. of Boiler Plant	512	FF1	P. 320, L.17, Col. (b)				0.00
16	Maint. of Electric Plant	513	FF1	P. 320, L.18, Col. (b)				0.00
17	Maint. of Misc. Steam Plant	514	FF1	P. 320, L.19, Col. (b)				0.00
18	Total Maintenance	L. 13 thru 17			$ -	$ -		$ -
19	Total Steam Power Generation	L. 12 + L. 18			$ -	$ -		$ -
	NUCLEAR POWER GENERATION							
20	Operating Supervision & Engr.	517	FF1	P. 320, L.24, Col. (b)				$ -
21	Fuel Handling	51823	[1]				[3]	0.00
22	Coolants & Waters	519	FF1	P. 320, L.26, Col. (b)			[3]	0.00
23	Steam Expenses	520	FF1	P. 320, L.27, Col. (b)			[3]	0.00
24	Steam from Other Sources	521	FF1	P. 320, L.28, Col. (b)				0.00
25	Steam Transferred - Cr	522	FF1	P. 320, L.29, Col. (b)				0.00
26	Electric Expenses	523	FF1	P. 320, L.30, Col. (b)				0.00
27	Misc. Nuclear Power Expenses	524	FF1	P. 320, L.31, Col. (b)			[3]	0.00
28	Rents	525	FF1	P. 320, L.32, Col. (b)				0.00
29	Total Operation	L. 20 thru 28			$ -	$ -		$ -
30	Maintenance Supervision & Engr.	528	FF1	P. 320, L.35, Col. (b)			[3]	$ -
31	Maint. of Structures	529	FF1	P. 320, L.36, Col. (b)			[3]	0.00
32	Maint. of Reactor Plant Equip.	530	FF1	P. 320, L.37, Col. (b)			[3]	0.00
33	Maint. of Electric Plant	531	FF1	P. 320, L.38, Col. (b)			[3]	0.00
34	Maint. of Misc. Nuclear Plant	532	FF1	P. 320, L.39, Col. (b)			[3]	0.00
35	Total Maintenance	L. 30 thru 34			$ -	$ -		$ -
36	Total Nuclear Power Generation	L. 29 + L. 35			$ -	$ -		$ -
	HYDRAULIC POWER GENERATION							
37	Operating Supervision & Engr.	535	FF1	P. 320, L.44, Col. (b)				0.00
38	Water for Power	536	FF1	P. 320, L.45, Col. (b)				0.00
39	Hydraulic Expenses	537	FF1	P. 320, L.46, Col. (b)				0.00
40	Electric Expenses	538	FF1	P. 320, L.47, Col. (b)				0.00
41	Misc. Hydro Power Gen. Expenses	539	FF1	P. 320, L.48, Col. (b)				0.00
42	Rents	540	FF1	P. 320, L.49, Col. (b)				0.00
43	Total Operation	L. 37 thru 42			$ -	$ -		$ -
44	Maintenance Supervision & Engr.	541	FF1	P. 320, L.53, Col. (b)				0.00
45	Maint. of Structures	542	FF1	P. 320, L.54, Col. (b)				0.00
46	Maint. of Reservoirs, Dams & Waterways	543	FF1	P. 320, L.55, Col. (b)				0.00
47	Maint. of Electric Plant	544	FF1	P. 320, L.56, Col. (b)				0.00
48	Maint. of Misc. Hydraulic Plant	545	FF1	P. 320, L.57, Col. (b)				0.00
49	Total Maintenance	L. 44 thru 48			$ -	$ -		$ -
50	Total Hydraulic Power Generation	L. 43 + L. 49			$ -	$ -		$ -
	OTHER POWER GENERATION							
51	Operating Supervision & Engr.	546	FF1	P. 321, L.62, Col. (b)				0.00
52	Fuel - Labor & Misc. Expense	5472	[1]					0.00
53	Generation Expense(Excluding Ammonia)	548	[1]					0.00
54	Generation Expense-Ammonia	548	[1]					0.00
55	Misc. Other Power	549	FF1	P. 321, L.65, Col. (b)				0.00
56	Rents	550	FF1	P. 321, L.66, Col. (b)				0.00
57	Total Operation	L. 51 thru 56			$ -	$ -		$ -
58	Maintenance Supervision & Engr.	551	FF1	P. 321, L.69, Col. (b)				0.00
59	Maint. of Structures	552	FF1	P. 321, L.70, Col. (b)				0.00
60	Maint. of Gen. & Electric Plant	553	FF1	P. 321, L.71, Col. (b)				0.00
61	Maint. of Misc. Other Power	554	FF1	P. 321, L.72, Col. (b)				0.00
62	Total Maintenance	L. 58 thru 62			$ -	$ -		$ -
63	Total Other Power Generation	L. 57 + L. 62			$ -	$ -		$ -
64	Total Production O&M Expenses	L.18+L.36+L.50+L.63			$ -	$ -		$ -

Note: [1] Analysis of Company Books.
[2] Adjustment to exclude REPS allowances for retail jurisdictions.
[3] Adjustment to exclude reversal of a 2011 DOE refund that is being deferred and amortized through 8/31/2018 for retail jurisdictions only.

DUKE ENERGY PROGRESS
System Average Energy Rate Template
For the month ending XX/XX/XXXX
Energy-related Production O&M Expenses

Line	Account Description	FERC Account	Source	Reference	Col. 1 Labor Component (before adjustments)	Col. 2 Adjustments	Col. 3 Note	Col. 4 Total (after adjustments)
	STEAM POWER GENERATION							
1	Operating Supervision & Engr.	500	[1]		N/A	N/A		N/A
2	Fuel - Labor & Misc. Expense	5012	[1]					$ -
3	Steam Expense (excl Ammonia/Limestone, Gypsum)	502	[1]					0.00
4	Steam Expense - Ammonia	502	[1]					0.00
5	Steam Expense - Limestone	502	[1]					0.00
6	Steam Expense - Gypsum Disposal/Sales	502/456	[1]					0.00
7	Steam Expense - Magnesium Hydroxide	502	[1]					0.00
8	Electric Expense	505	[1]					0.00
9	Misc. Steam Power Expense	506	[1]					0.00
10	Rents	507	[1]					0.00
11	Allowances	509	[1]					0.00
12	Total Operation	L. 1 thru 11			$ -	$ -		$ -
13	Maintenance Supervision & Engr.	510	[1]		N/A	N/A		N/A
14	Maint. of Structures	511	[1]					$ -
15	Maint. of Boiler Plant	512	[1]					0.00
16	Maint. of Electric Plant	513	[1]					0.00
17	Maint. of Misc. Steam Plant	514	[1]					0.00
18	Total Maintenance	L. 13 thru 17			$ -	$ -		$ -
19	Total Steam Power Generation	L. 12 + L. 18			$ -	$ -		$ -
	NUCLEAR POWER GENERATION							
20	Operating Supervision & Engr.	517	[1]		N/A	N/A		N/A
21	Fuel Handling	51823	[1]					$ -
22	Coolants & Waters	519	[1]					0.00
23	Steam Expenses	520	[1]					0.00
24	Steam from Other Sources	521	[1]					0.00
25	Steam Transferred - Cr	522	[1]					0.00
26	Electric Expenses	523	[1]					0.00
27	Misc. Nuclear Power Expenses	524	[1]					0.00
28	Rents	525	[1]					0.00
29	Total Operation	L. 20 thru 28			$ -	$ -		$ -
30	Maintenance Supervision & Engr.	528	[1]		N/A	N/A		N/A
31	Maint. of Structures	529	[1]					$ -
32	Maint. of Reactor Plant Equip.	530	[1]					0.00
33	Maint. of Electric Plant	531	[1]					0.00
34	Maint. of Misc. Nuclear Plant	532	[1]					0.00
35	Total Maintenance	L. 30 thru 34			$ -	$ -		$ -
36	Total Nuclear Power Generation	L. 29 + L. 35			$ -	$ -		$ -
	HYDRAULIC POWER GENERATION							
37	Operating Supervision & Engr.	535	[1]		N/A	N/A		N/A
38	Water for Power	536	[1]					$ -
39	Hydraulic Expenses	537	[1]					0.00
40	Electric Expenses	538	[1]					0.00
41	Misc. Hydro Power Gen. Expenses	539	[1]					0.00
42	Rents	540	[1]					0.00
43	Total Operation	L. 37 thru 42			$ -	$ -		$ -
44	Maintenance Supervision & Engr.	541	[1]		N/A	N/A		N/A
45	Maint. of Structures	542	[1]					$ -
46	Maint. of Reservoirs, Dams & Waterways	543	[1]					0.00
47	Maint. of Electric Plant	544	[1]					0.00
48	Maint. of Misc. Hydraulic Plant	545	[1]					0.00
49	Total Maintenance	L. 44 thru 48			$ -	$ -		$ -
50	Total Hydraulic Power Generation	L. 43 + L. 49			$ -	$ -		$ -
	OTHER POWER GENERATION							
51	Operating Supervision & Engr.	546	[1]		N/A	N/A		N/A
52	Fuel - Labor & Misc. Expense	5472	[1]					$ -
53	Generation Expense(Excluding Ammonia)	548	[1]					0.00
54	Generation Expense-Ammonia	548	[1]					0.00
55	Misc. Other Power	549	[1]					0.00
56	Rents	550	[1]					0.00
57	Total Operation	L. 51 thru 56			$ -	$ -		$ -
58	Maintenance Supervision & Engr.	551	[1]		N/A	N/A		N/A
59	Maint. of Structures	552	[1]					$ -
60	Maint. of Gen. & Electric Plant	553	[1]					0.00
61	Maint. of Misc. Other Power	554	[1]					0.00
62	Total Maintenance	L. 58 thru 62			$ -	$ -		$ -
63	Total Other Power Generation	L. 57 + L. 62			$ -	$ -		$ -
64	Total Production O&M Expenses	L.18+L.36+L.50+L.63			$ -	$ -		$ -

Note: [1] Analysis of Company Books.

DUKE ENERGY PROGRESS
System Average Energy Rate Template
For the month ending XX/XX/XXXX
Net Generated and Purchased MWh and Company Use

Line	Description	Source	Reference	MWh (before adjustments)	Adjustment	Note	MWh (with adjustments)
	Net Generated and Purchased MWh						
1	Total Energy	FF1	P.401a, L.28				-
2	Sales to Other Utilities	[1]					-
3	SEPA Received	FF1	P.329				-
4	SEPA Delivered	FF1	P.329				-
5	Net System Input Adjusted for SEPA		L.1 - L.2 - L.3 - L.4	-			-
6	Company Use		L.12				
7	Net Generated and Purchased MWh		L.5 - L.6				
	CP&L Company Use						
8	Metered Company Uses	FF1	P.401a, L.26				-
9	Total Energy Unaccounted For	FF1	P.401a, L.27				-
10	Net System Input	FF1	P.401a, L.28				-
11	Energy Loss %		L.9 / L.10				
12	Company Use Including Losses		L.8 x (L.11 + 1)				

Note: [1] Schedule 3, NCUC

Exhibit III

Reserve Capacity Rate Formula

(Exhibit Follows)

Exhibit III - Reserve Capacity Rate Formula
Duke Energy Progress, LLC

1	Net Revenue Requirements				p 1. of the Capacity Rate Formula, Exhibit I
2	DEP's System Production Capability[1]				kW
3	**Total Reserve Capacity Rate**	$/kW-year	Line 1 / 2		
4		$/kW-mo	Line 3 /12		

[1] - DEP's System Production Capability for a year shall be the average of (i) the total DEP system capability (excluding DEP's purchases from SEPA) as of December 31 of the year prior to the year in which service was provided, and (ii) the total DEP system capability (excluding DEP's purchases from SEPA) as of December 31 in the year in which service was provided

Exhibit IV

Base Load Reduction Compensation Payment

(Exhibit Follows)

Exhibit IV

Compensation Payment Calculation and Methodology
(Example Assuming 1/1/16 Closing and 1/1/28 Termination of 200 MW)

