AGENDA | REGULAR TOWN COUNCIL MEETING

June 11, 2024 at 6:00 PM
Council Chambers - Apex Town Hall, 73 Hunter Street
The meeting will adjourn when all business is concluded or 10:00 PM, whichever comes first

Town Council and Town Executive Leadership

Mayor: Jacques K. Gilbert | Mayor Pro-Tempore: Edward Gray
Council Members: Audra Killingsworth; Brett D. Gantt; Terry Mahaffey; Arno Zegerman
Town Manager: Randal E. Vosburg
Deputy Town Manager: Shawn Purvis
Assistant Town Managers: Demetria John and Marty Stone
Town Clerk: Allen L. Coleman | Town Attorney: Laurie L. Hohe

COMMENCEMENT

Call to Order | Invocation | Pledge of Allegiance

CONSENT AGENDA

All Consent Agenda items are considered routine, to be enacted by one motion with the adoption of the Consent Agenda, and without discussion. If a Council Member requests discussion of an item, the item may be removed from the Consent Agenda and considered separately. The Mayor will present the Consent Agenda to be set prior to taking action on the following items:

CN1 Agreement – Capital Costs Related to Construction and Development Funding Agreement between Wake County and Town of Apex – Pleasant Park Phase I and Phase II

Craig Setzer, Director, Parks, Recreation, and Cultural Resources Department

CN2 Agreement Amendment – Renewal of ADA Paratransit Service Agreement with Wake County – Fiscal Year 2024-25

Katie Schwing, Senior Planner – Long Range Transit, Planning Department

CN3 Annexation No. 780 – 7019 Roberts Road (Roberts Crossing Phase 2) – 11.42 acres

Allen Coleman, Town Clerk

CN4 Annexation No. 781 – 0 Dezola Street (Horton Road Amenity Parcel) – 3.95 acres

Allen Coleman, Town Clerk

CN5 Annexation No. 782 – Townes on Tingen – 2.4938 acres

Allen Coleman, Town Clerk

CN6 Annexation No. 783 – Castleberry Reserve – 0.672 acres

Allen Coleman, Town Clerk

CN7 Annexation No. 784 – 1717 and 1713 Holt Road – 1.882 acres

Allen Coleman, Town Clerk

CN8 Annexation No. 786 – Tobacco Road Place (FKA: Beauregard Place) – 3.34 acres

Allen Coleman, Town Clerk

CN9 Budget Ordinance Amendment No. 17 - Debt Service Funds Payments, Police Donations, and Electric Purchase Resale

Amanda Grogan, Director, Budget and Performance Management Department

CN10 Council Meeting Minutes - Various

Allen Coleman, Town Clerk

CN11 Position Authorization - Additional 0.625 FTE - Finance Department

Mary Beth Manville, Director, Human Resources Department

CN12 Resolution to Collect Taxes – Chatham County

Antwan Morrison, Director, Finance Department

CN13 Resolution to Collect Taxes – Wake County

Antwan Morrison, Director, Finance Department

CN14 Rezoning Case No. 24CZ06 – Humie Olive Place – Statement and Ordinance

Joshua Killian, Planner I, Planning Department

CN15 Tax Report – March and April 2024

Allen Coleman, Town Clerk

CN16 Town Standard Specifications and Standard Details – Revisions

Jonathan Jacobs, Assistant Director, Water Resources Department

PRESENTATIONS

PR1 Proclamation - Apex Pollinator Week 2024 - June 16 through June 22, 2024

Mayor Jacques K. Gilbert

PR2 Proclamation - Apex Public Works Week 2024 - June 9 through June 15, 2024

Mayor Jacques K. Gilbert

PR3 Special Recognition - Apex Friendship High School Students - 2024 WRAL Brain Game Champions

Mayor Jacques K. Gilbert

REGULAR MEETING AGENDA

Mayor Gilbert will call for additional Agenda items from Council or Staff and set the Regular Meeting Agenda prior to Council actions.

PUBLIC FORUM

Public Forum allows the public an opportunity to address the Town Council. The speaker is requested not to address items that appear as Public Hearings scheduled on the Regular Agenda. The Mayor will recognize those who would like to speak at the appropriate time. Large groups are asked to select a representative to speak for the entire group. Comments must be limited to 3 minutes to allow others the opportunity to speak.

PUBLIC HEARINGS – *None*

NEW BUSINESS

NB1 Fiscal Year 2024-2025 - Annual Operating Budget and Fee Schedule Adoption

Amanda Grogan, Director, Budget and Performance Management Department

NB2 Fiscal Year 2024-2025/2028-2029 - Capital Improvement Plan (CIP)

Amanda Grogan, Director, Budget and Performance Management Department

UPDATES BY TOWN MANAGER

CLOSED SESSION

Council will enter into closed session pursuant to:

CS1 Laurie Hohe, Town Attorney

RE: Williams v. Town of Apex.

NCGS § 143-318.11(a)(3)

"To consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body."

CS2 Laurie Hohe, Town Attorney

NCGS § 143-318.11(a)(3)

"To consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body."

CS3 Allen Coleman, Town Clerk

NCGS § 143-318.11(a)(6):

consider the qualifications, competence, performance, character, fitness, conditions of appointment, or conditions of initial employment of an individual public officer or employee

or prospective public officer or employee; or to hear or investigate a complaint, charge, or grievance by or against an individual public officer or employee."

ADJOURNMENT

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Craig Setzer, Director

Department(s): Park, Recreation and Cultural Resources

Requested Motion

Motion to approve a Funding Agreement between the Town of Apex and Wake County for capital costs related to construction and development of Phase I and II of the Pleasant Park project, effective May 6, 2024 through December 31, 2026, and authorize the Town Manager and/or their designee to execute on behalf of the Town.

Approval Recommended?

Yes

Item Details

In October 2017 the Wake County Board of Commissioners approved a competitive process open to any non-profit or for-profit organization to allocate up to Three Million Five Hundred Thousand Dollars ($3,500,000) of the Major Facilities Project Fund established with hotel/motel and prepared food and beverage taxes and subsequently issued a Request for Proposals ("RFP #18-001") for projects meeting the criteria set forth in the Interlocal Agreement ("ILA") between Wake County and the City of Raleigh. The Town submitted a response to RFP #18-001 on or before February 8, 2018 for the construction of a project described as the Town of Apex Pleasant Park Phase I Proposal.

Additionally, in November 2022 the Wake County Board of Commissioners authorized a competitive process to award up to Eight Million Dollars ($8,000,000) of the Major Facilities Project Fund established with hotel/motel and prepared food and beverage taxes and subsequently issued a Request for Proposals ("RFP #23-003") for projects meeting the criteria set forth in the ("ILA"). The Town submitted a response to RFP #23-003 on or before February 8, 2018 for the construction of a project described as the Town of Apex Pleasant Park Phase II Proposal.

On May 21, 2018, the Wake County Board of Commissioners authorized a funding commitment to the Town in the amount of Five Hundred Thousand Dollars ($500,000) and on April 17, 2023, the Board of Commissioners authorized a funding commitment to the Town in the amount of One Million Eight Hundred Thousand Dollars ($1,800,000) Funding Commitment for capital costs related to the construction and development of Phase I and Phase II of the Park Project.

Attachments

- CN1-A1: Funding Agreement - Capital Costs Related to Construction and Development Funding Agreement between Wake County and Town of Apex - Pleasant Park Phase I and Phase II

- CN1-A2: Proposal Phase I - Capital Costs Related to Construction and Development Funding Agreement between Wake County and Town of Apex - Pleasant Park Phase I and Phase II
- CN1-A3: Proposal Phase II - Capital Costs Related to Construction and Development Funding Agreement between Wake County and Town of Apex - Pleasant Park Phase I and Phase II

NORTH CAROLINA
WAKE COUNTY

FUNDING AGREEMENT

THIS FUNDING AGREEMENT is made and entered into this the _____ day of _____, _____, by and between the County of Wake ("Wake County") and TOWN OF APEX, a North Carolina municipal corporation ("Town") (together referred to as the "Parties").

W I T N E S S E T H:

WHEREAS, pursuant to Session Law 1991-594, Wake County authorized a prepared food and beverage tax of up to 1% of the sales price of prepared food and beverages sold at retail; and

WHEREAS, pursuant to Session Law 1991-594, Wake County and City of Raleigh subsequently entered an Interlocal Agreement ("ILA") designating funds from the Occupancy and Prepared Food/Beverage Taxes for the purpose of acquiring, constructing, or financing convention centers, civic centers, performing arts centers, coliseums, auditoriums, and facilities related to sports and cultural events; and

WHEREAS, the terms of the ILA and subsequent amendments provide a basis for distribution of funds by the City and County consistent with the enabling legislation; and

WHEREAS, in October 2017 the Wake County Board of Commissioners approved a competitive process open to any non-profit or for-profit organization to allocate up to Three Million Five Hundred Thousand Dollars ($3,500,000) of the Major Facilities Project Fund established with hotel/motel and prepared food and beverage taxes and subsequently issued a Request for Proposals ("RFP #18-001") for projects meeting the criteria set forth in the ILA; and

WHEREAS, Town submitted a response to RFP #18-001 on or before February 8, 2018 for the construction of a project described as the Town of Apex Pleasant Park Phase I Proposal (the "Phase I Proposal"); and

WHEREAS, the Phase I Proposal meets all criteria of RFP #18-001; and

WHEREAS, in November 2022 the Wake County Board of Commissioners authorized a competitive process to award up to Eight Million Dollars ($8,000,000) of the Major Facilities Project Fund established with hotel/motel and prepared food and beverage taxes and subsequently issued a Request for Proposals ("RFP #23-003") for projects meeting the criteria set forth in the ILA; and

WHEREAS, Town submitted a response to RFP #23-003 on or before February 8, 2018 for the construction of a project described as the Town of Apex Pleasant Park Phase II Proposal (the "Phase II Proposal"); and

WHEREAS, the Phase II Proposal meets all criteria of RFP #23-003; and

WHEREAS, the County selected the Phase I Proposal and Phase 2 Proposal (collectively, the "Park Project") after due consideration of all proposals submitted through the use of a competitive selection

process; and

WHEREAS, on May 21, 2018, the Wake County Board of Commissioners authorized a funding commitment to the Town in the amount of Five Hundred Thousand Dollars ($500,000) and on April 17, 2023, the Board of Commissioners authorized a funding commitment to the Town in the amount of One Million Eight Hundred Thousand Dollars ($1,800,000)("Funding Commitment") for capital costs related to the construction and development of Phase I and Phase II of the Park Project, respectively, contingent upon the terms and conditions set forth herein; and

WHEREAS, Town has accepted the Funding Commitments for capital costs related to the construction and development of the Park Project contingent upon the terms and conditions set forth herein.

NOW THEREFORE, in consideration of the mutual promises contained herein, County and Town agree as follows:

ARTICLE I
Scope, Description and Amount of Funding

1.1 Scope and Description. The Park Project shall be located in Apex, Wake County, North Carolina. The purpose of the Park Project is to develop approximately 92-acres of Town owned land located directly adjacent to NC540 and the interchange with Old US 1 Hwy, into an athletic park with regulation-sized competition fields and courts and other park amenities to be owned by the Town that will positively impact hotel occupancy and prepared food/beverage sales in Wake County. The Park Project qualifies as construction of sports, cultural, or arts facilities and is an appropriate use of Hospitality Tax proceeds. The park activities will be managed by the Town.