Year	Purchase Price ($000)	20-Year Amortization ($000)	Unamortized Purchase Price @ Y/E ($000)	Net System Avg. Monthly Peak Demands (MW)
A	B	C	D	E
2016	1,200,000	60,000	1,140,000	11,273
2017		60,000	1,080,000	11,439
2018		60,000	1,020,000	11,601
2019		60,000	960,000	11,765
2020		60,000	900,000	11,929
2021		60,000	840,000	12,092
2022		60,000	780,000	12,260
2023		60,000	720,000	12,439
2024		60,000	660,000	12,623
2025		60,000	600,000	12,799
2026		60,000	540,000	12,978
2027		60,000	480,000	13,159
2028		60,000	420,000	13,352
2029		60,000	360,000	13,546
2030		60,000	300,000	13,718
2031		60,000	240,000	13,900
2032		60,000	180,000	14,080
2033		60,000	120,000	14,266
2034		60,000	60,000	14,266
2035		60,000	-	14,266

Assumed Base Load Capacity Reduction	200
Avg. of Previous 5-Years Net System Avg. Monthly Peak Demands	12,800
Load Ratio Share of Base Load Capacity Reduction	1.5625%
Base Load Reduction Compensation Payment ($000)	7,500

NOTE - APPLICATION OF METHODOLOGY

The Compensation Payment provided for in Section 2.7.7 of the Agreement shall be based on the amount of capacity of Base Load purchases that Power Agency terminates in accordance with Section 2.7.6 divided by the same DEP net Monthly Peak Demands as used in the Capacity Rate Formula (Exhibit I, Page 16 - shown on Line 18, Column Total kW with adjustments), applied to the unamortized balance of the purchase price set forth in the Asset Purchase Agreement (shown in Column D) and based on a 20-year amortization. The actual closing date, and final purchase price under Asset Purchase Agreement and the effective date for the Base Load purchase termination or reduction in accordance with Section 2.7.6 will be used for purposes of determining the Compensation Payment (e.g., if the actual closing date on the Power Agency's assets were to be February 1, 2016 and the effective date of the Base Load purchase termination were to be August 1, 2028, the "Unamortized Purchase Price" balance (shown in Column D) would reflect 150 months of amortization from the closing date and 90 months of remaining amortization). However, the load ratio calculation discussed above would remain based on the most recent 5 years of complete Calendar Year load data.

Exhibit V

Form of Notice for Qualified Resources and Economic Development Resources

1. Type of Resource (Member Resource; Customer Resource; or Economic Development Resource): _____
2. Member/Customer:

   _____
3. Delivery Point: _____
4. Scheduled (or Actual) Date of First Operation: _____
5. Maximum Capable Injection Capacity kW (if Energy Injection Device): _____
6. Nameplate kW (if Generation): _____
7. Notice Date: _____
8. If Economic Development Resource, provide a description of the project qualifications and attach relevant documentation: _____

   _____
9. Resource Location & Address: _____

   _____

   _____

   _____
10. List of Protective Relays (Best information on electrical protection functional diagram, device types and makes shall be provided with original notice and updated as more definitive information is obtained): _____

    _____

    _____

Exhibit VI

METHODOLOGY FOR CALCULATION OF GSU LOSS FACTOR - DEP

I. INTRODUCTION

The GSU Loss Factor is used to compensate DEP for replacing losses incurred in "stepping-up" voltage from the generators to match transmission line voltage ("GSU Losses").

II. ANNUAL LOSS FACTOR CALCULATION PERIOD

The GSU Loss Factor shall be based on a contiguous 12-month period beginning December 1 at 00:00 of the year prior to the test year and ending on November 30 at 23:59 of the test year ("Calculation Period"). The Calculation Period shall be divided into four seasons as follows:

Calculation Period											
Dec	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov
Winter			Spring			Summer			Fall		

- Winter – December 1 at 00:00 of the year prior to the test year through the last day of February at 23:59 of the test year,
- Spring – March 1 at 00:00 of the test year through May 31 at 23:59 of the test year,
- Summer – June 1 at 00:00 of the test year through August 31 at 23:59 of the test year, and
- Fall – September 1 at 00:00 of the test year through November 30 at 23:59 of the test year.

III. OVERVIEW OF GSU LOSSES CALCULATION METHODOLOGY

This section describes the overall methodology governing the calculation of the GSU Loss Factor.

GSU Losses for the Calculation Period shall be estimated for each hour in each season through a linear estimation of GSU Losses as a function of hourly load. The equations for the linear estimation shall be derived from five data points using the methodology in Section III.b. The GSU Loss Factor shall be calculated for the combined DEP Balancing Authority Areas (i.e., CPLE and CPLW) and shall be the sum of the GSU Losses for each hour of the Calculation Period divided by the sum of the hourly demands at each Point of Delivery ("POD") for each hour of the Calculation Period expressed as a percentage, rounded to two decimal places.

a. SEASONAL LOAD DATA

Following the test year, DEP shall supply to its wholesale power customers the following data in Excel format for each season of the Calculation Period:

i. Hourly load ranked from seasonal peak to seasonal minimum

ii. Date and time of each hourly load observation

iii. Transformer no-load loss spreadsheet

b. LOAD DATA POINT SELECTION FOR LOSS EQUATION CALCULATION

i. Five data points shall be selected for each season of the Calculation Period. Data points shall represent percentiles between the seasonal peak value and seasonal minimum load value for DEP. The MW load points shall be determined as follows:

Seasonal Load Difference = Seasonal peak load less seasonal minimum load
First Data Point = (0.99 * Seasonal Load Difference) plus seasonal minimum load
Second Data Point = (0.85 * Seasonal Load Difference) plus seasonal minimum load
Third Data Point = (0.50 * Seasonal Load Difference) plus seasonal minimum load
Fourth Data Point = (0.15 * Seasonal Load Difference) plus seasonal minimum load
Fifth Data Point = (0.01 * Seasonal Load Difference) plus seasonal minimum load

Collectively, these shall be referred to as the "Data Points."

DEP shall select the actual seasonal load that most closely approximates the MW value of the respective Data Points. Hours excluded by the application of section III.b.ii.(a)-(c) shall be replaced with hours that most closely approximate the MW value of the respective Data Points.

ii. DEP will exclude the following as representations of the Data Points:

(a) If applicable, any hour excluded pursuant to the mutual agreement provision in Attachment W, Section III.b.ii(a) of the Joint Open Access Transmission Tariff;

(b) Any hour during which the DEP system experienced an event that resulted in the filing by DEP of a report using the U.S. Department of Energy Electric Emergency Incident and Disturbance Report (Form OE-417)[1] or its successor; and ([1] Form OE-417 is a mandatory emergency form filed by specific electric power industry actors when at least one of the qualifying criteria is met–pursuant to Section 13(b) of the Federal Energy Administration Act of 1974 (Public Law 93-275). https://www.oe.netl.doe.gov/docs/OE417_Form_Instructions_05312021.pdf.)

(c) Any hour that occurs on a NERC holiday.

iii. DEP shall supply its wholesale power customers with the month, day, hour and MW values selected to best represent the five Data Points for each season, for a total of twenty Data Points to represent the Calculation Period. DEP shall determine GSU Losses based upon the methodology described in Section IV.

c. LINEAR INTERPOLATION OF DATA POINTS

Losses for each hourly load shall be calculated from a linear interpolation of the Data Points described above.

For loads from the maximum seasonal load to the 85th percentile, the loss equation is:

$$LossMW = [(LOSS_{99} - LOSS_{85}) / (LOAD_{99} - LOAD_{85})]*(LoadMW-LOAD_{85}) + LOSS_{85}$$

Where $LOSS_{99}$ and $LOSS_{85}$ are the losses at the load levels for the 99th and 85th percentiles and $LOAD_{99}$ and $LOAD_{85}$ are the load levels at the 99th and 85th percentiles.

For loads from the 85th percentile to the 50th percentile, the loss equation is:

$$LossMW = [(LOSS_{85} - LOSS_{50}) / (LOAD_{85} - LOAD_{50})]*(LoadMW-LOAD_{50}) + LOSS_{50}$$

Where $LOSS_{85}$ and $LOSS_{50}$ are the losses at the load levels for the 85th and 50th percentiles and $LOAD_{85}$ and $LOAD_{50}$ are the load levels at the 85th and 50th percentiles.

For loads from the 50th percentile to the 15th percentile, the loss equation is:

$$LossMW = [(LOSS_{50} - LOSS_{15}) / (LOAD_{50} - LOAD_{15})]*(LoadMW-LOAD_{15}) + LOSS_{15}$$

Where $LOSS_{50}$ and $LOSS_{15}$ are the losses at the load levels for the 50th and 15th percentiles and $LOAD_{50}$ and $LOAD_{15}$ are the load levels at the 50th and 15th percentiles.

For loads from the 15th percentile to the minimum seasonal load, the loss equation is:

$$LossMW = [(LOSS_{15} - LOSS_{1}) / (LOAD_{15} - LOAD_{1})]*(LoadMW-LOAD_{1}) + LOSS_{1}$$

Where $LOSS_{15}$ and $LOSS_{1}$ are the losses at the load levels for the 15th and 1st percentiles and $LOAD_{15}$ and $LOAD_{1}$ are the load levels at the 15th and 1st percentiles.

d. LOSS PERCENTAGE CALCULATION

Total GSU Losses by season shall be the sum of the hourly losses estimated by the equations above for every hour of the Calculation Period. Total annual GSU Losses are the sum of the seasonal losses. The annual loss percentage is calculated as:

$$\text{Loss Factor} = (LOSS_{Winter} + LOSS_{Spring} + LOSS_{Summer} + LOSS_{Fall}) / \text{Total Load},$$

Where $LOSS_{Winter}$ = sum of hourly loss calculations for each load level of the Winter Season of the Calculation Period, and

Where $LOSS_{Spring}$ = sum of hourly loss calculations for each load level of the Spring Season of the Calculation Period, and

Where $LOSS_{Summer}$ = sum of hourly loss calculations for each load level of the Summer Season of the Calculation Period, and

Where $LOSS_{Fall}$ = sum of hourly loss calculations for each load level of the Fall Season of the Calculation Period, and

Where Total Load = sum of hourly POD demand for each hour of the Calculation Period.

IV. METHODOLOGY

a. DATA SOURCES

The DEP methodology uses power flow models created for hourly Available Transfer Capability ("ATC") calculations, including day-ahead forecasts for load, generation, and transmission topology, and including known outages. Power flow cases are not saved at the time of the ATC calculations due to the size and quantity of the files, but all input parameters are saved. Once the twenty load points are chosen per Section III.b, the saved input parameters are used to recreate those specific ATC base cases. Because actual loads at the selected hours will be more accurate than the day-ahead forecast loads for those hours, the day-ahead forecast loads are replaced with the actual loads at the start of the case creation process for this losses analysis. Other known system conditions at the time of ATC analysis are retained in the model.

b. CALCULATION OF REAL POWER LOSS FACTOR AND GSU LOSS FACTOR

i. Load

DEP Area load is extracted from the power flow cases using the PSS/E Area Report for the two DEP Balancing Authority Areas (CPLE and CPLW). The total load reported by PSS/E is equivalent to the total load measured at the Transmission Customer PODs.

ii. GSU Losses

For many planning and operations analyses, it is important to model details of DEP-owned and non-DEP-owned equipment behind the generation meters and load meters. However, for this GSU Losses analysis, only equipment on the transmission side of the meters is considered. To achieve this, equipment on the generation side of the generation meters and equipment on the load side of the load meters are deleted from the PSS/E cases before extracting loss data. The following generation plants have high-side metering, so their GSUs are deleted from the models before extracting loss data:

- NCEMC Hamlet Plant
- NCEMC Anson Plant

- Fayetteville PWC Butler Warner Plant
- Eden Solar
- Elm City Solar
- Fayetteville Solar
- Roslin Solar
- Warsaw Solar

In addition, DEP distribution equipment is not appropriate for this losses analysis. The following DEP equipment is removed before extracting losses:

- Marshall Hydro transformers

Once these are removed, the PSS/E Area Report is used to provide the total losses in the two DEP Balancing Authority Areas (CPLE and CPLW). The total losses value from this report represents the sum of transmission losses and applicable GSU Losses, and it is recorded for each of the twenty power flow models.

The next step is to delete all remaining GSUs from the power flow cases and create another PSS/E Area Report. In the resulting report, the losses value represents only transmission system losses, and it is also recorded for each of the twenty power flow models.

The difference between the losses from the first PSS/E Area Report (transmission and GSU Losses) and losses from the second PSS/E Area Report (only transmission losses) is the total GSU load losses for DEP, except it does not include GSU transformer no-load losses.

DEP does not include transformer no-load losses in its PSS/E planning models, similar to the way it is handled by a majority of utilities in North America. Instead, DEP keeps an Excel workbook list of the no-load losses of its GSU transformers. These no-load losses are added to the losses from the PSS/E models to calculate the total GSU Losses for DEP. As long as DEP maintains transformer no-load losses in a list separate from the models discussed in Section V.a., the no-load losses list will be reviewed and updated annually as a part of this process. At the beginning of each annual GSU Loss Factor update, DEP will review the lists of generators and GSU transformers in its models to confirm the treatment of GSU Losses. In particular, for new generators added to the models since the previous year, whether Duke-owned or third party-owned, the meter location and any meter compensation will be confirmed to determine GSU transformer loss treatment. The appropriate modeling of retired and replacement generators and their GSU transformers will also be confirmed.

The DEP loss calculation then proceeds as described in Section III above.

Exhibit VII

Calculation of Coal Combustion Residuals Costs

I. Definitions:

Buyer's Production Demand Allocation Factor means the sum of the 12 Monthly Coincident Billing Demands for a Calendar Year divided by DEP's Sum of Twelve Monthly Peaks, as calculated on Page 16 of Exhibit I, except for 2015 only as set forth below in Section III.B.

II. Purpose of this Exhibit VII:

The purpose of this Exhibit VII is to entitle Duke to recover through rates the CCR Costs incurred by Duke starting on and after August 1, 2015. This Exhibit VII provides for the annual calculation of all components of the CCR Costs that are allocated and recoverable as production demand related costs. Any CCR Costs collected under this Exhibit VII will be excluded from the costs that otherwise would have been collected in accordance with Exhibits I, II and III.

Beneficial Reuse Costs that are recorded in FERC Account No. 501 shall be recovered as a component of the Monthly Energy Charge determined in accordance with Section 5.3, and shall not be included in CCR Costs for purposes of applying the methodology set forth below in Section III of this Exhibit VII.

III. Methodology:

It is the intent of this Exhibit VII to reflect the Buyer's full allocable share of Duke's system level of CCR Costs, minus any CCR Disallowances, as such are incurred (except for Beneficial Reuse Costs that are recorded in FERC Account No. 501 and that are recovered as a component of the Monthly Energy Charge as set forth in Section II); and, one-twelfth of the annual Calendar Year projection of such costs will be billed monthly using the Buyer's Production Demand Allocation Factor ("Monthly Charge for Buyer's CCR Costs"). Such

allocation factor will be based on recently available actual values, adjusted as appropriate for known changes in system and/or Buyer loads during the forecast period, and subject to annual true-up once actual costs and allocation factors are known.

A. Calculation:

In any Calendar Year, the Charge for Buyer CCR Costs = ((CCR Costs – CCR Disallowance - Beneficial Reuse Costs included in FERC Account No. 501) * Buyer's Production Demand Allocation Factor).

CCR Costs will be based on the actual CCR Costs incurred by Duke during the Calendar Year. All such Duke CCR Costs will be recorded as debits to FERC Account No. 230 (Asset Retirement Obligations), and booked to Duke sub-account 230315. CCR Costs will be reduced by all cost of removal amounts collected for coal ash remediation.

B. CCR Costs Owed for Compliance From August 1, 2015 – December 31, 2017:

Actual Buyer's CCR Costs, including deferred Beneficial Reuse Costs, for the period from August 1, 2015 through and including December 31, 2016, and estimated Charge for Buyer's CCR Costs from January 1, 2017 through and including December 31, 2017 shall be recovered over twenty-four (24) months billed in equal monthly installments starting January 1, 2018 and continuing through December 31, 2019, without any interest payable by Buyer. Buyer's CCR Costs for 2015 only shall be equal to the sum of Buyer's Monthly Coincident Billing Demands for the last five months of the Calendar Year divided by DEP's Sum of Twelve Monthly Peaks for the Calendar Year (as calculated on Page 16 of Exhibit I) times Duke's demand-related CCR Costs for 2015.

Actual Beneficial Reuse Costs that are recorded in FERC Account No. 501 for the period from January 1, 2017 through and including June 30, 2017 will be

recovered over six (6) equal installments as part of the Monthly Energy Charge under Section 5.3 starting July 1, 2017 and continuing through December 31, 2017. For the period July 1, 2017 through December 31, 2017, estimated Beneficial Reuse Costs that are recorded in FERC Account No. 501, will be recovered as part of the Monthly Energy Charge under Section 5.3.

The 2017 estimated Buyer's CCR Costs and Beneficial Reuse Costs will be subject to true-up on or about June 30, 2018, in accordance with the true-up provisions in Section 7, including interest calculated at the Interest Rate.

IV. General Provisions:

A. For any Buyer's CCR Costs collected prior to issuance of an order or law creating a CCR Disallowance, Duke will adjust Buyer's CCR Costs by applying billing credits equal to Buyer's Allocable Share of CCR Disallowances, as part of the annual true up performed in accordance with Section 7.1 of the Agreement.

B. Except as provided in Section 5.5.2.3 with respect to Buyer Deferred CCR Costs, and except with respect to interest payable for any true-up of costs billed under this Agreement, Duke shall not charge DEP Cost of Capital on CCR Costs.

C. Buyer shall receive the Buyer's Share of CCR Insurance Proceeds (i) if demand related and a Buyer Deferred CCR Costs balance exists, as a reduction to such balance and/or (ii) if demand related and no Buyer Deferred CCR Costs balance exists or if fuel related, then as a billing credit or a refund, in either case to be provided to Buyer within ninety (90) days subsequent to Duke's receipt of CCR Insurance Proceeds. The obligation to make or pay such reductions, billing credits and/or refunds shall survive termination of this Agreement in accordance with Section 18.17.

D. Except as otherwise expressly provided in this Exhibit VII, the terms used in this Exhibit VII shall have the meanings provided for elsewhere in the Agreement and its Exhibits.

Exhibit VIII

Buyer Maximum Annual CCR Billing Amounts

Buyer Maximum Annual CCR Billing Amount Example for NCEMPA

Buyer Maximum Annual CCR Billing Amounts per this Attachment are fixed; however, the remaining portion of this Attachment is for illustrative purposes only.

See Contract for Definitions

Line No.		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
1	Buyer Maximum Annual CCR Billing Amount:	28,000,000	28,000,000	28,000,000	28,000,000	28,000,000	28,000,000	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000
2	Charge for Buyer CCR Costs (Assumed actual costs for a year):	35,000,000	35,000,000	30,000,000	32,000,000	28,000,000	20,000,000	7,500,000	5,000,000	5,000,000	5,000,000	3,000,000
3	Charge for Buyer CCR Costs vs. Buyer Maximum Annual CCR Billing Amount (Line 2 - Line 1):	7,000,000	7,000,000	2,000,000	4,000,000	0	(8,000,000)	0	(2,500,000)	(2,500,000)	(2,500,000)	(4,500,000)
4	Charge for Buyer CCR Costs plus Buyer Deferred CCR Costs (Line 2 + prior year Line 7):	35,000,000	42,070,000	44,210,700	48,372,807	48,618,476	40,894,239	20,523,182	18,153,413	15,759,947	13,342,547	8,900,972
5	Charge for Buyer CCR Costs up to Buyer Maximum Annual CCR Billing Amount (lesser of Line 1 and Line 4)	28,000,000	28,000,000	28,000,000	28,000,000	28,000,000	28,000,000	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000
6	Buyer Deferred CCR Costs Rolling Balance (Line 4 - Line 5)	7,000,000	14,070,000	16,210,700	20,372,807	20,618,476	12,894,239	13,023,182	10,653,413	8,259,947	5,842,547	1,400,972
7	Buyer Deferred CCR Costs Rolling Balance plus FERC Interest on Line 6 amount less than or equal to $20M plus DEP Cost of Capital on Line 6 greater than $20M. (Example assumes FERC Interest Rate is 1.0% and DEP Cost of Capital is 12.25%)	7,070,000	14,210,700	16,372,807	20,618,476	20,894,239	13,023,182	13,153,413	10,759,947	8,342,547	5,900,972	1,414,982
8	Total Buyer Annual Bill Amount	28,000,000	28,000,000	28,000,000	28,000,000	28,000,000	28,000,000	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000

Note: In accordance with Section 5.5.4, upon Agreement expiration or termination, Buyer shall pay the then-outstanding Buyer Deferred CCR Costs within ninety (90) days of such termination or expiration.

Exhibit IX

Rate Discount for North Carolina Excess Deferred Taxes ("Excess NC-ADIT")

Year	Discount ($/kW-Month)
2019	.20
2020	.20
2021	.19
2022	.18
2023	.18
2024	.17
2025	.16
2026	.15

1. The above rate discounts address past and future disposition of Duke's excess accumulated deferred income tax liability arising from the recognition of reductions in North Carolina state corporate income tax rates from 6.9% to 2.5% during the years 2013 through 2017 pursuant to the legislation adopted in North Carolina in 2013 (North Carolina House Bill 998) and in 2017 (North Carolina Senate Bill 257) (hereinafter, "Excess NC-ADIT"). These rate discounts provide full compensation for the value of: (a) the applicable rate base offsets related to Excess NC-ADIT deferred for the period of 2013-2018, to the extent these rate base offsets have not already been provided by Duke to Buyer; (b) the benefit of amortization of the Excess NC-ADIT balances over an eight-year period beginning January 1, 2019; (c) the applicable rate base offsets related to the unamortized Excess NC-ADIT balances from 2019-2026; and, (d) an interest component on the value of the 2013-2018 rate base offsets over the 2019-2026 amortization period.

Exhibit X

Rate Discounts Pursuant to Settlement Agreement in FERC Docket No. EL20-4-000 [1]

Line	Year (a)	Discount ($/kW-Month) (b)
1	2021	0.25
2	2022	0.24 [2]
3	2023	0.24 [2]

[1] The rate discounts set forth in this exhibit are being provided in accordance with the Settlement Agreement filed in FERC Docket No. EL20-4-000 and will be applied pursuant to Section 5.1 of the Agreement.

[2] The values shown in column (b) at lines 2 and 3 are estimated values that reflect forecasted Monthly Coincident Billing Demands at the time of the Settlement Agreement (12,859 MW-months in 2022, and 12,873 MW-months in 2023). The rate discount that will be applied to charges for service rendered during calendar year 2022 will be based upon NCEMPA's updated forecast of Monthly Coincident Billing Demands for 2022 as prepared by NCEMPA and provided to DEP in 2021. The rate discount that will be applied to charges for service rendered during calendar year 2023 will be based upon NCEMPA's updated forecast of Monthly Coincident Billing Demands for 2023 as prepared by NCEMPA and provided to DEP in 2022.