Phase I of the Park Project shall consist of six (6) multiuse lighted, synthetic fields, four (4) lighted tennis courts, (6) pickleball courts, (1) field house and a large play installation. Phase II of the Park Project shall consist of three (3) lighted, synthetic adult baseball/softball fields, one (1) lighted, synthetic youth baseball/softball fields, 5k trail course, (1) large shelter and one (1) field house. The original Phase I Proposal is attached to this Agreement as **Exhibit "A"** and incorporated by reference and the original Phase II Proposal is attached to this Agreement as **Exhibit "B**" and is incorporated by reference.

1.2 Maximum amount payable. The total of estimated funding needed for the Park Project is FIFTY-ONE MILLION, NINE HUNDRED FORTY-SIX THOUSAND AND NO/HUNDREDTHS DOLLARS ($51,946,000) as set forth in the Park Project Proposals. In addition to the County committing funding in the amount of $500,000 for Phase I and $1,800,000 for Phase II pursuant to this Agreement, the Town will provide funding from the following sources:

- Capital Funds (general obligation bonds)
- Town General Fund Revenues
- Value of Private Funds from Donations or Naming Rights

The maximum amount payable to Town is $2,300,000.00 (TWO MILLION, THREE HUNDRED THOUSAND AND NO/HUNDREDTHS DOLLARS 100.)

ARTICLE II

Term and Method of Payment

2.1 The term of the Agreement shall be from May 6, 2024 to December 31, 2026.

2.2 Wake County shall provide payment up to $2,300,000 ($500,000 for Phase I and $1,800,000 for Phase II).

Prior to any payment being issued by Wake County, the TOWN shall submit an invoice or other written request for payment upon readiness to receive funding for the project. This written request must be accompanied by documentation demonstrating project completion (which may include receipts, photos, temporary or permanent certificate of occupancy). The invoice or written request must contain the TOWN's name, address, invoice number/project name, date, and description of how the expenditure relates to the scope and purpose of the project. Documentation shall also demonstrate that the expenses were actually incurred and paid after the funding was authorized and appropriated by the Wake County Board of Commissioners on February 8, 2018 for Phase I and April 17, 2023 for Phase II. Wake County shall pay TOWN's invoices within thirty (30) days of receipt.

ARTICLE III
Conditions of Funding

3.1 All funds received pursuant to this Agreement shall be used exclusively in furtherance of the activities described more fully in Article I. If the TOWN fails to meet or comply with a condition of this funding agreement or if all or part of the project facility is transferred or ceases operation during the Grant Period or prior to achievement of performance monitoring more fully described in Section 3.5 such that Wake County's intended purpose for funding as outlined in the approved proposal is frustrated, Wake County in its sole discretion may reduce the amount of funding, terminate the funding agreement, and/or require repayment of funding. The parties hereby acknowledge that the installation of water utility infrastructure, including but not limited to, a water tower and water lines, upon the Property does not frustrate the purpose for funding as outlined in the approved proposal. No funding under this Agreement shall be used to fund water utility infrastructure which is not included in Exhibits A and B.

3.2 The "Grant Period" shall be from the date of execution of the Funding Agreement through December 31, 2026.

3.3 TOWN is required to notify Wake County in writing within thirty (30) calendar days of the following events or changes:

a. TOWN ceases to hold full interest in the property/asset, including partial transfers of interest;
b. TOWN changes its mission, operation, or significantly reduces the use of Property/Asset;
c. TOWN fails to complete the capital project.

3.4 Any delays or modifications regarding project implementation or expenditures or stoppage of services shall be communicated to Wake County within fifteen (15) days. Notification under this paragraph shall include email and telephonic communication with the County

Manager's Office.

3.5 Subject to Town performance of the obligations of this Agreement, County shall tender the Funding Commitment in the amount defined below for the construction of the Park Project upon the following terms:

A. Phase I Park Project: The County shall tender the Funding Commitment of Five Hundred Thousand and no/100s ($500,000.00) to Town at such time as Town has provided:

1. Satisfactory documentation of Phase I Park Project budget and Town funding commitments at time of funding request.
2. A letter from the Town Manager certifying that the Phase I Park Project is operational (includes all six lighted, synthetic turf multipurpose fields, four lighted tennis courts, (6) pickleball courts, (1) field house and large play installation) and a certificate of completion has been issued by the Town (if available). This letter shall include a copy of confirmation of all scheduled tournament dates and special events and details of the events.
3. The County reserves the right to conduct a site inspection to verify completion of the Phase I Park Project prior to authorizing disbursement of payment to Town.
4. Satisfactory documentation that Town or Lessee has not encumbered the Property, Project, or Lease to secure financing.

B. Phase II Park Project: The County shall tender the Funding Commitment of One Million, Eight Hundred Thousand and no/100s ($1,800,000.00) to Town at such time as Town has provided:

1. Satisfactory documentation of Phase II Park Project budget and Town funding commitments at time of funding request.
2. A letter from the Town Manager certifying that the Phase II Park Project is operational (includes all three lighted, synthetic turf adult baseball/softball fields, one lighted, synthetic turf youth baseball/softball field, the 5k trail course and one field house), a certificate of occupancy has been issued for the field houses and a certificate of completion has been issued by the Town. This letter shall include a copy of confirmation of all scheduled tournament dates and special events and details of the events.
3. The County reserves the right to conduct a site inspection to verify completion of the Phase II Park Project prior to authorizing disbursement of payment to Town.
4. Satisfactory documentation that Town or Lessee has not encumbered the Property, Project, or Lease to secure financing.

C. All requests for disbursement of the Funding Commitment under this section must be made within thirty-six (36) months of the effective date of this Agreement unless the parties have entered into a written agreement for an extension of this date.

3.6 If Town does not make a request for disbursement or does not meet the conditions precedent to disbursement under this section such that all or part of the funds committed are not disbursed, then such funds shall remain a part of the Major Facilities Capital Trust

Fund free and clear of any further obligation to Town under this Agreement.

3.7 Town agrees to abide by any review, reporting, or other legal requirements established by state or local law, or Interlocal Agreement relating to the use of these funds.

3.8 This Article applies throughout the term of this Agreement and prior to the achievement of the performance monitoring described in Section 4.1.

ARTICLE IV
Performance Goals

4.1 Town acknowledges that by accepting the County's Funding Commitment and by signing the Agreement, the Park Project is subject to certain Performance Goals as described below in Table 1:

Table 1:

Year of Operation	Target Number of Planned Event Days (excess can be rolled over)
1	35
2	70
3	105
4	160
5	215
6	270
7	325

A Planned Event Day will be defined as an event (including but not limited to games) that generate between 500 and 2,000 visitors (participants/spectators). An event is not to include practice for recreational teams. Events that generate in excess of 2,000 spectators will be valued as two event days. Table 1A represents the event day calculations for Spectators.

Table 1A:

# of Spectators	Event Day Value
500-2,000	1
2,000 +	2

A Planned Game Day will be defined as an event that generates at least 50 competitors from beyond a 50-mile radius of the park. An event is not to include practice for recreational teams. Event Day Value will be determined according to **Table 1B:**

Table 1B:

# of Competitors	Event Day Value
50-200	1
201-400	2

401-600	3
601-800	4

Year of Operation shall be defined as a 12-month period beginning November 1, 2023.

A. Performance Reporting. Town shall agree to provide annual reporting to the County Manager including a list of events held at the park with number of Event Days, number of spectators and/or number of teams competing in a sporting event where the members (and spectators for that team) are from outside a 50-mile radius of the facility. Annual performance reporting shall be submitted using attached forms. Town may submit performance reports every 12-months from beginning of operation or on a fiscal year basis. In the event that the park performance does not achieve the target event days at the end of each Performance Reporting Period, Town must submit a plan to the County Manager to achieve performance goals. For the purpose of calculating performance goals, any Event Days exceeding the required number in a reporting period may be rolled over and counted towards the performance goals for other reporting periods. For the purpose of calculating performance goals, any target event days exceeding the required number in a reporting period may be rolled over and counted towards the performance goals for other reporting periods.

B. Expiration of Performance Goals. After the Park Project has reported nine (9) years of operations or the Total Number of Event Days exceeds the cumulative total of target Event Days (325 total event days), whichever is sooner, the Park Project shall no longer be bound by Performance Goals of any kind, and all obligations regarding Performance Goals will be deemed to have been satisfied.

C. Good Faith. The Parties agree to abide by the terms of this Agreement in good faith and shall, in addition to Table review all reasonable and good faith efforts made by Town to fulfill all Performance Goals in any evaluation of Performance Goals, and in the event Performance Goals are not met, commit to discuss how to reach Performance Goals. Furthermore, the Parties hereby agree that Article VIII of the Agreement shall also apply to any evaluation of Performance Goals.

ARTICLE V
Default and Termination

5.1 TOWN has an affirmative obligation to notify Wake County immediately of the occurrence of any Event of Default hereunder. For purposes of this Agreement, an Event of Default shall include the following:

a. The project or any part thereof ceases to operate at any time after this agreement is executed by both parties but prior to meeting the Performance Goals in Section 4.1 and 3.5(b);
b. TOWN transfers all or part of the property upon which the project is located to another owner and the property is no longer used for the purposes outlined in this agreement;
c. TOWN's use of the project property frustrates the Performance Goals as described in Article III Section 3.5(b), Article IV, or the overall purpose of this Agreement.
d. TOWN institutes, consents to, or is the subject of any proceeding under any debtor relief law, makes an assignment for the benefit of creditors, applies for or consents to the appointment of any receiver, trustee, or similar custodian for all or part of its assets.
e. TOWN deviates from the stated project use of funds.
f. TOWN significantly reduces the part of the facility used to serve the population.
g. TOWN breaches any other terms or conditions of this Agreement and does not remedy the

breach within fifteen (15) days' written notice from Wake County.

The parties agree that it shall not be an Event of Default for the TOWN to install water utility infrastructure, including but not limited to, a water tower and water lines, upon the Property. No funding under this Agreement shall be used to fund water utility infrastructure which is not included in Exhibits A and B.

5.2 If an Event of Default occurs during the term of this Agreement or prior to achievement of performance reporting, Wake County in its sole discretion may require repayment of all funding under this Agreement. TOWN shall comply with any demand made by Wake County pursuant to this paragraph within thirty (30) days of receiving written notice of demand. Nothing herein shall prevent Wake County from seeking immediate legal or equitable relief from a court of competent jurisdiction.

5.3 Should the project or any phase thereof terminate prior to achievement of performance goals, TOWN shall remain the sole owner of the project property. Wake County shall have no funding obligation and no ownership claim to any part of the project unless expressly described in this Agreement. Wake County's obligation to fund under this Agreement is not transferrable to any subsequent owner or interest holder of the project or any future phase of the project not described herein.

5.4 Should the Park Project or any part thereof cease to operate at any time after the County has tendered the Funding Commitment but before Performance Goals are met, and the Town transfers all or part of the property upon which the Park Project is located to an owner who does not operate the Facilities for the purpose intended under this Agreement such that the Performance Goals of the Funding Agreement are frustrated ("Subsequent Operation"), then the Town shall require the new owner to repay the County the Funding Commitment based on the year of operation in which operation ceases per the schedule below.

Unamortized Portion of Original Facility Cost to be Paid to the County Upon Contract Termination	
Total Repayment Amount = $2,300,000	
Year of Ceased Operation	**Repayment to County**
1	80% of funding paid by county
2	60% of funding paid by county
3	40% of funding paid by county
4	20% of funding paid by county
5	0

Regardless of ownership of the Park Project, if the Park Project continues in operation for the purpose intended under this Agreement such that the Performance Goals are not frustrated, there will be no repayment required. "Operation" shall be defined as a state of readiness of the Park Project that allows it to be open and ready for intended operations in the ordinary course of business.

ARTICLE VI
Notices

6.1 All notices or other communications hereunder to TOWN and to Wake County shall be sufficiently given and shall be deemed to have been received five (5) business days after deposit in the United States mail, return receipt requested, to Wake County and TOWN, as the case may be, at the following addresses:

If to Wake County:

Mr. David Ellis, County Manager
P.O. Box 550
Raleigh, North Carolina 27602
david.ellis@wake.gov

Mr. Scott Warren, County Attorney
P.O. Box 550
Raleigh, North Carolina 27602

If to TOWN:

Mr. Randy Vosburg, Town Manager
PO Box 250
Apex, NC 27502

Ms. Laurie Hohe, Town Attorney
P.O. Box 250
Apex, NC 27502

ARTICLE VII
Miscellaneous

7.1 Modification. This Agreement may be rescinded, modified or amended only by written agreement executed by all parties hereto.

7.2 No Third-Party Beneficiaries. This Agreement is made and entered into for the sole protection and benefit of Wake County and TOWN, and their respective successors and assigns. There shall be no third-party beneficiaries to this Agreement.

7.3 Non-Assignment. TOWN shall not assign all or any portion of this Agreement, including rights to payments, to any other party without the prior written consent of Wake County.

7.4 Independent Contractor. The parties acknowledge that TOWN is an independent contractor, and that nothing in this Agreement is intended, and nothing shall be construed, to create any form of partnership or joint venture relationship between TOWN and Wake County, or to allow either to exercise control or direction over the other; notwithstanding that each party is bound by the terms and conditions of this Agreement. Neither party is an officer, agent, or employee of the other party for any purpose.

7.5 Insurance Requirements. TOWN shall obtain and maintain, at its sole expense, all insurance required in the following paragraphs and forward certification thereof to Wake County.

TOWN's signature on this agreement indicates that TOWN agrees to the terms of this insurance section and understands that failure to comply may result in cancellation of this agreement at Wake County's option.
Required insurances include:

1) Workers' Compensation Insurance, with limits for Coverage A: Statutory for the State of North Carolina and Coverage B, Employers Liability: $500,000 for each accident/disease each employee/disease policy limit.
2) Commercial General Liability, with limits no less than $1,000,000 per occurrence and $2,000,000 aggregate.
3) Commercial Automobile Liability, with limits no less than $1,000,000 per accident for bodily injury and property damage.
4) Professional Liability Insurance, applicable to any professional services provided, with limits of no less than $1,000,000 per claim and $2,000,000 aggregate.

If any coverage is on a claims-made basis, TOWN agrees to maintain a retroactive date prior to or equal to the effective date of this Agreement and to purchase and maintain Supplemental Extended Reporting Period or 'tail coverage' with a minimum reporting period of not less than three (3) years if the policy expires or is canceled or non-renewed. If coverage is replaced, the new policy must include full prior acts coverage or a retroactive date to cover the effective dates of this Agreement. TOWN shall provide a Certificate of Insurance annually to Wake County indicating any claims made coverage and respective retroactive date. The duty to provide extended coverage as set forth herein survives the effective dates of this Agreement.

All insurance companies must be authorized to do business in North Carolina and have an AM Best rating of "A-/VII" or better, or have the reasonable equivalent financial strength to the satisfaction of the County's Finance Office. Proof of rating shall be provided to the county upon request.

Insurance with limits no less than those specified above shall be evidenced by a Certificate of Insurance issued by a duly authorized insurer representative. In the case of self-insurance, a letter of explanation must be provided to and approved by Wake County Risk Management.

TOWN shall be responsible for providing immediate notice of policy cancellation or non-renewal to the Wake County Finance Office during the term of this Agreement and for three years subsequent to any claims made coverage.

If TOWN does not meet the insurance requirements specified above, alternate insurance coverage satisfactory to Wake County may be considered. TOWN must present any requests for consideration of alternate coverage prior to the effective date of this Agreement.

All insurance documentation shall be addressed to:

Wake County Finance Department
Wake County Justice Center - Suite 2900
P.O. Box 550
Raleigh, North Carolina 27602

7.6 Indemnification. To the extent permitted by North Carolina law, the Town agrees to release, defend, protect, indemnify and hold harmless Wake County, including Wake County employees and agents, against claims, losses, liabilities, damages, and costs, including reasonable attorney fees, which result from or arise out of damages or injuries to persons or property caused by the negligent acts or omissions of TOWN, its employees, or agents in use or management of the Subject Property. This indemnity shall survive the disbursement of the Funds, as well as any termination of this Agreement.

7.7 No Waiver of Sovereign Immunity. Nothing in this Agreement shall be construed to operate as a waiver of governmental immunity nor to be inconsistent with Wake County's "Resolution Regarding Limited Waiver of Sovereign Immunity" enacted on October 6, 2003.

7.8 Non-Appropriation. TOWN recognizes that Wake County is a governmental entity, and the contract validity is based upon the availability of public funding under the authority of its statutory mandate.

In the event that public funds are not available and not appropriated to purchase the services specified in this Agreement, then this Agreement shall automatically expire without penalty to Wake County and without the thirty (30) day notice requirement.
In the event of a legal change in Wake County's statutory authority, mandate, and mandated functions which adversely affects Wake County's authority to continue its obligations under this Agreement, then this Agreement shall automatically expire without penalty to Wake County and without the thirty (30) day notice requirement.

7.9 Governing Law, Construction and Jurisdiction. This Agreement and the other Documents and all matters relating thereto shall be governed by and construed and interpreted in accordance with the laws of the State of North Carolina, notwithstanding the principles of conflicts of law. The headings and section numbers contained herein are for reference purposes only. TOWN hereby submits to the jurisdiction of the State and Federal courts located in North Carolina and agrees that Wake County may, at its option, enforce its rights under this Agreement in such courts.

7.10 E Verify. To ensure compliance with the E-Verify requirements of the General Statutes of North Carolina, all contractors, including any subcontractors employed by the contract(s), by submitting a bid, proposal or any other response, or by providing any material, equipment, supplies, services, etc., attest and affirm that they are aware and in full compliance with Article 2 of Chapter 64, (NCGS 64-26(a)) relating to the E¬ Verify requirements.

7.11 Entire Agreement. This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof. All recitals, exhibits, schedules and other attachments hereto are incorporated herein by reference.

7.12 Severability. In the event any provision in this Agreement shall be held invalid or unenforceable by a court of competent jurisdiction, such holding shall not invalidate or render unenforceable any other provision herein.

7.13 Iran Divestment and Divestment from Companies Boycotting Israel. By signing this

agreement, TOWN certifies that as of the date of execution, receipt, or submission they are not listed on the Final Divestment List created by the N.C. Office of State Treasurer pursuant to N.C.G.S. §147 Article 6E, Iran Divestment Act, Iran Divestment Certification. TOWN shall not utilize any subcontractor that is identified on the Final Divestment List. Any organization defined under N.C.G.S. §147-86.80(2), Divestment from Companies Boycotting Israel, shall not engage in business totaling more than $1,000 with any company or business, etc. that boycotts Israel. A list of companies that boycott Israel is maintained by the N.C. Office of State Treasurer pursuant to N.C.G.S. §147-86.81(a)(1). Any company listed as boycotting Israel is not eligible to do business with any State agency or political subdivision of the State.

7.14 Federal Funds. If the source of funds for this contract is federal funds, the following federal provisions apply pursuant to 2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II (as applicable): Equal Employment Opportunity (41 C.F.R. Part 60); Davis-Bacon Act (40 U.S.C. 3141-3148); Copeland "Anti-Kickback" Act (40 U.S.C. 3145); Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708); Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387); Debarment and Suspension (Executive Orders 12549 and 12689); Byrd Anti-Lobbying Amendment (31 U.S.C. 1352); Procurement of Recovered Materials (2 C.F.R. § 200.323); and Record Retention Requirements (2 CFR § 200.334)

7.15 Anti-Discrimination. In consideration of signing this Agreement, the Parties hereby agree not to discriminate in any manner on the basis of race, natural hair or hairstyles, ethnicity, creed, color, sex, pregnancy, marital or familial status, sexual orientation, gender identity or expression, national origin or ancestry, marital or familial status, pregnancy, National Guard or veteran status, religious belief or non-belief, age, or disability with reference to the subject matter of this Contract. The Parties agree to comply with the provisions and intent of Wake County Ordinance SL 2017-4. This anti-discrimination provision shall be binding on the successors and assigns of the Parties with reference to the subject matter of this Agreement.

[This space left blank intentionally.]

IN WITNESS WHEREOF, the undersigned have executed this Agreement under seal through their duly authorized representatives, to be effective the day and year first above written.

WAKE COUNTY, NORTH CAROLINA

By: _____
David Ellis,
Wake County Manager

Date: _____

TOWN OF APEX

By: _____
Randal E. Vosburg,
Town Manager

Date: _____

Approved as to form:

By: _____
Scott W. Warren,
Wake County Attorney

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Wake County Finance Director, or designee

The person responsible for monitoring the contract performance requirements is Denise Foreman.

Department Head Initials: _____

Event Detail
(This form shall be attached to all Performance Reporting Summaries)

Event Description	Estimated Day Visitors	Estimated Visitors outside 50-mile range	Number of Event/Game Days

RFP #18-001 | SUBMITTED FEBRUARY 8, 2018

PROPOSAL: WAKE COUNTY HOSPITALITY TAX SMALL CAPITAL PROJECTS FUNDING

TOWN OF APEX, PLEASANT PARK

MR. DREW HAVENS, TOWN MANAGER
PARKS, RECREATION & CULTURAL RESOURCES DEPARTMENT
TOWN OF APEX
73 HUNTER STREET
APEX, NC 27502

"The Peak of Good Living"®

Office of the Town Manager
Drew Havens

TOWN OF APEX NORTH CAROLINA

February 5, 2018

Ms. Denise Foreman, Assistant to the County Manager, Wake County Manager's Office
301 S. McDowell St.
Raleigh, NC 27601

RE: Town of Apex Pleasant Park Proposal for Wake County Hospitality Tax Small Capital Projects Funding

Ms. Foreman:

Please find enclosed our proposal for RFP #18-001, the Wake County Hospitality Tax Small Capital Projects Funding. The Town of Apex is pleased to provide the requested documents to support our request for $1.5 million in grant funding to develop Pleasant Park, a 92.5-acre multi-use site that addresses recreation and wellness needs for residents of the entire community and provides the first park facility in south-central Apex.

Pleasant Park is an initiative designed to meet the needs of Apex citizens who currently face waiting lists for existing and planned programs due to our tremendous growth, while also providing a positive economic impact for both the Town of Apex and Wake County. The Town has committed $3.5 million in land acquisition and $300,000 in planning and design to the $37.5 million project, and Apex residents passed the 2017 Parks Bond with overwhelming support (76% approval) to provide additional funding for Pleasant Park and other recreation facilities. Our request for $1.5 million from the Wake County Hospitality Tax Small Capital Projects Funding is critically important to help the Town catalyze the first phase of the project, estimated at $16.5 million, as bond funding is gradually developed.

The first phase of the project focuses on the multi-use fields, the splash pad, and site preparation for remaining areas - ensuring Wake County residents have access to programs close to home and bringing lacrosse, soccer, and youth football programs back to Wake County. We anticipate that the first phase completion will bring over

73 Hunter Street . P.O. Box 250 . 27502 . (919) 249-3301 . drew.havens@apexnc.org

200,000 visitors annually to the Town, with an estimated economic impact of over $4 million. This is projected to increase to well over 1 million visitors and $10 million in annual economic impact at the completion of the project in phase three, further reducing the ROI estimate for the County.

When completed, the park complex will feature multi-use, lighted, synthetic turf fields for youth and adult programming in soccer, lacrosse, football, baseball, softball, and ultimate frisbee, with outdoor courts for volleyball, basketball, tennis, and pickleball, event space, gardens, environmental education, and play areas. The park also features the Town's first outdoor splash pad and a cross-country trail course, along with other innovative recreation elements. Multiple collaborations with area organizations have been established to ensure that everyone in our community and around the region will benefit from this project.