Exhibit XI

Grandfathered Energy Injection Devices

1. Member: City of Wilson
    a. Location & Address: 4523 Merck Road, Wilson, NC 27893
    b. Delivery Point: 10
    c. Date of First Operation: May 2019
    d. Nameplate kW: NA
    e. Maximum Capable Injection Capacity kW: 1,000 kW AC

2. Member: Greenville Utilities Commission
    a. Location & Address: Evans Street, 190 East Howell Street, Greenville, NC 27834
    b. Delivery Point: #1,2,3
    c. Date of First Operation: November 2020
    d. Nameplate kW: NA
    e. Maximum Capable Injection Capacity kW: 1,000 kW AC

3. Member: Town of La Grange
    a. Location & Address: 503 W. Railroad Street, La Grange, NC 28551
    b. Delivery Point: 1
    c. Date of First Operation: September 2022
    d. Nameplate kW: NA
    e. Maximum Capable Injection Capacity kW: 3,000 kW AC

ORDINANCE 2023-XX

AN ORDINANCE OF THE BOARD OF COMMISSIONERS OF THE TOWN OF WAKE FOREST, NORTH CAROLINA, DETERMINING THAT IT IS IN THE BEST INTERESTS OF THE TOWN OF WAKE FOREST TO APPROVE AND AUTHORIZE THE EXECUTION AND DELIVERY OF THE AMENDED AND RESTATED FULL REQUIREMENTS POWER SALES AGREEMENT BETWEEN THE TOWN OF WAKE FOREST AND NORTH CAROLINA EASTERN MUNICIPAL POWER AGENCY

WHEREAS, the Town of Wake Forest (the "Municipality") and North Carolina Eastern Municipal Power Agency ("Power Agency") entered into a Full Requirements Power Sales Agreement (the "FRPSA"), dated as of the twenty-fourth day of September, 2015, pursuant to which Power Agency sells and each Member purchases its Full Requirements Bulk Power Supply requirements (as that term is defined in the FRPSA); and

WHEREAS, the Board of Directors of Power Agency, by motion properly made and approved at its meeting on May 25, 2023, approved and authorized the execution and delivery of Tenth Amended and Restated Full Requirements Power Purchase Agreement (the "FRPPA") between the Power Agency and Duke Energy Progress, LLC (including successors and permitted assigns, "DEP"), pursuant to which Power Agency has agreed to purchase from DEP and DEP has agreed to sell to Power Agency Power Agency's full requirements capacity and energy to serve the load of the electric power customers of Power Agency's members, the electric needs of which the members have undertaken the obligation to meet, and contingent upon a recommendation by the Rate Committee and approval by the Board of Commissioners of Power Agency; and

WHEREAS, by motions properly made and approved at meetings on June 7, 2023 and June 8, 2023, the Rate Committee and the Board of Commissioners, respectively, recommended that staff execute and approve the FRPPA in the name and on behalf of the Power Agency; and

WHEREAS, on September 22, 2023, the Board of Directors of Power Agency adopted Resolution BRR-10-23, which, among other things, (i) ratified the approval and execution of the FRPPA by the Chief Executive Officer in the name and on behalf of Power Agency and (ii) authorized Power Agency to execute and deliver to each Member an Amended and Restated Full Requirements Power Sales Agreement (the "Amended and Restated FRPSA") to give effect to the transactions contemplated by the FRPPA; and

WHEREAS, Power Agency has caused to be furnished to the Municipality each of the following: (i) the FRPPA, (ii) Resolution BDR-10-23, and (iii) an executed Amended and Restated FRPSA, dated as of September 22, 2023; and

WHEREAS, the Board of Commissioners of the Municipality (the "Governing Body") has taken into consideration the benefits which might be achieved by approving, executing and delivering the Amended and Restated FRPSA.

NOW, THEREFORE, BE IT ORDAINED, by the Board of Commissioners of the Town of Wake Forest:

1. After due consideration to the contents of each of the preambles set forth above and to each of the documents referred to in such preambles, the Governing Body hereby finds and determines that it is in the best interests of the Municipality to enter into the Amended and Restated FRPSA.

2. The Governing Body hereby authorizes and directs that the Amended and Restated FRPSA be executed for and on behalf of the Municipality by the Mayor and Clerk, sealed with the seal of the Municipality and delivered to the Power Agency in the form and substance of the Amended and Restated FRPSA presented at this meeting.

3. The Governing Body hereby directs the Clerk to furnish or cause to be furnished to Power Agency a certified copy of this ordinance together with the executed Amended and Restated FRPSA.

4. The Governing Body hereby directs the Clerk to file with the minutes of this meeting (i) the FRPPA, (ii) Resolution BDR-10-23, and (iii) the proposed Amended and Restated FRPSA as presented and available at this meeting.

5. This Ordinance shall become effective upon its adoption.

ADOPTED this 17th day of October, 2023.

_____
Mayor

ATTEST:

_____
Town Clerk

(SEAL)

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-59-
Submitted by: Terry Savary
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Department Monthly Report

Recommendation:

Item Summary:

ATTACHMENTS
- September 2023 Monthly Report.pdf

September 2023 | Department Monthly Report

TOWN of WAKE FOREST

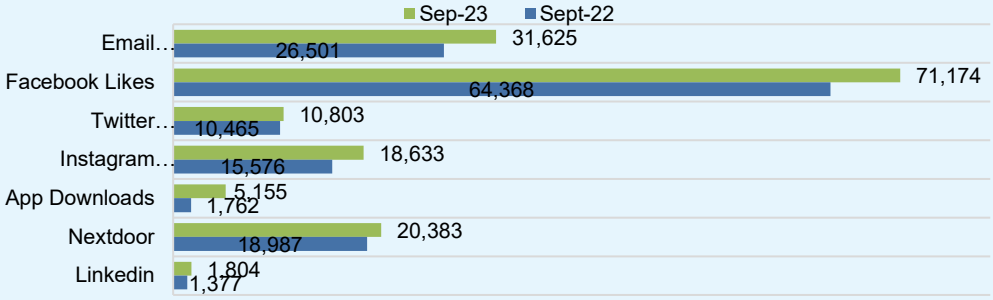
Communications

ANNOUNCEMENTS	
Media Releases	40
Email Announcements	15
Town-to-Resident Phone Calls/Texts	0

TOP 5 VIEWED PAGES ON WEBSITE

RANK	PAGE	VIEWS
1	Home	11,387
2	Customer Service Forms & Applications	9,187
3	Friday Night on White	3,918
4	New Businesses coming to Wake Forest	6,166
5	Utility Bill Payment Options	3,621

SUBSCRIBERS



Downtown Development

OCCUPANCY

	JULY-SEPT 2023	JULY-SEPT 2022
Occupancy Rate in Percentage	93%	89%

NEW BUSINESSES

	SEPTEMBER 2023	FISCAL YEAR-TO-DATE
Number of New Businesses	1	2
Number of Businesses Closed	0	0

EVENTS

FOURTH QUARTER EVENTS (JUL - SEPT)	ATTENDANCE IN 2022	ATTENDANCE IN 2023
FNOW September	12000	7000

UPDATES PROVIDED QUARTERLY

FNOW attendance was impacted by the threat of inclement weather. Issues with unsupervised teens returned and negative impact is being felt by downtown merchants, patrons attending the event, and sponsors. Staff is collaborating with police and researching effective ways to address moving forward to ensure that these issues do not occur in the 2024 season.

Downtown Development Director attended Historic Real Estate 347 to work towards National Development Council Historic Real Estate Finance Certification.

Wake Forest Downtown, Inc. established annual sponsorship opportunities to help fund key events and provide revenue towards non-profit's annual operating budget.

Spirits of Wake Forest Haunted History walking tours returned for the 4th year and 800 tickets sold out.

A call to artists was released for public art banners. This initiative is being pursued in collaboration with the Public Art Commission.

Historic Plaques are being installed on ten contributing buildings within the National Register Historic District downtown for the purpose of showcasing our history.

Economic Development

WFBIP MONTHLY NEWSLETTER VIEW

The Wake Forest Business & Industry Partnership's Quarterly Report is updated at the end of each quarter.

Use Chrome, Firefox, Safari, or Edge to view the newsletter and/or the report.

REQUESTS FOR INFORMATION (RFIs)

	SEPTEMBER 2023	SEPTEMBER 2022
Number of Responses to RFIs	1	1

BUSINESS RETENTION & EXPANSION

NAMES OF BUSINESSES VISITED THIS MONTH

Engineering

PROJECT	UPDATE
Stormwater Infrastructure Assessment	The final Stormwater Utility Advisory Group's final meeting was on October 4th. The group finalized the recommendations that will be presented to the Board of Commissioners in November.

Finance

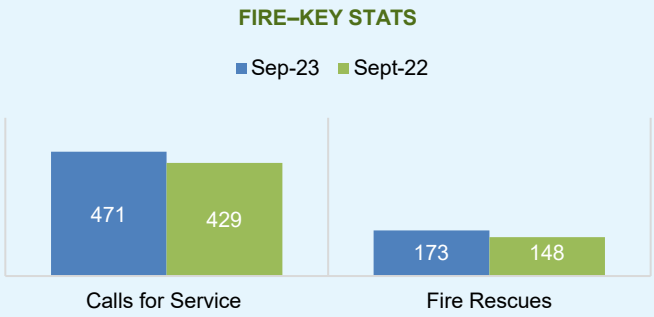
FINANCIAL TASKS COMPLETED	
TAX RETURNS & REPORTS	**COMPLETION DATE**
NC Sales and Use Tax Form E500 and payment	9/12/23
ORBIT/LGERS Report – NC State Treasurer	9/7/23
Utility Sales Tax Return – E500 E	9/12/23
BLS Department of Labor Report	9/19/23
Food & Beverage Tax Report	9/12/23
ACCOUNTING/FINANCE	**AMOUNT**
Total $ Accounts Payable Disbursement	$2,717,882
Total ePayables & Payroll Disbursement	$1,410,629
Total Number of Invoices Paid	497
Total Amount of Invoices Paid with credit card	$1,154,851
FY22-23 AUDIT	**COMPLETION DATE**
Year-end audit and financial statement preparation (statements due to LGC by October 31)	Ongoing

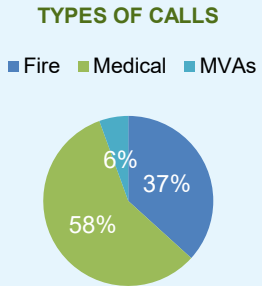
PURCHASING / WAREHOUSE	
Purchase Orders Processed	71
New Vendors Set Up	22
Informal Quotes	16
Surplus Items	$109,725
HUBSCO	0 reports submitted

Fire

KEY STATS		
	SEPTEMBER 2023	**SEPTEMBER 2022**
Calls for Service	471	429
Average Response Time	4:30	4:07

TYPES OF CALLS		
	SEPTEMBER 2023	**SEPTEMBE 2022**
Fire	173	148
Medical	272	254
Motor Vehicle Accidents (MVA)	26	27





Human Resources

PROMOTIONS / TRANSFERS			
EMPLOYEE NAME	DEPARTMENT	POSITION	DATE
Julian Prosser	Finance	Accountant	09.18.23

EMPLOYMENT		
As of September 30, 2023	**SEPTEMBER 2023**	**SEPTEMBER 2022**
Positions Filled	404	377
Vacancies	36	34
Total Authorized Positions FY 2023-2024	**440**	**411**

Information Technology

SERVICE STATS		
	SEPTEMBER 2023	SEPTEMBER 2022
Service Requests Completed	449	445
Network Uptime Percentage	100%	100%

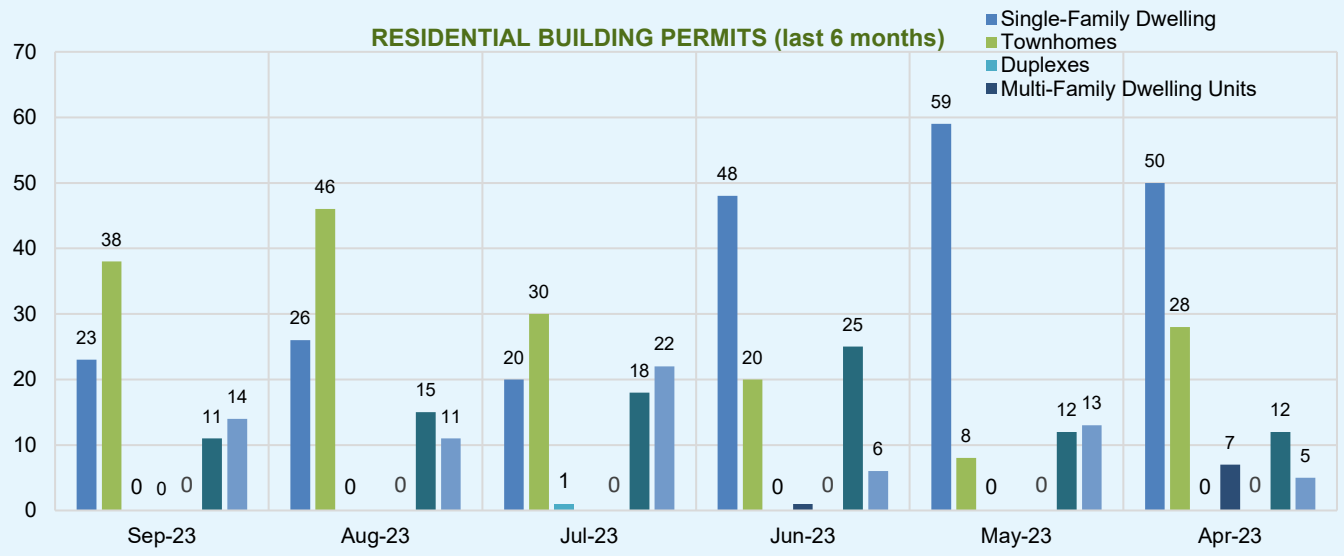
Inspections & Public Facilities

RESIDENTIAL PERMITS

	SEPTEMBER 2023	SEPTEMBER 2022
Single-Family Dwelling	23	51
Townhomes	38	41
Duplexes	0	0
Multi-Family Dwelling Units	0	0
Other	116	138
Total	**177**	**230**