We are proud to showcase this incredible facility and to share the work of our town with you. Please don't hesitate to let us know if we can provide any additional information. Thank you for the opportunity to share this proposal with the Wake County Board of Commissioners.

Best Regards,

Drew Havens, Town Manager
919-249-3301
drew.havens@apexnc.org

Table of Contents

1.0 Executive Summary

Project Overview: Pleasant Park is the first public park project in south-central Apex, one of Wake County's fastest-growing areas, and addresses unmet needs for Apex citizens as well as the economic impact goals of the Town and Wake County. Pleasant Park is supported by Town funding as well as being one of four projects approved in the Town's 2017 Parks Bond, which allocates up to $48 million in bond funding and was passed with a 76% approval rate. Town Council has mandated two primary objectives for Pleasant Park: first, to reduce existing waiting lists and provide additional capacity that enables Apex citizens to take part in existing and planned programming; and second, to create a venue that will have a positive economic impact on the Apex community. Pleasant Park was designed with several months of citizen engagement to meet those needs, and the 92.5-acre site will include both traditional and emerging amenities, including the Town's first water play amenity area, outdoor pickleball courts, and cross-country course. The park project has been designed to allow more residents to "stay and play" by providing additional facilities and amenities to host programming, tournaments, and special events without traveling outside the Town or County, as well as by increasing the number of out-of-town visitors and thus the anticipated economic impact.

Funding Request: The Town requests $1,500,000.00 in Hospitality Tax Small Capital Projects Funding from Wake County to support Phase I of the Pleasant Park facility. The Town has already committed and spent $3,800,000 to support land acquisition and preliminary design. The first phase, anticipated to cost $16,550,918.41, includes all site preparation, water and sewer extensions, road access, multi-use fields, tennis and pickleball courts, splash park installation, and amenities and landscaping around finished areas. This phase is supported by the Town's Community Development Block Grant of $330,000.00 towards amenities in an underserved area of Wake County and by Town funds, with additional fundraising and grant writing currently underway. (The full park development, in three phases, is expected to cost $38.7 million and be complete by May 2022.)

Design & Implementation: The project has been designed and implemented with the leadership of the Town Council, the Parks, Recreation, and Cultural Resources Advisory Commission, and the Parks, Recreation & Cultural Resources Department as part of its 2013 Master Planning Process. The Town has contracted with WithersRavenel, a Cary-based civil and environmental engineering firm with a successful history of local government projects statewide, to facilitate public comment and outreach and design and engineer the site. WithersRavenel brings significant experience to the design process, having successfully designed recreation facilities in Holly Springs, Elkin, Greensboro, and many other towns and counties statewide. The Town's project team includes experienced parks & recreation professionals with over 80 years of combined experience in planning, designing, maintaining, and programming for state-of-the-art recreation amenities. The Department is led by Director John Brown, who formed the Department in 1986 and has shepherded the growth of the parks and recreation programs and facilities over the past 32 years. The Town of Apex has a long history of responsible fiscal management and successful completion of large capital projects and has been awarded a Certificate of Achievement for Excellence in Financial Reporting from GFOA for the past 23 years.

Primary Engagement Contacts

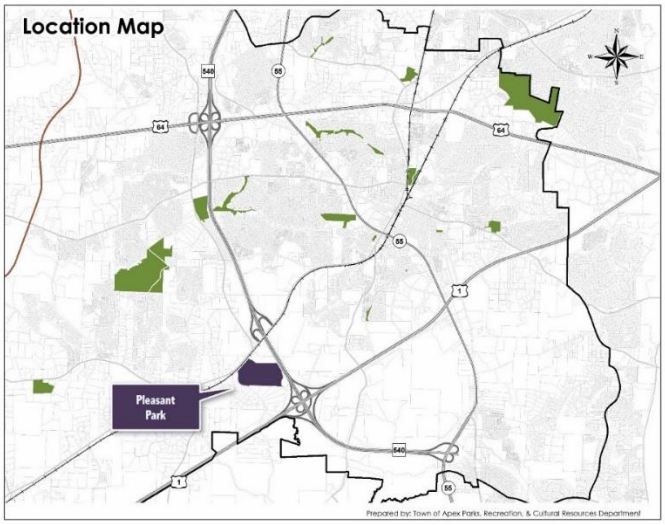
Mayor Lance Olive | 919-249-3304 office | 919-656-9713 mobile | lance.olive@apexnc.org
Mr. Andrew L. Havens, Town Manager | 919-249-3301 | drew.havens@apexnc.org
The Town's fax number is 919-249-3407.

FIGURE 1:THE ILLUSTRATIVE MASTER PLAN FOR PLEASANT PARK IN THE TOWN OF APEX.

2.0 Project Overview, Evaluation, and Visitor & Economic Estimates

The Pleasant Park project was the cornerstone of the Town of Apex's 2017 Parks Bond, which passed with a 76% approval rate. The Master Plan for the $38.7 million project was approved in 2017 and includes the following elements on the 92.5-acre site:

- Six multi-use, lighted, synthetic turf fields for Youth and Adult Athletics including soccer, lacrosse, football, and ultimate frisbee;
- Three 325-ft. multi-use, lighted, synthetic turf fields for Youth and Adult Baseball and Softball;
- One 250-ft. multi-use, lighted, synthetic turf field for Youth Baseball and Softball;
- One-acre amenity area including splash pad/playground, sensory garden, shelters, environmental education, multi-age universal playground, and other amenities;
- Three lighted tennis courts;
- One 5K trail course for running, walking, and cross country;
- Outdoor courts for volleyball, basketball, and pickleball;
- Large lawn for gatherings and special events as well as passive open play opportunities;
- One maintenance facility; and
- Two fieldhouses with meeting rooms, office space, concessions, lockers and restrooms.



The Major Site Plan approval is scheduled for the Council's regular March 2018 meeting, with contracts for construction documents and contract administration to follow in April 2018. The park was developed in conjunction with the 2013 Master Plan, which involved over eight months of citizen feedback in the design of future facilities. The master planning process was specifically designed to encourage regional partnerships with surrounding municipalities for recreational connections, water quality, and open space preservation. The full plan is available at www.apexnc.org/parksmaps.

Pleasant Park **reduces existing capacity issues** that prevent both youth and adults from participating fully in the Town's athletic programs and **encourages economic impact** by attracting new events to the facility and allowing residents to "Stay and Play" for home events rather than traveling. The project includes the Town's first splash park, pickleball courts, public art installations, and cross-country course, and incorporates emerging recreation elements such as a sensory garden and multi-age playground.

By generating an additional 200,000 recreational park visitors annually and creating at least $4 million in economic impact from the first phase of park development, the park will remain a financially sustainable asset to the Town for many years to come. Future growth after the park's three phases are complete is expected to reach 1 million visitors annually, with at least $10 million in economic impact each year. The completion of this project brings future opportunities for collaboration between the Towns of Apex, Holly Springs, and Cary, as the three Towns will share facility capacity to host much larger tournaments and events on a national and regional scale.

2.1 Demand Analysis, Project Effectiveness, Visitor Estimates and Return on Investment

The first and most urgent need addressed by the new park facility are the numbers of Wake County and Town of Apex citizens waiting for participation in athletics programs.

Waiting Lists	*Adult Athletics*	*Youth Athletics*
Spring 2017	85%	60%
Fall 2017	56%	85%

The Town anticipates that the addition of the four multi-purpose fields associated with Phase I (including the field capacity as well as lighted fields allowing longer hours of operation) will significantly reduce the number of citizens currently on these waiting lists. In addition to individual waiting lists, numerous Apex community groups and nonprofits, including schools, are on waiting lists for longer-term rentals of field space, and would be able to access more long-term rentals when the facility is complete. This facility will ensure that all citizens are able to access high-quality recreational programming despite the rapid growth in south-central Apex and southwestern Wake County generally. In addition to addressing unmet needs for recreation programs, the complex also provides a community destination for wellness and outdoor activities, including the Town's first splash park and a variety of unique facilities such as pickleball courts, a multi-age universal playground, a sensory garden, and environmental education. **Pleasant Park also addresses the Town of Apex Board of Commissioners' goal of increasing economic impact related to recreation, tourism, and convention visitors.**

Phase I includes the multi-use fields and the splash park, which collectively are expected to bring in over 50,000 park users (roughly half from Apex and half from surrounding counties, with about 10% coming from out of state for tournament events). These fields will primarily be used by lacrosse, soccer, and youth football teams in the region, including Apex Sports Authority, NC Football Club Youth Programs, and Apex Red Devil Lacrosse. These agencies provided the following estimates for visitors, and splash park calculations are created utilizing visitor numbers from Fuquay Varina and Cary.

Annual Visitor Estimates: Pleasant Park Phase I	*Regular Season Residents*	*Regular Season Visitors*	*Special Events Residents*	*Special Events Visitors*	*Totals*
Lacrosse	4,000	3,500	2,600	2,000	12,100
NCFC Youth Programs	5,000	2,200	900	600	8,700
ASA Youth Football	5,000	1,750	1,500	1,500	9,750
APRCR	43,200	--	--	--	43,200
Community/School Rentals	5,000	--	--	--	5,000
Total Athletics Program Visitors	14,000	7,450	5,000	4,100	30,550
Splash Park Visitors	20,000	20,000	--	--	40,000
Amenity Visitors – Peak Season	15,000	8,000	12,000	8,000	43,000
Amenity Visitors – Off Season	8,000	4,000	--	--	12,000
Total Park Visitors (Year 1, Phase 1)	**119,200**	**46,900**	**22,000**	**16,200**	**204,300**

ASA, NCFC, and ARDL all noted in their support letters that they are using facilities outside of the Town boundaries to meet their needs for program registration, going as far away as Fayetteville to host programs for Wake County residents. Pleasant Park will allow many of those existing programs (in addition to the new programs noted above) to be relocated back to Wake County.

Results from Visitor Estimates & County Return on Investment Worksheet

Phase I Calculations: Pleasant Park			
Estimated Wake County Residential Visitors (annual)	141,200	--	--
Estimated Day Visitors (annual total)	180,650	$23 daily meal rate	$4,154,950.00
Estimated Overnight Visitors (annual): 4,100 for two nights)	8,200	$26 daily meal rate	$213,200.00
Estimated Overnight Visitors (annual): 4,100 for two-day events (x 2 nights) = 8,200	4,852 (÷ 1.69 party size)	$102 room rate	$494,904.00
Total Direct Spending	--	--	**$4,863,054.00**
Total Food & Beverage Tax Revenue (annually)		(1% Food & Beverage Tax)	$43,681.50
Total Occupancy Tax Revenue (annually)		(6% Occupancy Tax)	$29,694.24
Total Taxes Collected Annually			**$73,375.74**
Grant Request Total			$1,500,000.00
÷ $73,375.54 (total annual tax revenue)			**ROI: 20.44 years**

Please note that the expected ROI of 20 years will be significantly shortened when phases II and III of the project are completed in 2022. The projected visitor estimate increases to just over 1.1 million in that year, with overnight visitors expected at a rate of over 50,000 annually.

In addition to Phase I visitors, the Town also anticipates an additional 33,000 event visitors per year when the Phase III baseball fields are completed (from twelve weekend events per year with a resulting direct spending of $530,000 annually and an estimated economic impact of $6.3 million per year) and an additional regular season visitor count of at least 20,000. By the completion date in 2022, the Town anticipates usage of over 1 million visitors per year at full capacity.

ASSUMPTIONS & CALCULATIONS:

Calculations for these estimates are based on usage at other Town of Apex parks, revenues and visitor counts at neighboring municipal parks in Wake County, and estimates provided from Apex Sports Authority, Apex Red Devil Lacrosse, and NCFC.

For the Visitor Estimates and Return on Investment Worksheet provided in this RFP, we calculated residential visitors at 141,200 (the total of regular season and special event resident counts). We calculated estimated day visitors at 12,000 annually for the amenity areas; 20,000 for out-of-town visitors to the splash park; and 7,450 regular season visitors to athletic program games, for a total of 39,450 day visitors. This brings the total day visitors to 180,650. Total out-of-town athletics visitors were calculated at 4,100 for two-day events (two hotel nights bringing the total to 8,200).

For the splash pad, visitors will vary depending on the time of year, with Memorial Day-Labor Day considered the peak visiting months. The Town anticipates 3,000 local visitors per day at peak times, based on 16-minute cycles with four cycles per hour and eight hours per day of facility operation. Based on a 90-day period, an estimated 270,000 visits will occur, with about half residents and half non-residents based on other municipal usage records. However, this is reduced in Phase I as these estimates are based on the number of visitors intending to utilize all park facilities.

For the multi-use fields, usage will be primarily from APRCR programs, school programs, and weekly and long-term rentals to community groups. Rentals to schools and community groups are estimated at 5,000 visitors per year, but may be significantly higher by the end of the Phase III development. For youth soccer, APRCR holds two seasons per year with 450 participants each, which results in an estimate of 900 participants per year, with two adults per participant bringing the total youth soccer visitor estimate to 2,700 for 16 weeks (43,200). For the playground areas, visitors are expected to vary between peak season and off-season visits. The Town estimates 2,500 local visitors per day from April-October, and 1,500 visitors per day from November-March. This results in 525,000 peak-season visitors and 225,000 off-season visitors annually, which has been

reduced in Phase I as these estimates are based on the number of visitors intending to utilize all park facilities. These estimates are based on comparisons with other Wake County splash pad parks managed by municipalities.

For lacrosse, ARDL estimates an average of 7 home games per week for 12 weeks, with 300 total players (roughly half home and half visiting), 30 coaches, and 300 parents. This brings the total to 630 visitors per week for 12 weeks (7,560). ARDL estimates two special events per year (two-day tournaments featuring 32 teams in 5 games each). With 20 players per team, this is estimated to bring 700 players, 72 coaches, and 1500 parents and siblings (roughly half resident and half visitor), for 2,300 visitors per event. With two events per year, this brings the total to 4,600. For ASA youth programs, ASA estimates 9 weeks of home games (12 teams, 300 players, 450 guests) for a total of 6,750 visitors during the regular season. For the CFF playoffs, which Apex would now be eligible to compete to host, the weekend-long event would bring 10 games, 20 teams, 500 players, and at least 1,000 spectators for a total of 1,500 visitors. For the annual post-season Bowl Game, ASA brings 10 games, 20 teams, 500 players, and 1,000 spectators to the one-day event, for a total of 1,500 people. These special events bring in players from surrounding states as well as North Carolina. For NCFC youth football clubs, NCFC estimates five fields one day per week, 10 teams of 20 players, for a total of 200 players and 400 parents. These 600 visitors would occur weekly for a 12-week season, bringing the total estimate to 7,200. One special event per year is expected, bringing roughly 10 games, 20 teams, 500 players, and 1,000 spectators for a total of 1,500 visitors.

2.2 Collaboration & Partnerships

The Town has an established record of facilitating collaboration with community athletic and wellness groups and established sports leagues in its existing facilities. The park project was developed as part of the 2013 Master Plan, which involved over eight months of outreach and engagement with Apex citizens as well as strong collaboration with neighboring municipal and county agencies working to implement a larger regional vision for recreation in the Triangle.

This application includes letters of endorsement and support from Apex Sports Authority, North Carolina Football Club, Wake County Public Schools, Apex Downtown Business Association, and the Greater Raleigh Sports Alliance (see Section 8.1).

The Town anticipates that the facility will be utilized by various community and recreational leagues as well as established athletic programs. In addition, the facility will be available to teams from Wake County Public Schools as a closely-located facility for use in the growing region of southwestern Wake County. The Apex Chamber of Commerce has partnered with the Town in other programs and will assist in marketing the facility and its amenities for both Apex citizens and out-of-town visitors.

2.3 Evaluating Success

The Town remains committed to its transparency and responsible stewardship principles throughout all departments, and the PRCR Department remains committed to evaluating its programs and projects to ensure the best possible facilities and programs for Apex residents.

GOAL	EVALUATION METHOD	EVALUATION FREQUENCY
Increase capacity of youth and adult athletics by at least 25% in first three years and reduce existing waiting lists by an equivalent amount.	Waiting list reduction measurements	Seasonally
Increase wellness and recreational activities by Apex residents and non-Apex residents by welcoming at least 200,000 visitors to the splash pad and playground areas each year.	Ticket/fee sales, usage reports	Annually
Increase economic impact of athletic tournament events in Apex by at least $4 million in each of the first three years, hosting between 6-10 multi-day or weekend tournaments each year.	Visitor & participant tracking; ROI formula from Wake County	Annually for three years
Evaluate financial sustainability and management and operations costs	Formal budgeting process	Annually
Evaluate staff, programming, and resident satisfaction in accordance with Town & Department policies	Surveys, staff retreats, Council feedback	Annually

2.4 Consistency with Room Occupancy & Prepared Food/Beverage Operating Principles

The Town of Apex fully supports the Wake County Room Occupancy and Prepared Food & Beverage Operating Principles established in 2017 and incorporates these principles into its plans for Pleasant Park. The park is a fully compliant, accountable, and viable solution to the important goals of:

- providing quality services and programs for citizens in a fair and equitable manner, particularly by meeting the significant unmet needs in Apex due to rapid growth & development;
- supporting investments that are current, relative, and market-competitive;
- developing facilities that are aligned with overall Wake County tourism and economic development goals; and
- engaging and leveraging community partnerships & collaboration to increase long-term impact.

3.0 Project Budget and Funding Sources

Phase I Project Budget

(See detailed cost estimates in 7.0.)

LINE ITEM	COST ESTIMATE
MOBILIZATION, CLEARING & EROSION CONTROL	$901,200.00
GRADING	$3,275471.30
PAVING	$2,806,113.06
SEWER DISTRIBUTION	$364,828.00
STORM DRAINAGE	$742,380.25
SITE AMENITIES	$1,401,070.00
ATHLETIC FIELDS/COURTS	$3,610,000.00
STRUCTURES	$522,600.00
SUB TOTAL	**$13,792,432.01**
CONTINGENCY	$2,758,486.40
TOTAL	**$16,550,918.51**

Full Project Budget (See detailed budgets in 3.1 and 3.2.)

ITEM	COST
Land Acquisition	$3,500,000.00
Preliminary Project Design	$297,000.00
Project Development Subtotal	**$3,797,000.00**
Phase 1 Construction (MultiFlds & Splash)	$16,550,918.51
Phase 2a Construction (Soccer Main Bld)	$4,398,320.20
Phase 2b Construction (Baseball & Pickle)	$1,626,728.68
Phase 3a Construction (Bsbll Amenities)	$12,979,724.44
Phase 3b Construction (Amenity Play/Shelter)	$1,855,014.00
Phase 4 Construction (XCountryTrails)	$1,586,563.44
Project Construction Subtotal (incl. contingency)	$38,708,749.38
Total	**$42,505,749**

3.1 Project Development & Phase I Construction Funding Sources & Investment Ratios

PROJECT ELEMENT	FUNDING SOURCE	AMOUNT	YEAR	STATUS
Project Development	Town of Apex PRCR: Land Acquisition	$3,500,000	2017	Confirmed & procured
Project Development	Town of Apex PRCR: Master Planning/ Design	$297,000	2017	Confirmed & procured
Project Development Subtotal	**[100% Public]**	**$3,797,000**		
Phase I Construction	CDBG (Community Development Block Grant) Amenity Area Funding	$330,000	2017	Confirmed via Town of Apex Planning Dept.
Phase I Construction	Town of Apex Parks Bond (2017-2018)	$13,248,827	2017	Confirmed pending sales tax data
Phase I Construction	Wake County Hospitality Tax Grant Program	$1,500,000	2018	Application pending
Phase I Construction	Private sponsorships, naming rights, foundation grants	$1,472,091		
Phase I Construction Subtotal	**[90% Public, 10% Private]**	**$16,550,918**		
	Total	**$20,347,918**		

Investment Ratios: While we anticipate that most of the Town's funding responsibilities will come from public sources, including the sales tax bond, grant awards, and existing Town commitments, the Town does plan to actively pursue private assistance and naming rights and private sponsorships. The ratio of public to private investment is estimated at about 90% public funds and 10% private funds.

3.2 Impact on Existing Infrastructure

Water and Sewer: The project extends water service from existing mains along Kelly Road and Old US-1 to the park and enables future extensions into residential areas currently served by wells. Future connections will be managed by the Town in accordance with voluntary annexation policies for redevelopment or well failures. The Town currently has large water and sewer treatment capacity reserves and the project will not materially reduce these reserves. Sewer is provided via individual building packaged pump systems that will discharge into existing and planned infrastructure along Kelly Road. The project budget includes just over $900,000 to address water and sewer improvements. The property also includes over $1.4 million for storm drainage, including a constructed wetland (SCM), to minimize impacts on the surrounding property and on existing infrastructure.

Greenways, Roads, and Schools: The full project is proposed to include over three miles of walking trails, multi-purpose paths, and sidewalks. The project also includes significant on-site and off-site improvements to mitigate any traffic congestion created by the park project, which is expected to be minimal since park activity does not coincide with peak traffic times for other needs such as work, school, or commercial environments. While the project is solely recreational and does not include residential development, therefore not adding any students to the system, it is expected that agreements between Wake County Public Schools and the Town of Apex will be negotiated for use of the long-term recreational facilities that can supplement school facility offerings.

4.0 Project Timeline

PROJECT ACTION	START DATE	END DATE
STUDY AND ANALYSIS OF PROJECT	2016	2017
SITE IDENTIFICATION	2016	2017
PRELIMINARY COST ESTIMATES	2016	May 2016
PARKS BOND APPROVAL	June 2016	November 2017
MASTER PLAN APPROVAL	2017	November 2017
LAND ACQUISITION	2017	2017
BEGIN GRANT & FUNDRAISING EFFORTS	Dec. 2017	May 2022
REVISED COST ESTIMATES	2016	January 2018
CONTRACTS FOR CONSTRUCTION & ADMINISTRATION	April 2018	December 2022
ARCHITECTURAL & ENGINEERING STUDIES	2016	2018
MAJOR SITE PLAN APPROVAL	2017	March 2018
PERMITS OBTAINED	2018	May 2018
PHASE I: INFRASTRUCTURE, GRADING, PAVING	2018	February 2020
PHASE II FACILITY & AMENITIES	February 2020	July 2021
PHASE III FACILITY, STRUCTURES, MISC.	July 2021	December 2022

5.0 Project Operating Plan

The Pleasant Park project was developed as part of the Town's Master Planning process, which involved over eight months of meetings, surveys, and interviews to allow as much citizen involvement as possible. The park plan reflects the Town's commitment to excellence in recreational programming and amenities and follows the Town's existing marketing, operations, management, and finance best practices. The Town's Comprehensive Annual Financial Report (CAFR) is available at www.apexnc.org/finance and demonstrates the Town's success with moderate long-term debt and growth strategies for large projects. The Town of Apex has been awarded a Certificate of Achievement for Excellence in Financial Reporting for 23 consecutive years from the Government Finance Officers Association of the United States and Canada (CFOA).