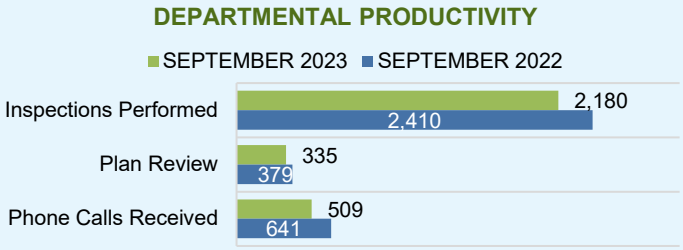
NON-RESIDENTIAL PERMITS

	SEPTEMBER 2023	SEPTEMBER 2022
New Commercial	1	1
Fit-Ups	4	4
Other	35	33
Total	**40**	**38**



PUBLIC FACILITIES

	SEPTEMBER 2023	SEPTEMBER 2022
Preventative Maintenance Completed	514	471
Reactive Work Orders	81	104



BUSINESSES	
NEW COMMERCIAL BUSINESSES	ADDRESS
Refuel Convenience Store/Fuel Station	1012 Holding Village Way
FIT-UPS	
Action Behavior Center	1936 Heritage Branch Rd 100
Bird's Nest	3608 Rogers Branch Rd
One Medical	515 Dr Calvin Jones Hwy 110
The Cha House (Craft Tea & Snack Bar)	3604 Rogers Branch Rd101
PRE-OCCUPANCIES	
Bowman Family Services	1784 Heritage Branch Rd 100
NC Closets	5101 Unicon Dr E
Integrity Services Group LLC	744 Merritt Capital Dr 116
Integrity Services Group LLC	745 Merritt Capital Dr 101
Steadfast Design LLC	745 Merritt Capital Dr 117
Jesse Print Inc	745 Merritt Capital Dr 122
Licensed Massage & Bodywork Therapist	822 S White St 105

Organizational Development

NORTHERN WAKE FOOD SECURITY TEAM	
Staff Hours	12 hours per week
Updates	Mobile Food Truck meeting with Ripe Revival

Parks, Recreation & Cultural Resources

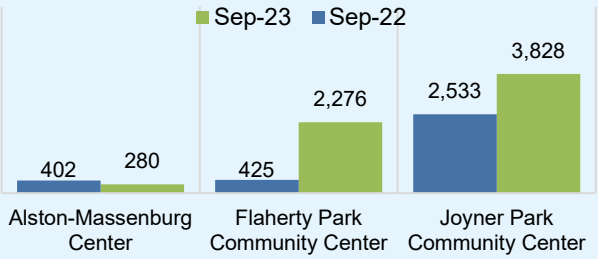
ATHLETICS

	SEPTEMBER 2023	SEPTEMBER 202
Registrations Received – Youth	777	650
Registrations Received – Adult	0	0
Games Held	316	289
Revenue	$47,305	$43,955

PROGRAMS

	SEPTEMBER 2023	SEPTEMBER 2022
Registrations Received – Youth	145	360
Registrations Received – Adult	233	2,447
Classes/Programs Held	41	65
Revenue	$9284	$6,179

VISITORS TO COMMUNITY CENTERS



RECCONNECT PROGRAM GUIDE VIEW

The program guide is updated twice per year in January and July.

PARK MAINTENANCE

TYPE OF MAINTENANCE	QUANTITY
Vandalism	3
Reactive Maintenance	8
PM Inspections and services	73
Evening and Weekend Park Services	4

FACILITY RENTALS

	SEPTEMBER 2023	SEPTEMBER 2022
Athletic Fields	4	32
Joyner Park Outdoor / Open Space	3	4
General Outdoor / Open Space	2	1
Picnic Shelters	1	1
Wake Forest Community House	4	5
Joyner Park Community Center	3	3
Flaherty Park Community Center	0	0
Alston-Massenburg Community Center	4	2

VISITORS TO AQUATIC CENTER & SPRAYGROUND

	SEPTEMBER 2023	SEPTEMBER 2022
Aquatic Center	1165	962
Taylor Street Sprayground	1052	675

Planning

DEVELOPMENT SERVICES MONTHLY REPORT VIEW

ZONING VIOLATIONS DASHBOARD VIEW

Use Chrome, Firefox, Safari, or Edge when viewing the dashboard.

CERTIFICATES OF APPROPRIATENESS

	SEPTEMBER 2023	SEPTEMBER 2022
COAs Received	0	0
COAs Approved	1	1

Police

KEY STATS

	SEPTEMBER 2023	SEPTEMBER 2022
Calls for Service	4,074	4,865
Vehicle Crashes	140	177

Public Works

Streets: Citizens Academy, assisted WFFD with mowing dry hydrant areas, repaired 126 tons of asphalt, completed 13 asphalt patches, swept 171 miles of streets, Work Zone Safety Training at NCSU (3 employees attended) and reshaped 400' of ditch line.
Solid Waste: Jeanette Johnson hosted her first class, Composting 101. This is a series of classes. It was very successful with over 20 people attending. Lots of positive feedback. Jeanette hosted the first of many tours to the South Wake Landfill to be followed up with tours of the recycling facility. Trash & recycle contract with Republic has been all but completed with only signatures required to put it into effect on Nov 1. Powerful storms caused a bump in yard waste in September, but crews kept on schedule throughout the month.
Fleet: The biggest concern is getting vehicle parts from Ford, GM, and Stellantis. With the UAW strike continuing and now effecting 38 parts distribution centers nationwide, this will affect availability even more than what the strike has already.
Urban Forestry: Pruned 218 trees, citizens academy went well, removal and replacement kickoff meeting

RECYCLING		
	SEPTEMBER 2023	SEPTEMBER 2022
Volunteer Collected Litter	75	575
Volunteer Collected Recycling	75	50
Volunteer Hours	6	74
Volunteer Miles of Streets	0	4
Sections of Roads Cleaned (not	1	0
Number of Creeks Cleaned	0	1
Number of Litter Kits Issued/Returned	2	10

SOLID WASTE		
	SEPTEMBER 2023	SEPTEMBER 2022
New Construction Homes Added	65	59
New Cart Sets	65	59

CEMETERY		
	SEPTEMBER 2023	SEPTEMBER 2022
Number of Plots Sold	0	10
Number of Niches Sold	1	1
Total Plots Available	0	41

Renaissance Centre for the Arts

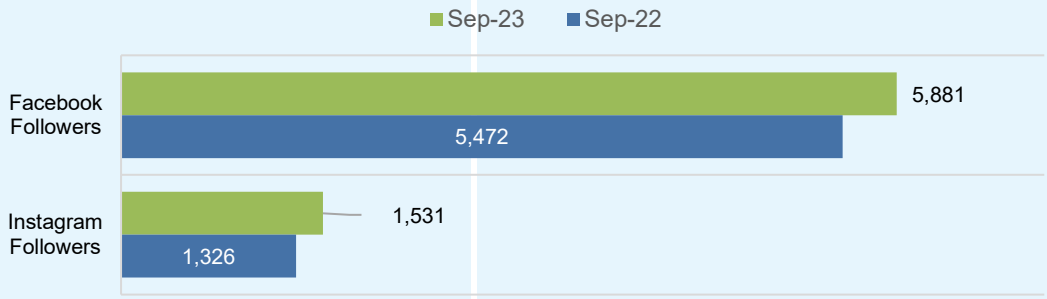
EVENT & PROGRAM ATTENDANCE

	SEPTEMBER 2023	SEPTEMBER 2022
Monthly In-Person Attendance	1,234	1,758
Virtual Views	0	300
Ticketed Events Held	0	2
Free Events Held	1	1

RENAISSANCE CENTRE PROGRAM GUIDE VIEW

- UPDATE: The Renaissance Centre was the host venue for the DuBois High School Reunion and the Chamber of Commerce Senior Expo.
- The Renaissance Centre was the host venue for the 2023 Board of Commissioners Candidates Forum. All candidates vying for the Wake Forest Board of Commissioners participated, including Tom Ballman, Ben Clapsaddle, Fatih Cross, Joe Kimray, Jim Thopson, and Adam Wrigth. Each was given the opportunity to briefly explain his or her views on local issues and answer questions relevant to their professional resumes.
- The Public Art Commission (PAC) participated in a professional development led by the Piedmont Poet Laurette, Dasan Ahanu. The workshop focused on how to diversify our boards and non-profit groups and bringing community values to our town.

SOCIAL ENGAGEMENT



Wake Forest Power

CUSTOMER SUMMARY

	SEPTEMBER 2023	SEPTEMBER 2022
Electric Meters/Customers	7,476	6,759
Pre-Pay Power Customers	470	459
H.O.P.E. Participants	45	46
N.C. GreenPower Participants	17	17

POWER OUTAGES

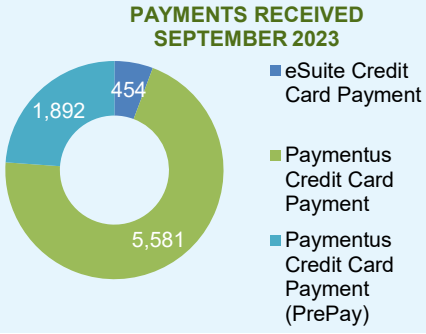
	SEPTEMBER 2023	SEPTEMBER 2022
Total Number of Customers Affected by Outages this Month	60	323
Average Number of Customers Affected per Outage	60	70.375

PAYMENTS RECEIVED

	SEPTEMBER 2023	SEPTEMBER 2022
eSuite Credit Card Payments	$310,465	$430,804
eSuite Credit Card Payments (Pre-Pay)	0	$2,200
Paymentus CC Payments	$1,104,374	$892,295
Paymentus CC Payments (Pre-Pay)	$73,800	$48,501

NUMBER OF TRANSACTIONS

	SEPTEMBER 2023	SEPTEMBER 2022
eSuite Credit Card Payments	454	574
Paymentus CC Payments	5,581	4,121
Paymentus CC Payments (Pre-Pay)	1,892	1,482



Historic Preservation Commission

MEETINGS	
Most recent meeting held	09/13/2023
Number of members in attendance 07 out of 11	

The HPC approved a sidewalk historic marker to commemorate the first fire station. The group reviewed and discussed the process for the demolition of historic structures ordinance and offered staff suggestions on improvement.

Human Relations Council

MEETINGS	
Most recent meeting held	09/28/2023
Number of members in attendance 0 out of 8	

Good Neighbor Day was held on Saturday, September 16, 2023. No Board Meeting in September – canceled due to lack of quorum.

Public Art Commission

MEETINGS	
Most recent meeting held	09/28/2023
Number of members in attendance 6 out of 8	

No regular business meeting in September; professional development for advisory boards by Dasan Ahanu hosted by the Public Art Commission at the RC Grand Hall with 21 in attendance.

Parks, Recreation & Cultural Resources Advisory Board

MEETINGS	
Most recent meeting held	09/25/2023
Number of members in attendance	8 out of 10

- QRFit Trails Update: The Board will revisit in October with Randy Hoyle, Park Maintenance Manager
- Special Events/Master Plan - Volunteer Sign-up Genius:
- Board Social Event: Blackbirds 7pm-9pm Tuesday, October 17th
- Daughter of American Revolution Project: Barbara Bowers: Board concerned about a lack of diversity in the sculptures presented. This will be revisited when the group returns at a later date.

Technology Advisory Board

MEETINGS	
Most recent meeting held	09/25/2023
Number of members in attendance 7 out of 12	

The Technology Advisory Board members collaborated on planning the STEM event scheduled for April 2024, and during the meeting, Adam Oates provided an update on the progress of the Smart City project.

Urban Forestry Board

MEETINGS	
Most recent meeting held	09/26/2023
Number of members in attendance 10 out of 10	

The board will be receiving American Chestnut seedlings in the coming months from the American Chesnutt Growers Foundation.

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-62-
Submitted by: Terry Savary
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Wake County Tax Release

Recommendation:

Item Summary:

ATTACHMENTS
- WF-TXREP-OCT-2023-BOC-MTG.pdf

WAKE COUNTY
NORTH CAROLINA

Board of Commissioners
P.O. Box 550 • Raleigh, NC 27602

TEL 919 856 6180
FAX 919 856 5699

SHINICA THOMAS, CHAIR
SUSAN EVANS, VICE-CHAIR
VICKIE ADAMSON
MATT CALABRIA
DON MIAL
CHERYL STALLINGS
JAMES WEST

October 3, 2023

Mr. Kip Padgett
Town Manager;
Town of Wake Forest
301 S. Brooks Street
Wake Forest, North Carolina 27587

Dear Mr. Padgett:

The Wake County Board of Commissioners, in regular session on October 2, 2023, approved and accepted the enclosed tax report for the Town of Wake Forest.

The attached adopted actions are submitted for your review; no local board action is required.

Sincerely,

Yvonne Gilyard
Clerk to the Board
Wake County Board of Commissioners

WAKE COUNTY
NORTH CAROLINA

WAKE COUNTY TAX ADMINSTRATION

Rebate details
8/1/2023 - 8/31/2023

WAKE FOREST

DATE	TIME	PAGE
09/10/2023	10:53:43 PM	1

REBATE NUMBER	PROPERTY	SPEC DIST	CITY TAG	LATE LIST	BILLED INT	TOTAL REBATED	PROCESS DATE	ACCOUNT NUMBER	TAX YEAR	YEAR FOR	BILLING TYPE	OWNER
WAKE FOREST (Not In District)												
BUSINESS ACCOUNTS												
855235	494.93	0.00	0.00	0.00	0.00	494.93	08/11/2023	0006988644	2023	2023	000000	SAINT MOSES INC
855237	12.90	0.00	0.00	0.00	0.00	12.90	08/14/2023	0006868145	2023	2023	000000	WIRE-2-WIRE INC
Subtotal for BUSINESS ACCOUNTS	**507.83**	**0.00**	**0.00**	**0.00**	**0.00**	**507.83**		**2 Properties Rebated**				
BUSINESS REAL ESTATE ACCOUNTS												
855503	227.25	0.00	0.00	0.00	0.00	227.25	08/16/2023	0000491241	2023	2023	000000	PARKER, KORIN D
Subtotal for BUSINESS REAL ESTATE ACCOUNTS	**227.25**	**0.00**	**0.00**	**0.00**	**0.00**	**227.25**		**1 Properties Rebated**				
INDIVIDUAL PROPERTY ACCOUNTS												
855230	93.15	0.00	0.00	0.00	0.00	93.15	08/11/2023	0006985662	2023	2023	000000	1-800-PACK-RAT LLC
854408	56.13	0.00	30.00	0.00	0.00	86.13	08/04/2023	0006992836	2023	2022	000000	KUNSTMANN, KEITH ALEXANDER
854407	21.20	0.00	0.00	0.00	0.00	21.20	08/04/2023	0007000119	2023	2022	000000	PENNA, CAITLIN ELIZABETH
854140	30.32	0.00	0.00	0.00	0.00	30.32	08/01/2023	0006999943	2023	2022	000000	RICHARDSON, ANNETTE
856687	45.79	0.00	30.00	0.00	0.00	75.79	08/28/2023	0007005087	2023	2022	000000	JOHNSON, MORGAN BAILEY
856566	8.05	0.00	0.00	0.00	0.00	8.05	08/25/2023	0006826342	2023	2023	000000	ARNETT, WILLIAM CLAUDE
Subtotal for INDIVIDUAL PROPERTY ACCOUNTS	**254.64**	**0.00**	**60.00**	**0.00**	**0.00**	**314.64**		**6 Properties Rebated**				

WAKE COUNTY
NORTH CAROLINA

WAKE COUNTY TAX ADMINSTRATION
Rebate details
8/1/2023 - 8/31/2023

WAKE FOREST

DATE	TIME	PAGE
09/10/2023	10:53:43 PM	2

REBATE NUMBER	PROPERTY	SPEC DIST	CITY TAG	LATE LIST	BILLED INT	TOTAL REBATED	PROCESS DATE	ACCOUNT NUMBER	TAX YEAR	YEAR FOR	BILLING TYPE	OWNER
INDIVIDUAL REAL ESTATE ACCOUNTS												
853999	105.06	0.00	0.00	0.00	0.00	105.06	08/08/2023	0000417518	2023	2023	000000	CHENOWETH, COREY
856296	609.16	0.00	0.00	0.00	0.00	609.16	08/23/2023	0000257837	2023	2023	000000	RAMIREZ, DULCE M
856554	468.83	0.00	0.00	0.00	0.00	468.83	08/31/2023	0000216517	2023	2023	000000	WEST, BARBARA S
855500	606.59	0.00	0.00	0.00	0.00	606.59	08/16/2023	0000253006	2023	2023	000000	BERTOLO, YVONNE
856957	2,695.84	0.00	0.00	0.00	0.00	2,695.84	08/31/2023	0000011789	2023	2023	000000	TAYLOR MORRISON OF CAROLINAS INC
854694	89.28	0.00	0.00	0.00	0.00	89.28	08/08/2023	0000470725	2023	2023	000000	GREER, MARIA F
Subtotal for INDIVIDUAL REAL ESTATE ACCOUNTS	**4,574.76**	**0.00**	**0.00**	**0.00**	**0.00**	**4,574.76**		**6 Properties Rebated**				
TOTAL WAKE FOREST (Not In District)	**5,564.48**	**0.00**	**60.00**	**0.00**	**0.00**	**5,624.48**		**15 Properties Rebated for the District/City**				
TOTAL FOR CITY WAKE FOREST	**5,564.48**	**0.00**	**60.00**	**0.00**	**0.00**	**5,624.48**		**15 Properties Rebated for the City**				

WAKE COUNTY
NORTH CAROLINA

WAKE COUNTY TAX ADMINSTRATION

Rebate details

8/1/2023 - 8/31/2023

WAKE FOREST

DATE	TIME	PAGE
09/10/2023	10:53:43 PM	1

REBATE NUMBER	PROPERTY	SPEC DIST	CITY TAG	LATE LIST	BILLED INT	TOTAL REBATED	PROCESS DATE	ACCOUNT NUMBER	TAX YEAR	YEAR FOR	BILLING TYPE	OWNER
Grand Total:	**218,573.10**	**11.76**	**1,260.00**	**2,081.33**	**0.00**	**221,926.19**	**117**	**Properties Rebated for All Cities**				

Board of Commissioners Agenda Item Report

Agenda Item No.: 2023-63-
Submitted by: Terry Savary
Submitting Department: Administration
Meeting Date: October 17, 2023

SUBJECT
Commissioner Reports

Recommendation:

Item Summary:

ATTACHMENTS

-

APPENDIX B

TOWN OF WAKE FOREST, NORTH CAROLINA SUPPLEMENTAL SERVICES AGREEMENT NO. [1] TO THE MASTER SERVICE AGREEMENT FOR ON-CALL PROFESSIONAL ENGINEERING SERVICES

SECTION I: PURPOSE

The purpose of this Supplemental Services Agreement (hereinafter "SSA") is for,
AMT Engineering, the Consultant, to provide On-Call general engineering Professional Services, as assigned, in accordance with the Agreement titled, "TOWN OF WAKE FOREST, NORTH CAROLINA MASTER SERVICES AGREEMENT FOR ON-CALL PROFESSIONAL ENGINEERING SERVICES" between the Town and AMT Engineering, dated March 6, 2023 (hereinafter "Master Services Agreement" or "MSA").

SECTION II: SCOPE

Consultant will perform On-Call General engineering Professional Services on an as-needed basis upon receipt of request and assignment from the Town representative. The Consultant shall comply with all terms of the MSA, which agreement is incorporated into this SSA as if fully set forth verbatim herein. Duties will involve the scope of services outlined in Exhibit A.

Services to be provided include, but are not limited to the scope of services outlined in Exhibit A. Consultant and the Town will mutually determine at time of assignment of individual tasks the Consultant personnel to be assigned, schedule, and deliverables.

SECTION III: SCHEDULE

Consultant shall perform tasks as expeditiously as practical and in conformance with schedules developed at the time of assignment of individual tasks and agreed upon by the Town and Consultant.

SECTION IV: PERIOD OF SERVICE

This SSA shall be for a period of from August 28, 2023 to July 1, 2025.

SECTION V: COMPENSATION

Consultant shall perform the services detailed in the scope described in Section II above on the basis of the hourly rate schedule contained in the MSA or set fee for services and attached hereto.

Billing shall be on a monthly basis in conformance with Section VI of the MSA, and invoices for all compensation owed in accordance with this SSA shall be submitted to the Town with sufficient detail to process the invoice for payment and for a proper pre-audit and post-audit thereof in accordance with Town standards. The total amount billed to the Town under this Supplemental Service Agreement shall not exceed $167,984.74 nor shall the Consultant incur costs above $124,049.74 without the written permission of the Town.

SECTION VI: INSURANCE COVERAGE

Consultant shall provide insurance coverage as provided for in Section VII of the MSA.

SECTION VII: OTHER SPECIAL TERMS

The Town will provide the Consultant all pertinent information and data available to the Town and deemed necessary to perform assigned tasks.

SECTION VIII: PRE-AUDIT, if applicable

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____

(Signature of Finance Officer)
Town of Wake Forest
301 S. Brooks Street
Wake Forest, NC 27587

SECTION IX: CONTRACT MONITORING

Staff member responsible for monitoring the contract performance requirements is:

Name and Title: __Chris Glass Senior Civil Engineer_____

Department Head Initials: _____

IN WITNESS WHEREOF, the Town of Wake Forest and the Consultant have caused this contract to be executed under seal by their respective duly authorized agents or officers.

TOWN OF WAKE FOREST:	CONSULTANT:
By: _____	By: _____
_____ Printed	_____ Printed
Witnessed by:	Witnessed by:
_____ Name	_____ Name
_____ Printed	_____ Printed
(SEAL)	(SEAL)

Exhibit A

SR 2049 (Forestville Road) at

Coach Lantern Avenue/Green Drake Drive

Signals/Signal Communications Scope of Services

July 14, 2023

General Description of Work

This project consists of all traffic signal work (warrant analysis, upgrades, and new installations) and intersection modification design work (**if required**) and wireless signal communication plans on the traffic signal project for SR 2049 (Forestville Road) from Coach Lantern Avenue/Green Drake Drive to SR 2051 (Burlington Mills Road).

The Town of Wake Forest (Town) has selected A. Morton Thomas and Associates (AMT) to conduct all design and analysis for this signal project.