The operating cost of the facility was included within the Department's overall operating budget for facility construction, maintenance, and operations. The facility's initial funding is significantly supported by the 2017 Parks Bond and grant support, and as such the Department expects the primary expenses to be operations and programming staff and equipment. This will be mostly offset by registration fees and programming costs along with tournament and special event revenue by the third year of operation. The full Town budget can be found at www.apexnc.org/budget.

The Town is projecting a 6.6% increase in General Fund revenues over the prior fiscal year due primarily to the expanding tax base from new development and annexations, increased sales tax distributions, and development related fees. As a result, the PRCR budget for 2017 was $4,368,311 (reflecting some additional costs associated with Pleasant Park development), and the projected budget for 2018 is $3,874,373.

5.1 Operations, Maintenance, and Marketing

The Pleasant Park facility will be managed within the Town budget for Parks, Recreation, and Cultural Resources, as are all greenway and park facilities. The PRCR Department has exceeded projected

revenues and underspent projected expenses in each of the past ten years. The revenue for PRCR programs has increased in each of the past four years, from $616,773 in 2013 to $905,240 in 2016.

The Town will continue to provide maintenance and programming services for this facility, just as it has always done for its other amenities. The marketing for the facility will follow Department guidelines for existing facilities as well as outreach and marketing principles utilized by the Department for existing tournaments and special events. The project is expected to become fully self-sustaining through program fees, tournament fees, and a minor outlay of Departmental funds as is consistent with other Town recreational amenities.

6.0 Organizational Information

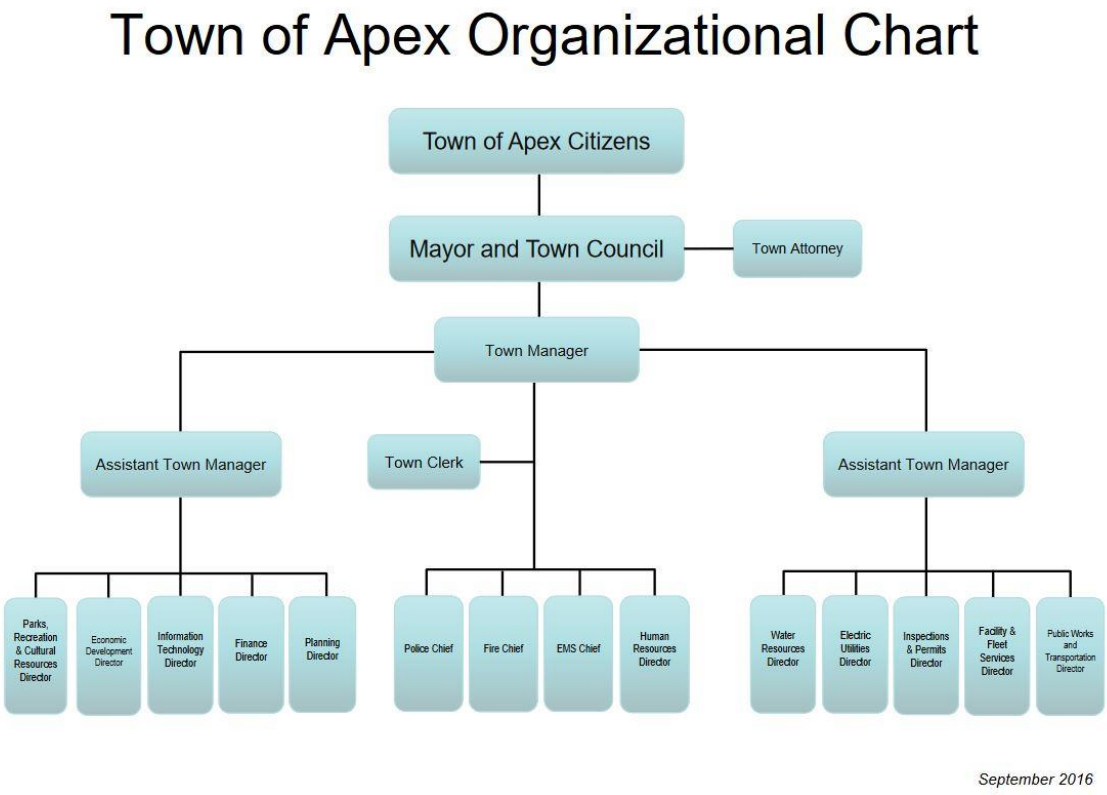
6.1 Organization History & Background

The Town of Apex, incorporated in 1873, is governed by a five-member Town Council and Mayor. Council Members include Bill Jensen, Wesley Moyer, Audra Killingsworth, and Brett Gantt. The Mayor is Lance Olive and the Mayor Pro Tem is Nicole Dozier. Nonpartisan elections are held in odd years and conducted by the Wake County Board of Elections. Municipal operations are overseen by Drew Havens, Town Manager, and Shawn Purvis and David Hughes, Assistant Town Manager(s).

The Town of Apex, located in the southwestern corner of Wake County, has seen tremendous population growth since its first ranking on the Money Magazine Best Places to Live in 2007 (at number 14). It was named the #1 Best Place to Live in 2015.

The Parks, Recreation, and Cultural Resources Department, led by Director John Brown, has shepherded the successful development of several parks and facilities. In 2017, working with Apex residents' groups, area nonprofits, and other Town staff, the department prepared a Parks Bond that was passed with a 76% approval rate in November. The bond, which institutes a property tax increase to provide up to $48 million in parks and recreation amenities funding, is to be utilized for four specific projects identified by Apex residents: Beaver Creek Greenway, Middle Creek Greenway, Community Center Expansion/Senior Center, and Pleasant Park.

The Parks Bond initiative was one of several commitments made by the Town Council over the past several years to increase the number and variety of parks and recreation amenities, and the park project has been approved by the Board in the Apex Parks, Recreation, Greenways and Open Space Master Plan.



6.2 Organization Financial & Legal Information

Please see Attachment 8.3 for certification that there are no conflicts of interest or pending litigation that would impact this project.

See Attachment 8.2 for a copy of the Town of Apex 2016 IRS Form 990 and a copy of the 2016-2017 audit and management letter. The Town's Comprehensive Annual Financial Report (CAFR) is available at www.apexnc.org/finance. The Town of Apex has been awarded a Certificate of Achievement for Excellence in Financial Reporting for 23 consecutive years from the Government Finance Officers Association of the United States and Canada (CFOA).

6.3 Proposal Team Experience & Similar Projects

The Town of Apex, along with its contracted firms, has several years of experience conducting successful similar projects in the fields of parks, recreation, and cultural resources.

John M. Brown, Director: Town of Apex Parks, Recreation and Cultural Resources *(1986- Present)*
Bachelor of Science- Recreation Leadership (Minor in Business Administration), Western Carolina University, Cullowhee, North Carolina; Master of Science-Recreation Administration, University of North Carolina-Chapel Hill
Mr. Brown started the Apex Parks, Recreation and Cultural Resources Department in 1986 after obtaining his Master's Degree in Recreation Administration. Prior to that, he served for 3 years at the Assistant Director of the Clinton Family YMCA in Clinton South Carolina. During his tenure, the department has grown from a staff of 1 with a budget of less than $100,000 to a department with 28 full-time staff and an annual budget of over $3.5 million.

During his professional career, Mr. Brown has served in multiple leadership roles at the local, regional and state levels of the North Carolina Recreation and Parks Association, receiving multiple professional awards and recognitions. He has completed the Municipal and County Administration Course through the UNC Institute of Government, the first 2 years of the Parks Maintenance Management School at North Carolina State University as well other Parks and Recreation related leadership courses and seminars. During his tenure in Apex, the Town has passed 3 successful parks bonds totaling over $60,000,000 with an average approval of over 80%, received multiple County, State, and Federal Grants for park acquisition and development. The Town has acquired over 500 acres of parkland, developed over 10 miles of public greenway, and currently, owns, operates, or manages over 20 sites for public recreation. Similar to Pleasant Park, these projects include the Apex Community Park, the Apex Nature Park / Seymour Athletic Fields, Apex Jaycee Park, and Kelly Road Park. The Town has also completed multiple public / private projects including the Halle Cultural Arts Center, and the Rogers Family Skate Plaza, adopted 3 Comprehensive Parks, Recreation, Greenways, and Open Space Master Plans, and recently adopted the Town's first Public Art Plan. In addition to this work with the Town, Mr. Brown has been an active member in the community serving as past President of the Apex Rotary Club, being named the 2003 Apex Chamber of Commerce Citizen of the Year, and was inducted to the Lewis C. Smith Hall of Fame in 2015 which recognizes citizens for their lifelong and forever lasting contributions to the Apex community.

Karl Lyon, Recreation Program Manager: Town of Apex Parks, Recreation and Cultural Resources

Bachelor of Science in Parks and Recreation from Mars Hill University

Mr. Lyon has 28 years of experience in municipal government and public parks and recreation. His experience is concentrated in the development, planning and execution of a wide variety of programs and the staff that is charged with leading that effort. He also has experience in the design and building of three different greenway connections and multiple single-track trails equaling an estimate of 7 miles in Sanford NC. In addition, he has overseen the building or renovation of tennis courts at Apex Nature Park, Apex Elementary, Kelly Road and most recently, Apex Community Park. Mr. Lyon has been a contributor of development ideas for not only Pleasant Park but also Hunter Street Park and the Apex Senior Citizen wing that will start construction in late 2018.

Craig Setzer, Parks Maintenance Manager: Town of Apex Parks, Recreation and Cultural Resources

Bachelor of Recreation Management/Concentration in Parks and Recreation from Appalachian State University

Mr. Setzer has over 15 years of experience in municipal parks & recreation, including the past seven years as Parks Operations Manager. His duties include maintenance management of approximately 406 acres of parks, 4 school parks and an estimated 10 miles of greenways. He has experience assisting with the design of several parks and their facilities including the Apex Nature Park, Salem Pond Park, Hunter Street Park and Seagroves Farm Park. He also has played an integral role in the artificial turf renovation of the soccer fields at Hunter St. and the Apex Nature Park. Prior to becoming the Parks Operations Manager Mr. Setzer's primary duties were in athletic programming. Mr. Setzer was responsible for running numerous youth and adult athletic leagues and tournaments. He has been involved in administering traditional sports, such as soccer, baseball, basketball and softball, as well as nontraditional sports, such as dodgeball. While programming he successfully increased participation numbers in each of the leagues and events he was involved with. He was also heavily involved in the rentals/reservations of all athletic fields/facilities. Mr. Setzer also has experience managing a recreational facility. Mr. Setzer managed a recreation facility including racquetball courts, a gymnasium, classrooms, playground and a pool. His responsibilities included programming, scheduling maintenance, administering the budget and supervision of employees. Mr. Setzer is currently a certified playground inspector. He has also received honors for completion of Maintenance Management School through the National Recreation and Park Association. He is currently a member of the North Carolina Parks Association.

Angela Reincke, Parks and Greenways Planner: Town of Apex Parks, Recreation & Cultural Resources
Bachelor of Science in Landscape Architecture from Purdue University
Ms. Reincke has 25 years of experience in Public Planning with an emphasis in Parks and Greenways. With the Gold Medal-awarded Arlington Heights Park District, IL, she led the design and development of the 50+ acre Lake Arlington (2.5 miles of greenway, playgrounds, and educational/boating camp facility), the 56-acre, 9 hole, par 3, Nickol Knoll Golf Course on a Village leased landfill and development of Melas Sports Complex, leased from the Metropolitan Sanitary District through the Village of Mount Prospect. With James Martin and Associates she was awarded the Daniel Flaherty Award for Park Excellence for the North School Park project. In addition to planning experience with Palm Beach County and the Town of Cary, Ms. Reincke has also provided insight for Wake County Greenway Systems Plan in which over 70% of survey responses were provided from Apex residents. She also was on Wake County's Master Plan project consultant selection team. In addition to the Pleasant Park project, the Town of Apex's Park, Recreation and Cultural Resources Department is currently in the design and development of 3 major greenway corridors (White Oak Creek, Beaver Creek and Middle Creek). There are also 19 developer constructed greenway segments and several other smaller Town managed greenway connector projects in the works. The Town was recently awarded an LWCF grant for the Salem Pond Park project which includes a universal playground with environmental and historical education components. Ms. Reincke has been an active contributor of the Apex Community and the Triangle region as a 15-year member and Chair of the Apex Parks, Recreation and Cultural Resources Advisory Commission, past President of Citizen's for Apex Parks securing funding for the construction of Kidstowne Playground ($150,000), renovation of the Halle Cultural Arts Center ($1M) and the development of the Rodgers Family Skate Plaza at Trackside ($300,000). Other notable positions include TBJ's 40 under 40 (2007), Triangle Reality Check, Member of the Western Area Plan Advisory Commission, and Advisor on the Durham Submittal Process Review.

Patrick Fitzsimons, Program Supervisor: Town of Apex Parks, Recreation & Cultural Resources
Bachelor of Arts in Economics from Amherst College
Master of Arts in Parks, Recreation & Tourism Management from NC State University
Mr. Fitzsimons has over 9 years of experience in municipal parks & recreation. His primary duties have been in athletic programming, running a wide variety of youth and adult athletic leagues and tournaments. He has been involved in coordinating traditional sports, such as soccer, baseball and softball, as well as alternative sports, such as lacrosse, ultimate Frisbee, and flag football. He has successfully increased participation numbers and expanded age groups in each of the leagues and events he has been involved with. He has also created new programs to meet changing trends and increasing demand from a growing population. Mr. Fitzsimons also has experience managing large athletic complexes, as well as maintaining facility schedules for fields and gyms throughout the Town. He has served as tournament director for a variety of large-scale tournaments and coordinated many different special events. Mr. Fitzsimons has also been involved in advancing the profession through his work with the North Carolina Recreation & Park Association (NCRPA). He has served as chair of various committees, where he has led educational sessions and helped fundraise for the Association.

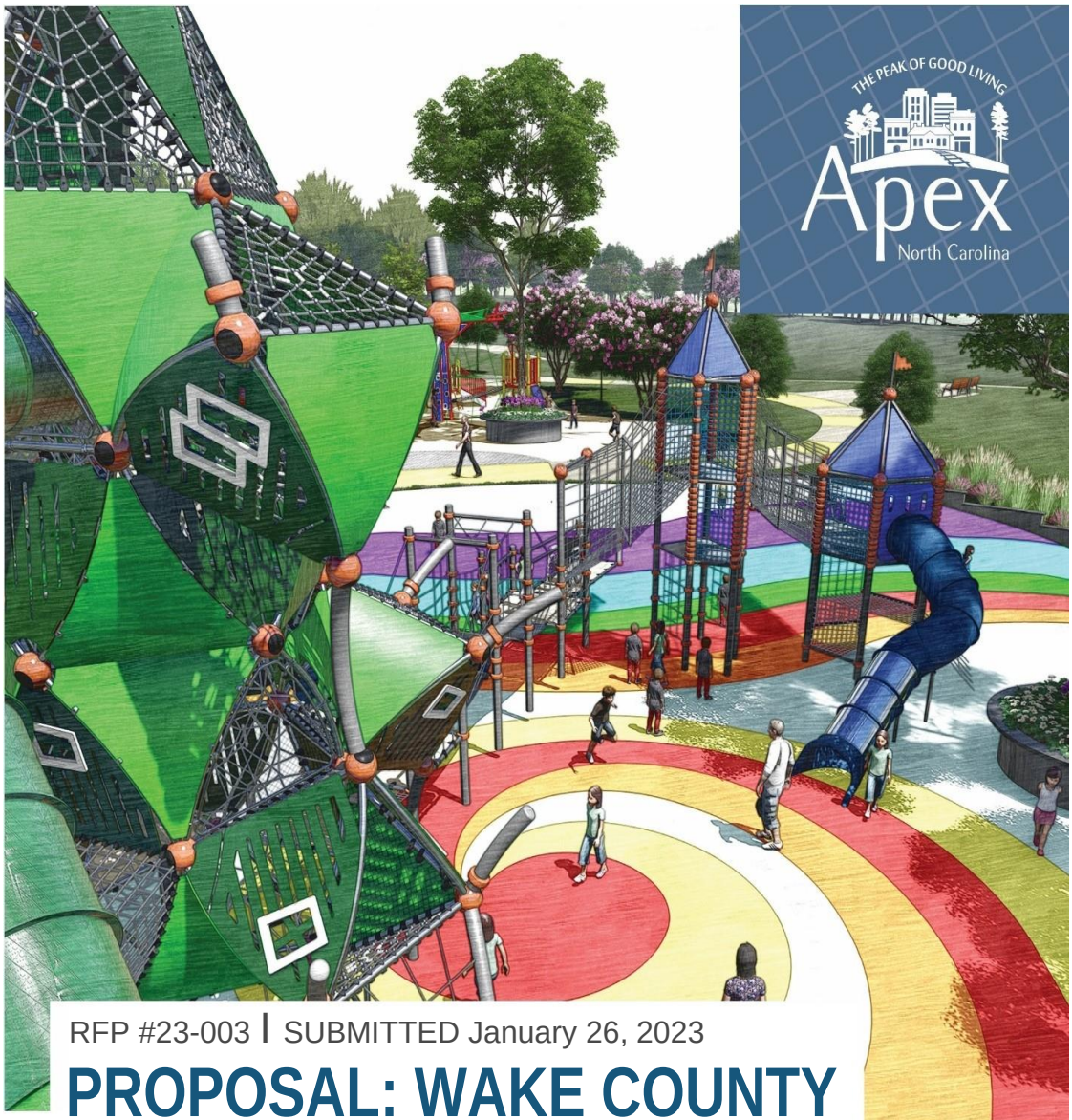
Matt Steele, Recreation Program Specialist: Town of Apex Parks, Recreation and Cultural Resources
Bachelor of Science in Parks & Recreation Management from East Carolina University
Mr. Steele has 3 years' experience in the Parks & Recreation field with the majority of his time being spent programming youth athletic events. He has coordinated and contracted out numerous baseball and basketball tournaments over the years and seen a steady growth in participation numbers of programs he has developed. Mr. Steele also has experience in maintaining large parks and developing programs to fit the parks availability. In the past, he has worked with companies such as Top Gun and Triple Crown to coordinate travel baseball tournaments at his facilities that consistently bring thousands of participants to the area. During his time in Nash County, Mr. Steele spent time on the Park Committee, helping develop ideas for the Nash County Miracle Park

which is currently under construction. This park will be available to the public by late 2018 and will be home to 2 full sized soccer fields, 4 regulation baseball fields and a splash pad.

WithersRavenel is under contract to the Town of Apex for design and engineering services for Pleasant Park. WithersRavenel is a full-service civil and environmental engineering firm, based locally in Cary, with a long history of successful projects in the Triangle region and statewide, particularly with local and state government partners.

7.0 Attachments

7.1 Pleasant Park Renderings and Drawings
7.2 Letters of Endorsement and Support
7.3 Audit Management Letter and IRS Information
7.4 Statement on Conflicts of Interest & Litigation
7.5 Phased Cost Estimates: WithersRavenel, Inc.



RFP #23-003 | SUBMITTED January 26, 2023

PROPOSAL: WAKE COUNTY HOSPITALITY TAX SMALL CAPITAL PROJECT FUNDING

Town of Apex, Pleasant Park

MS. CATHERINE CROSBY, TOWN MANAGER
PARKS, RECREATION & CULTURAL RESOURCES DEPARTMENT | TOWN OF APEX 73 HUNTER STREET | APEX, NC

DEPARTMENT OF ADMINISTRATION

January 26, 2023

Ms. Denise Foreman
Assistant County Manager
Wake County Manager's Office
PO Box 550
Raleigh, NC 27602

RE: Town of Apex Pleasant Park Proposal
Wake County Hospitality Tax Small Capital Projects Funding

Ms. Foreman:

Please find enclosed our proposal for **RFP #23-003**, the Wake County Hospitality Tax Small Capital Projects Funding. The Town of Apex is pleased to provide the requested documents to support our request for $3.5 million in grant funding to further develop Pleasant Park. Located in south Apex, the park is a 92.5-acre multi-use site that addresses recreation and wellness needs for residents of the entire community and generates significant economic impact.

Pleasant Park is designed to meet the needs of Apex citizens who currently face waiting lists for existing and planned recreation programs due to the region's tremendous growth, while also providing a positive economic impact for both the Town of Apex and Wake County. In 2018, the Town was awarded $500,000 in Wake County Hospitality Tax Small Capital Projects funding to assist with the development of Pleasant Park Phase I.

The Town now requests $3.5 million in Wake County Hospitality Tax Small Capital Projects funding to assist with the development of Phase II of Pleasant Park. The Town has already committed significant resources to the estimated $52 million project, including $3.5 million in land acquisition and over $42 million for construction of Phase I. Pleasant Park Phase I includes six multiple purpose fields, four tennis courts, two basketball courts, six pickleball courts, one sand volleyball court, a 1.5-acre play amenity with the Town's first splash pad, and a nature play area. The Town anticipates Phase I opening in the Spring of 2023. This facility will be a regional destination with infrastructure to accommodate a number of special events, tournaments, and festivals.

While Apex residents overwhelmingly passed the 2017 Parks Bond (76% approval) to provide additional funding for Pleasant Park and other recreation facilities, those funds alone will not cover the cost of the project. Our request for $3.5 million from the Wake County Hospitality Small Capital Projects Funding is critically important to the Town's ability to complete this premier destination for Apex and Wake County residents as well as visitors from outside the region. Phase II of this project includes four youth and adult baseball/softball fields; four batting cages; a fieldhouse with restrooms, concessions, offices, meeting space, and official's locker room; a vehicle storage building, and a 250-person capacity shelter with restrooms and storage. For the

facility to reach its full capability to attract out of town and overnight visitors, the Phase II portion of this project is necessary. Additional field space will provide flexibility for special events, festivals, and an increase in tournament participant capacity. These amenities will ensure Wake County residents have access to expanded programming options close to home while bringing additional special events and tournaments to Wake County. Once completed, Pleasant Park will attract over one million Wake County area visitors, over 250,000 out-of-town day visitors, and over 115,000 out-of-town overnight visitors annually, and generate over $14.4 million in annual economic impact. Multiple collaborations with area organizations have been established to ensure that everyone in our community and around the region will benefit from this project.

We are proud of what this incredible facility will mean to our community and look forward to further highlighting the park and its benefits to the region at our in-person presentation. Please do not hesitate to contact us if we can provide any additional information. Thank you for the opportunity to share this proposal with the Wake County Board of Commissioners.