Intersection modification design work and traffic signal design work shall be limited to the project intersection of SR 2049 (Forestville Road) and Coach Lantern Avenue/Green Drake Drive. Traffic signal interconnect design work will be limited to the corridor of SR 2049 (Forestville Road) between Coach Lantern Avenue/Green Drake Drive and SR 2045 (Burlington Mills Road). The work shall consist of the following elements:

Analysis including:

- **Task 1** -Conduct a Traffic Signal Warrant Analysis
  - Conduct turning movement counts for weekday (school in session)
  - Conduct turning movement counts for weekend (within school year)
  - Traffic Signal Warrant Analysis for the project intersection
  - Create Traffic Signal Warrant Analysis report for the project intersection
- **Task 2** -Create four alternatives for a Preliminary Pole Placement Analysis
  - Metal Strain Poles with optimal intersection reconfiguration
  - Mast Arms with optimal intersection reconfiguration
  - Wood Poles with optimal intersection reconfiguration
  - Maximum span configuration for future road widening

Plans, Special Provisions and Quantities including:

SIGNAL DESIGN:

- **Task 1** – Field Survey for Signal Plans:
  - Field survey trips to:
    - Check location of existing utilities, stormwater devices, and other roadway features
    - Survey locations for installation of new signal equipment
    - Validate and verify existing right-of-way and easements
    - Provide topography of existing site
- **Task 2** – Final Signal Designs with Electrical and Programming Details & Quantities for:
  - SR 2049 (Forestville Road) at Coach Lantern Avenue/Green Drake Drive

- **Task 3** - Pedestrian Features on Final Signal Designs for:
  - SR 2049 (Forestville Road) at Coach Lantern Avenue/Green Drake Drive
- **Task 4** – Metal Pole on Final Signal Designs for:
  - SR 2049 (Forestville Road) at Coach Lantern Avenue/Green Drake Drive
- **Task 5** – Limited Intersection Modification Designs for:
  - SR 2049 (Forestville Road) at Coach Lantern Avenue/Green Drake Drive
- **Task 6** – General Design:
  - Title sheet
  - Summarize quantities
  - Special Provisions
- **Task 7** – Field Work/Meeting:
  - Field review – 1 trip for 2 people
  - Meetings for coordination, assume virtual meetings (when possible)
  - Preliminary Field Inspection (prior to R/W)
  - Final Field Inspection (prior to Let)
- **Task 8** – Miscellaneous Items:
  - Clearance Calculation figures and spreadsheet (part of signal design task 2)
  - Metal pole elevations and clearance calculations (part of signal design task 2)
  - Mast arm design (if required, part of signal design task 2)

SIGNAL COMMUNICATIONS:

- **Task 1** -Scoping:
  - Scoping Document
    - Use **Signal Communications** C**hecklist** below
  - Scoping meetings, discussions and coordination
- **Task 2** – CAD Design:
  - Basemap development
  - Transfer any existing plans to new basemap
- **Task 3** – Field Survey for UMR plans and Radio Signal Analysis:
  - Field Survey trips to:
    - Check location of existing communications and other ITS equipment
    - Survey locations for installation of new communications and ITS equipment
    - Preliminary utility data collection for UMR plans
    - Wireless Site Survey
    - Coordination with NCDOT Division 5 for bucket truck and field personnel for the Wireless Site Survey
- **Task 4** – UMR Plans (*if required)*:
  - First Draft UMR Plans
    - Tree diagrams for poles requiring UMR work
    - Existing heights above driveways and roadways
  - Coordinate with Utility Companies
    - Phone/email communications with Utility Companies
    - Provide preliminary UMR plans
    - Utility Walkthrough with all involved utilities

- Draft UMR plans for DOT and utility company review
- Final UMR Plans

-
- **Task 5** – Preliminary Design (Wireless):
  - Develop Preliminary Radio Plans for DOT review
  - Request up to date construction notes, common design practices and typical details
  - Address any comments with proper changes and quality control
- **Task 6** – Preliminary Specifications and Quantities:
  - Develop Preliminary Project Special Provisions for DOT review
    - Submit with preliminary radio plans
  - Develop Preliminary Quantities total for DOT review
    - Submit with final radio plans
- **Task 7** – Final Design – review and address NCDOT Comments
  - Develop Final Plans for NCDOT review
- **Task 8** – Final Submittal
  - Submit final sealed plan package to Town of Wake Forest
    - Include all plans sheets, special provisions and quantities

PUBLIC INVOLVEMENT:

- **Task 1** -Public Notice of Upcoming Signal Addition
  - Provide a public notice for release by the Town prior to submission of 75% design plans
- **Task 2** -Amend 75% Signal Plans based on Public Feedback
  - Provide a revision to 75% signal plans based off any public feedback the Town wishes to incorporate into the design

Design Considerations

The following are major **signal** design considerations for ***this*** project:

- The intersection will include **QFREE MAXTIME** controllers in **standard NCDOT 332** cabinets as listed on the NCDOT QPL.

- Final design will have all new equipment – poles, cabinets, detection, etc.

- Inductive loop detectors will be used for vehicle detection.

- The final intersection phasing will be determined after review of the preliminary pole location alternatives. Alternative phasing will be incorporated into the design if protected/permissive signal phasing is used. Split phasing will be omitted unless unavoidable.

- **MicroStation** will be used for the design of this project, using NCDOT CAD design standards.

- No signal preemption is intended for this signal

- The Town will determine pole material to be used after reviewing the preliminary pole placement alternatives

- Coordination with Division Utility Engineer is required for signal pole locations. Pole/Metal pole locations should be sent to the Division, **as soon as available**, for coordination with utilities.

- Pedestrian signal requirements will be provided for all legs of the intersection.

- High-visibility crosswalks will be used at signalized intersections on this project.

- Stopbar and crosswalk locations will be coordinated with the pavement marking designer. Signal designer is responsible for stopbar and crosswalk locations at signalized locations. Signal designer will provide turning simulations at all locations to validate stopbar and crosswalk locations.

- Roadway designer will be used for pavement markings and curb ramp updates.

- Roadway designer will be used to design modifications to existing nose of median on Coach Lantern Drive, if required.

- Water resources designer will be used for any necessary drainage improvements.
    - This scope only covers any required storm pipe rerouting of any, some, or all of the following existing drainage structures:
        - Approximately 180 LF pipe crossing the Coach Lantern Avenue approach
        - Approximately 90 LF pipe located in the NE quadrant of the intersection
        - Approximately 75 LF pipe crossing the SB Forestville Road approach
        - Approximately 30 LF pipe crossing the WB Green Drake Drive approach
    - Any additional required drainage work is outside the scope of this agreement.

- System detectors will be included in this design and used with the Wake Forest Signal System.

- AMT will directly transmit all submissions simultaneously to NCDOT Division 5 and NCDOT ITS/Signals.

- Town Staff will review all NCDOT submittal comments and provide a unified and consolidated feedback document listing NCDOT and Town comments to AMT between each submittal. Unless directed by NCDOT, AMT will not resubmit any submissions; instead, comments will be incorporated on the subsequent submittal.

- Resubmissions due to preferential design changes are outside the scope of this agreement.

Signal Communications Checklist:

The following are possible Signal Communications design considerations for ***this*** project

- Wireless Communications to tie into the Wake Forest Signal System as constructed under NCDOT TIP # U-6023 at the NCDOT signal # 05-1924 (SR 2049 at SR 2051)

- Interconnect *may* require installation of pole-mounted repeaters and antennas at key locations along Forestville Road.

- Ethernet Communications *may* be required

- Utility Make Ready (UMR) for the relocation of conflicting utilities or the installation of wireless signal interconnect equipment along SR 2049 (Forestville Road) *may* be necessary.

Work Standards

All work will be completed according to the standards established in the MUTCD, the NCDOT *Standard Specifications for Roads & Structures* and *Roadway Standard Drawings* (latest editions), the NCDOT Signals & Geometrics *Signal Design Manual*, and the "*Guidelines for the Preparation of ITS and Signal Plans by Private Engineering Firms*" located at https://connect.ncdot.gov/resources/safety/Pages/ITS-and-Signals.aspx.

A database configuration file will be provided for the signal at this project location. The file will include all the necessary programming entries to achieve the desired operation of the Signal Design for the location. The file will be compatible with the local controller software that is being used and will be able to be downloaded directly to the controller unit without conversion.

Information and Services to be Provided by the Town (obtained from NCDOT)

1. Copies of all available signal file folder information and electronic (Microstation) for NCDOT Signal No. 05-1924 wherever available.
2. Copies of existing Communications Plans and Splice Diagrams (PDF and/or MicroStation) for NCDOT Signal No. 05-1924 wherever available.
3. Any known revisions to original plans for the existing system in this area.
4. Catalog cuts/existing equipment information for ITS/system equipment if available.

Schedule - Dates are calculated around the Plan Due Date (for NCDOT, this has typically been a week prior to the "Roadway Plans to Cont & Prop" date. For Centrally Managed projects this is typically 15 weeks prior to let. For Municipal or Division Managed projects, use their required date.)

Regular Scheduling		
Item	**Date**	**Weeks Prior to Plan Due Date**
Signal Warrant Analysis to Town	August 1, 2023	N/A
Preliminary Pole Location Sheet to Town	October 2, 2023	24
Town consolidates comments and sends to AMT	October 9, 2023	23
Public Notice to Town	October 16, 2023	22
75% Signal Plans, Communication Plans to NCDOT ITS/Signals (NO electrical details)	October 30, 2023	20
NCDOT ITS/Signals Returns Comments to Town	November 20, 2023	17
Town consolidates comments and sends to AMT	November 27, 2023	16
90% signals, electrical, comm. plans, PSP, and quantities to ITS & Signals	December 22, 2023	12
NCDOT ITS/Signals Returns Comments to Town	January 12, 2024	9
Town consolidates comments and sends to AMT	January 19, 2024	8
100% sealed PS&E submittal due to ITS & Signals	February 16, 2024	4
Plan Due Date to Town	**March 15, 2024**	0

Deliverables

1. Preliminary Pole Location Sheets
2. 75% unsealed signal plans, wireless communication plan
3. 90% unsealed traffic signal plans, electrical details with configuration file, and wireless communication plan
   - One (1) copy of clearance calculations, quantities, project special provisions, wireless communication plan, utility make-ready plans (if any), and autoturn sheets
4. 100% sealed traffic signal plans, electrical details with configuration file, wireless communication plan, utility make-ready plans (if any), and autoturn sheets
   - One (1) copy of clearance calculations, quantities, project special provisions (sealed) and autoturn sheets
5. Electronic project files – Electronically sealed, searchable PDFs. One PDF per plan sheet.
   - For Plan checking

Plans, Special Provisions and Quantities including:

Roadway Design:

A. Morton Thomas and Associates, Inc. (AMT) shall develop final plans and project special provisions in sufficient form and detail for the Town of Wake Forest (Town) to let construction contracts. All final designs for the Project shall conform to the following design specifications:

- NCDOTs *Roadway Design Manual*
- NCDOTs Roadway Standard Drawings
- NCDOTs Standard Specifications for Roads and Structures
- NCDOT's *Municipal / Developer Submittals Guidelines*
- NCDOT's *Guidelines for Drainage Study and Hydraulic Design*
- AASHTO's *A Policy on Geometric Design of Highways and Streets* (latest edition)
- FHWA'S *Manual on Uniform Traffic Control Devices* (latest edition)
- Town of Wake Forest's *Manual of Specifications, Standards & Design*

Plans shall be developed using MicroStation V8i and GEOPAK software. Final design plans shall include roadway and sidewalk design and details, construction traffic control plans, pavement marking plans, erosion control notes and details, and material quantities; and shall identify existing right-of-way, proposed right-of-way, and permanent, utility, and construction easements sufficient to encompass all improvements. The roadway plans will conform to the plan requirements described in NCDOT's *Municipal / Developer Submittal guidelines* so that if an encroachment permit with NCDOT is required, the plans will only require minimal, if any edits to submit to NCDOT.

AMT will coordinate with the Town for roadway plan reviews. A formal scoping meeting with NCDOT is not anticipated and is not included in this scope.

- **Task 1** – Preliminary Design (25% Plans):

Prior to developing preliminary design plans, AMT will develop conceptual level designs and evaluate alternatives regarding the transitions/taper from the existing typical section to the proposed typical section at both project termini points. The conceptual design will be sent to the Town for review. Redesign of the vertical and horizontal geometry, including pavement width, is not anticipated on Green Drake or Forestville Road. Widening and lane reconfigurations may be necessary on Coach Lantern.

All curb ramps and crosswalks within the project area will be upgraded/corrected to meet standards. The Preliminary Plans shall consist of roadway typical sections, plans, profiles and cross sections. The plans at this stage will represent approximately 25% of roadway design.

AMT shall prepare the preliminary roadway plans on plan and profile sheets at a scale of 1"=40' horizontal and 1"=4' vertical. AMT shall prepare preliminary cross sections at a scale of 1"=10' every 50' throughout the project area.

AMT shall prepare an Opinion of Probable Cost to be submitted to the Town along with the preliminary plans. After the Town has reviewed the plans and provided comments, AMT will revise the Preliminary Plans and resubmit.

Task 1 Schedule:

The roadway plans will follow the schedule laid out in the Signals and ITS scope of work. Preliminary Design Plans will be submitted for review on or before the Public Notice deliverable.

Task 1 Deliverables:

- Conceptual layout
- Preliminary Plans and Cross Sections (PDF)
- Opinion of Probable Cost (PDF/Excel)

- **Task 2** – Right of Way Plans (75% Plans):

All existing structures, utilities, proposed signal pole locations, and other items affected by the project shall be shown in addition to the proposed construction. The plans shall include horizontal geometrics, pavements, existing drainage layout, property lines, typical sections, traffic control plans, preliminary signing and pavement marking plans, preliminary signal design plans, erosion control notes and details, utility by other plans, and special details.

AMT shall prepare an Opinion of Probable Cost to be submitted to the Town along with the plans. After the Town has reviewed the plans and provided comments, AMT will revise the Plans and resubmit.

Task 2 Schedule:
The roadway plans will follow the schedule laid out in the Signals and ITS scope of work. Right of Way Plans will be submitted for review with the 90% Signal plans.

Task 2 Deliverables:

- 75% Roadway Plans and Cross Sections (PDF)
- Opinion of Probable Cost (PDF/Excel)

- **Task 3** – Final Roadway Design Plans (100% Plans)

Once the comments on the 75% plans have been addressed, AMT will compile Final Roadway Design Plans, Specifications, and Estimate (PS&E) package. Items include standard drawings, general notes, special provisions, and relevant summary plan sheet summaries. Before sealing, AMT will submit the plans (approximately 90% final construction plans) to the Town for their final review. Once all comments have been addressed the plans will be sealed and submitted with the final PS&E package.

Task 3 Schedule:
The roadway plans will follow the schedule laid out in the Signals and ITS scope of work. 90% Final construction plans will be submitted for review with the 100% Signal plans. If any comments occur, AMT will address them, seal the plans and submit the PS&E package.

Task 3 Deliverables:

- Unsealed plans for final review
- Sealed Roadway Plans and Cross Sections (PDF)
- Final Construction Quantities
- Special Provisions
- Opinion of Probable Cost (PDF/Excel)

Pavement Markings:

- **Task 4** – Initiate Signing & Delineation Design

AMT will develop a delineation design based on the Preliminary Design Plans. Pavement delineations will be in accordance with Manual of Uniform Traffic Control Devices (MUTCD), NCDOT Roadway Standard Drawings, and NCDOT Signing and Delineation Manual. Design plans will include existing signage inventory sheet and an attempt to re-use or modify the existing signage will be evaluated.

Task 4 Schedule:
The Initial Delineation Plans will follow the schedule laid out in the Signals and ITS scope of work and will be submitted with the 75% Signal Plans

Task 4 Deliverables:

- Initial Delineation Plans

- **Task 5** – Complete Delineation Design

After the comments from the preliminary pavement marking and signing plans are addressed, the signing and delineation design plans will be created. These will include quantity estimate for all signing and pavement marking items. Unsealed plans will be submitted for review. After comments from the unsealed plans are addressed, the plans will be sealed and submitted.

Task 5 Schedule:
The Unsealed Delineation Plans will follow the schedule laid out in the Signals and ITS scope of work and will be submitted with the 90% Signal Plans. If any comments occur, AMT will address them and submit the sealed Completed Delineation Plans with the Sealed Signal PS&E.

Task 5 Deliverables:

- Unsealed Delineation Plans
- Sealed Delineation Plans
- Project Special Provisions
- Quantities

Hydraulic Design and Erosion Control Plans:

- **Task 6** – Hydraulic Design

AMT will conduct field reconnaissance of existing and proposed drainage features and patterns associated with the project including storm drain systems, pipe crossings and ditches. It is assumed no Pre-Design meeting is required. S**ignificant redesign of the existing drainage conveyance systems is not anticipated.** Analysis of the existing drainage system will not occur unless impacted by the intersection improvement project.

If any drainage design is required, it will consist of designing proposed ditches and storm drain improvements necessary to accommodate the proposed intersection improvements. Design of structural BMP's such as detention ponds are not anticipated or included in this scope of work. A drainage report is not anticipated as a part of this scope.

Proposed drainage features will be included with all each roadway plan submittal. The Drainage plans, if required, shall include a title sheet, applicable details, notes and planimetric designs.

Task 6 Deliverables:

- Drainage Plan Sheets
- Project Special Provisions
- Quantities

- **Task 7** – Erosion Control

AMT does not anticipate more than 1 acre of disturbance with this scope of work. Should total land disturbance be more than one (1) acre, the Engineer, will submit erosion control plans to NCDEQ for review and approval. The Town will be responsible for signing and notarizing the NCDEQ Financial Responsibility Form and paying the required review fees for the project.

If the project disturbs more than one (1) acre, AMT will develop preliminary erosion control plans for the clearing and grubbing and intermediate/final grade phases to identify large erosion control features that will impact right-of-way and easement acquisitions. These features will be sized accordingly and included with the 75% roadway plan submittal. The design will specify erosion control measures, which minimize erosion and limit off-site sedimentation during construction of the Project.

Once the preliminary plans have been reviewed, AMT will incorporate the comments into the Final Erosion Control Plans. Erosion Control quantities and special provisions will be prepared based on the final plans.

Task 7 Deliverables:

- Erosion Plan Sheets
- Project Special Provisions
- Quantities

Scope of Services

Forestville Rd Intersection with Coach Lantern Ave. and Green Drake Dr. Intersection Improvements
Wake Forest
Wake County, NC

Phase 1 - Topographic Surveying, Mapping and Platting

Task includes the following activities:

- Perform property owner research on approximately 15parcels.
- Property owner notification letters.
- Survey Corridor shall be as shown on attached sketch
- NV5 will perform sufficient field surveys to delineate those existing property lines, rights-of-way and easements within the survey limits. Existing property lines will be mapped based on existing property monumentation in conjunction with recorded deeds and plats.
- Topographic surveys will be performed according to the requirements for a Class C Trigonometric Topographic Survey depicting one foot contour lines. The topographic survey will include existing conditions such as buildings, sidewalks, curb/gutter, paving, roadways, parking areas, drainage features, concrete slabs and fences within the survey limits. Visible utility structures, including fire hydrants, power poles, manholes, vaults, traffic signal cabinets, valves, etc., will be located on the survey. Corresponding top, bottom and invert elevations of storm and sanitary structures will also be recorded. Pipe sizes entering and exiting these structures will also be noted, where accurately attainable. Storm drainage and sanitary systems will be traced and located to one structure beyond the survey limits of the project. Other information that will be shown on the final deliverable includes location of flood plain and perimeter of wooded areas.
- Location and mapping of Level B SUE designation (See Phase 2).
- The survey will be horizontally tied to the North Carolina State Plane Coordinate System under the North American Datum of 1983 (NAD83). Vertically, the project will be tied to the North American Vertical Datum of 1988(NAVD88). The project's units will be the U.S. Survey Foot. Additionally, the survey will be performed based on the Rules of Standard Practice as outlined by the North Carolina Board of Registration for Engineers and Land Surveyors.

Phase 2 – Level B Subsurface Utility Designation

NV5, shall employ geophysical prospecting techniques to determine the existence and horizontal position of underground utilities within the project limits. The utilities will be marked on the ground using a universally recognized system of paint markings at 50 foot intervals along the utility and at all bends in the line. Non-metallic lines cannot be located using standard pipe and cable locating equipment. NV5 will however, attempt to locate these lines

using utility records and indirect methods such as ground penetrating radar (GPR). GPR technology complements standard electromagnetic techniques in the field. Allowing NV5 to detect all material types metallic and non-metallic, including plastics, concrete, ceramics, asphalt composites and more. NV5 cannot guarantee the accuracy of these locates and will not guarantee that all non-metallic lines can be located. Utilities buried in a common trench, or in close proximity to other utilities or metal structures, occasionally cannot be isolated. NV5 will, if possible attempt to isolate all lines. However, such isolation and location may not be possible or practicable and NV5 does not warrant or guarantee the location and/or isolation of the underground utilities designated during the investigation. This service does not include the location of stormwater or sanitary sewer (gravity). NV5 will provide a copy of digital field sketches of the appurtenances as well as utilities that were designated.

Deliverables:

Existing Conditions and Topographic survey in Microstation format.

DTM, DAT and TIN files in Microstation/Geopak format.

PDF copies of Deeds and Plats collected during the property research

Exclusions:

The following items are excluded from the Scope of Services:

- Right of way and Easement acquisition plats, exhibits or legal descriptions.
- Any other platting services not specifically included in the above scope of services.
- Any stakeout services.
- Determination of the presence or absence of hazardous chemicals, threatened and endangered species, or other issues not expressly described in the scope of work.
- Appearance before courts or boards on matters of litigation or hearings related to the project, unless expressly specified in the scope of the project.
- Expenses for overnight delivery services
- Vacuum Excavation

P22–0641 FORESTVILLE AT COACH LANTERN

A. MORTON THOMAS AND ASSOCIATES, INC.
6131 FALLS OF NEUSE ROAD, SUITE 101 • RALEIGH, NC 27609
(919) 855-9989 • NC LICENSE NO. F-1049
WWW.AMTENGINEERING.COM

Fee Estimate
Project: Signal Installation at Forrestville/Coach Lantern
Firm: A Morton Thomas and Associates, Inc
Date: 8/8/23

LABOR

Task #	Description	Proposed Fee Type	Consultant Fee	Total Subconsultant Fee	Subconsultant
?	Survey			$66,119.74	NV5
1.0	Traffic Signal Warrant Analysis and Preliminary Pole Analysis		$ 7,335.00		
2.0	Traffic Signal Design		$ 30,990.00		
3.0	Final Roadway Design Plans - see Tasks 7.0 through 13.0 (if required)		$ -		
4.0	Signal Communications Plans		$ 19,605.00		
5.0	UMR Plans (if required)		$ 9,340.00		
6.0	Public Involvement		$ 1,470.00		
7.0	Preliminary Design (25% Plans) (if required)		$ 3,802.50		
8.0	Right of Way Plans (75% Plans) (if required)		$ 7,807.50		
9.0	Final Roadway Design Plans (100 % Plans) (if required)		$ 5,935.00		
10.0	Initiate Signing & Delineation Design (if required)		$ 3,335.00		
11.0	Complete Delineation Design (if required)		$ 1,875.00		
12.0	Hydraulic Design (if required)		$ 3,985.00		
13.0	Erosion Control Plans (if required)		$ 4,385.00		
		Subtotal	$ 99,865.00	$ 66,119.74	

EXPENSES

			Consultant	Subs
	REIMBURSEABLE EXPENSES		$2,000.00	
		Subtotal	$ 2,000.00	$ -

LABOR & EXPENSES TOTAL $ 167,984.74

ADDITIONAL SERVICES

				$ -

TOTAL $ 167,984.74

Contractor/Vendor Name: A. Morton Thomas and Associates

Vendor Number: 5746

Contract type: Consulting

Description / Scope of Work: Planning Signal location based on the CTP and providing construction documents for the signal design

Contract Amount: 167984.74

RFP/RFQ #:

Contractor signature: E-SIGNED by Samuel Macdonald on 2023-09-07 18:33:42 GMT

Date: September 07, 2023

Finance Department signature: E-SIGNED by Aileen Staples on 2023-09-25 22:33:47 GMT

Date: September 25, 2023

Town Manager signature: E-SIGNED by Kip Padgett on 2023-09-26 01:19:31 GMT

Date: September 26, 2023

Attested By: E-SIGNED by Theresa Savary on 2023-09-26 13:11:36 GMT

Date: September 26, 2023

TOWN OF WAKE FOREST INCORPORATED SEAL FEB. 20, 1909 NORTH CAROLINA

This instrument has been pre-audited in a manner required by the Local Government Budget and Fiscal Control Act.