Best regards,

D. Shawn Purvis
Deputy Town Manager
Shawn.purvis@apexnc.org

Table of Contents

1.0 Executive Summary

Project Overview: Pleasant Park is the first public park project in south-central Apex, one of Wake County's fastest-growing areas, and addresses unmet needs for Apex citizens as well as the economic impact goals of the Town and Wake County. The park's location, directly adjacent to NC540 and the interchange with Old US 1 Hwy, and within close proximity to NC HWY 55, US HWY 1, and US HWY 64 provides easy access to the site for local and regional visitors. The Park is less than 6 miles to the Chatham/ Wake County line, a 6-minute drive to Historic Downtown Apex, a 2-minute drive south to the Town of Holly Springs, and 5-minute drive north to the Town of Cary. Pleasant Park is supported by Town funding and was one of four separate projects approved in the Town's 2017 Parks Bond, which allocated up to $48 million in total and was passed with a 76% approval rate. The Apex Town Council has mandated two primary objectives for Pleasant Park: first, to reduce existing waiting lists and provide additional capacity that enables Apex citizens to take part in existing and planned programming; and second, to create a venue that will have a positive economic impact on the surrounding community. Pleasant Park was designed with input from several months of citizen engagement, and the 92.5-acre site will include both traditional and emerging facilities and programming, including the Town's first water play and nature play amenities, outdoor pickleball courts, and a cross-country course. The park has been designed to allow more residents to "stay and play" by providing needed and requested facilities and amenities. These facilities and amenities will allow the Town to host programming, tournaments, and special events without Wake County residents having to travel outside of the Town or County, and will increase the number of out-of-town day and overnight visitors and anticipated economic impact. Development of Phase II of Pleasant Park includes the addition of a four-field baseball/softball complex, fieldhouse with meeting room, officials' locker room, and office space, and a maintenance storage building, and 250 capacity shelter with restrooms. The artificial turf fields will provide the opportunity to host baseball/ softball tournaments year-round at one location, which is not possible at any other facility in the County. In addition to increased athletic use, the plaza and flexibility of the fields will allow for the possibility of other non-athletic programming such as concerts and larger festivals and cultural events.

Funding Request: The Town requests $3,500,000 in Hospitality Tax Small Capital Projects Funding from Wake County to support Phase II development of Pleasant Park due to the unique and expanded offerings of this final phase of the project. The project as a whole brings increased economic impact and opportunities to the residents of the county. Total project costs are expected to be approximately $52 million with an overall project completion date of June 2026. Full park development costs have increased by more than $5,000,000 since the original cost estimates identified in the Phase I request for Hospitality Tax Small Capital Project Funding. This higher total cost is in large part due to increased material and construction costs, delays in delivery due to COVID, and amenity and facility enhancements that will make Pleasant Park a regional destination with premiere inclusive play elements as well as fields and courts for the many athletic pursuits requested by Apex residents including: soccer, lacrosse, baseball, softball, cricket, ultimate frisbee, football, tennis, basketball, sand volleyball, pickleball, and cross country. The artificial turf surface is designed for use year-round with minimal impact from weather. These amenities are multi-functional either with markings for different age groups or sport and designed to transition to non-athletic event space for festivals, community gatherings, and special events. The Town was awarded $500,000 in Hospitality Tax Small Capital Projects Funding in 2018 to support Phase I development which included land acquisition, preliminary design, and site improvements, including water and sewer extensions, road access, multi-use fields, tennis and pickleball courts, water play park installation, and site furnishings and landscaping around finished areas. Phase I will be complete in Spring 2023.

FIGURE 1: MULTI-USE FIELD WITH SOCCER AND WOMEN'S LACROSSE LINES AT PLEASANT PARK IN THE TOWN OF APEX.

Design & Implementation: The project has been designed and implemented with the leadership of the Town Council, the Parks, Recreation, and Cultural Resources Advisory Commission, and the Apex Parks, Recreation & Cultural Resources Department (APRCR) as part of its 2014 Master Planning Process and the need and importance reconfirmed through public engagement in the current Master Plan update (adoption anticipated March 2023). The Town also contracted with WithersRavenel, a Cary-based civil and environmental engineering firm with a successful history of local government projects statewide, to facilitate public comment and outreach and design and engineer the site. WithersRavenel brings significant experience to the design process, having successfully designed recreation facilities in Holly Springs, Elkin, Greensboro, and many other towns and counties statewide. The Town's project team includes experienced parks and recreation professionals with over 80 years of combined experience in planning, designing, maintaining, and programming for state-of-the-art recreation amenities. The Department is led by Director Craig Setzer, who has overseen the reorganization and expansion of the department and shepherded the growth of the parks and recreation programs and facilities during a time of unprecedented growth in the Town and region. The Town of Apex has a long history of responsible fiscal management and successful completion of large capital projects and has been awarded a Certificate of Achievement for Excellence in Financial Reporting from GFOA for the past 25 years.

Primary Engagement Contacts

Mayor Jacques Gilbert | 919-249-3304 office | 919-522-9823 mobile | jacques.gilbert@apexnc.org

Ms. Catherine Crosby, Town Manager | 919-249-1042| catherine.crosby@apexnc.org

- The application notes the request for a fax number for the Primary Engagement Contacts which the Town does not have to provide.

This project has broad support amongst community stakeholders, including elected officials, and all municipality officials have knowledge of the project.

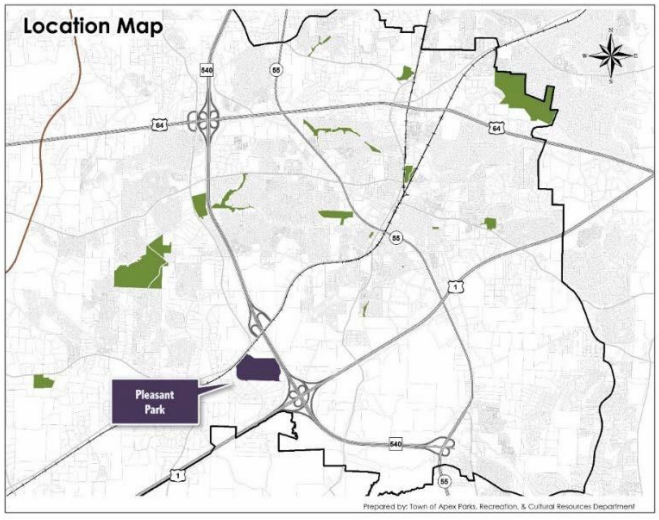
FIGURE 2: THE ILLUSTRATIVE MASTER PLAN FOR PLEASANT PARK IN THE TOWN OF APEX.

2.0 Scope of Project

The Pleasant Park project was the cornerstone of the Town of Apex's 2017 Parks Bond, which passed with a 76% approval rate. The Major Site Plan for the $52 million project was approved in 2018 and includes the following elements on the 92.5-acre site:

- Six multi-use, lighted, synthetic turf fields for Youth and Adult Athletics including soccer, lacrosse, football, cricket, and ultimate frisbee;
- Three 325-ft. multi-use, lighted, synthetic turf fields for Youth and Adult Baseball and Softball;
- One 250-ft. multi-use, lighted, synthetic turf field for Youth Baseball and Softball;
- 1.5+ acre amenity area including Splashlantis the Town's first water play park, nature play park and sensory garden utilizing material harvested on the site, shelter with family restrooms and changing space, environmental education, multi-age universal playground, and other amenities;
- Four lighted tennis courts;
- One 5K trail course for running, walking, and cross country;
- Six Pickleball sand volleyball, and two basketball courts;
- Large lawn for gatherings and special events as well as passive open play opportunities;
- One maintenance facility with covered equipment space and one maintenance storage building;
- Two fieldhouses with meeting rooms, office space, concessions, locker rooms, officials' rooms and restrooms.

FIGURE 3: THE SIGNATURE FIELDHOUSE FOR PLEASANT PARK IN THE TOWN OF APEX.



The Major Site Plan was approved by the Town Council in March of 2018, with contracts for construction documents and contract administration approved in April of 2018. The park was developed in conjunction with the 2014 Apex Parks, Recreation, Greenways and Open Space Master Plan, which involved over eight months of citizen feedback in the design of future facilities. The master planning process was specifically designed to encourage regional partnerships with surrounding municipalities for recreational connections, water quality, and open space preservation. The full plan is available at www.apexnc.org/parksmaps.

Pleasant Park **reduces existing capacity issues** that prevent both youth and adults from participating fully in the Town's athletic programs and **encourages economic impact** by attracting new events to the facility and allowing residents to "Stay and Play" for home events rather than traveling for both regular season events and tournaments as well as other festivals and special events. The project includes the Town's first water play park, pickleball courts, public art installations, and cross-country course, and incorporates emerging recreation elements such as a nature play space with sensory garden and an extensive multi-age inclusive playground.

FIGURE 4: THE ENCHANTED FOREST AMENITY FOR PLEASANT PARK IN THE TOWN OF APEX.

By generating over 1,000,000 recreational park visitors annually and creating just over $14.4 million in economic impact, the park will remain a financially sustainable asset to the Town for many years to come. The completion of this project also brings future opportunities for collaboration between the Towns of Apex, Holly Springs, and Cary, as the three towns will share facility capacity to host much larger tournaments and events on a national and regional scale.

FIGURE 5: FOUR OF THE SIX MULTI-PURPOSE TURF FIELDS AT PLEASANT PARK IN THE TOWN OF APEX.

2.1 Demand Analysis, Project Effectiveness, & Hospitality Tax Capital Investment Need

The first and most urgent needs addressed by the new park facility are the numbers of Wake County and Town of Apex citizens on waitlists for participation in athletics programs. Both youth and adult athletic programs in Apex are extremely popular and with the Town experiencing rapid population growth, the Town has simply not been able to keep up with demand. In 2022, more than 1,000 total participants signed up for a youth sport waiting list and were not able to play because the league was at capacity. This does not account for the many others who did not sign up because the waiting list was so long.

Waiting Lists	*Players on Waiting Lists*	*Leagues with Waiting Lists*
2018	346	75%
2019	454	78%
*2020**	*88*	*N/A*
2021	522	86%
2022	**1,001**	**96%**

**Majority of leagues cancelled due to Covid-19*

The Town anticipates that the addition of synthetic turf baseball/ softball fields associated with Phase II (including the field capacity as well as lighted fields allowing longer hours of operation) will significantly reduce the number of citizens currently on these waiting lists. In addition to individual waiting lists, numerous Apex community groups and non-profits, including public and private schools, are on waiting lists for season-long rentals of field space, and would be able to able to host more events when the facility is complete. In the past year, approximately **3,000 hours of field space was rented to more than 30 outside groups** (not including one-time rentals by individuals). Fields are now almost completely booked by the Town's programs, group rentals, and space reserved for open play, meaning rental requests and revenue opportunities are being turned away regularly.

FIGURE 6: SIGNATURE FIELD AND FIELDHOUSE WITH 5 ADDDITIONAL MULTI-PURPOSE FIELDS FOR PLEASANT PARK IN THE TOWN OF APEX

Phase II development will ensure that all citizens are able to access high-quality recreational programming despite the rapid growth in south-central Apex and southwestern Wake County generally. In addition to addressing unmet needs for recreation programs, the complex also provides a community destination for wellness and outdoor activities, including the Town's first 5k trail and a variety of unique facilities such as 6 pickleball courts, the Enchanted Forest- a 1.5+ acre multi-age universal playground with Splashlantis water play park and Sticks & Stones nature play with a sensory garden, and environmental education. **Pleasant Park also addresses the Apex Town Council's goal of increasing economic impact related to recreation, tourism, and convention visitors.**

FIGURE 7: CONSTRUCTION OF SPLASHLANTIS WATER PLAY PARK FOR PLEASANT PARK IN THE TOWN OF APEX.

Wake County Hospitality Tax Small Capital Projects Funding is critical to ensure the full economic impact of the project is reached and the Town is able to provide all of the planned amenities in the full project design. While the Town has committed significant resources to Pleasant Park, funding from the Park Bond and other Town sources alone is not sufficient to cover the entire cost of completing the project. Without additional funding for the synthetic turf baseball/ softball fields and associated plaza and fieldhouse the Town and County will miss out on the opportunity of being able to provide a year-round venue that is not offered anywhere else in the region.

FIGURE 8: AREA OF FUTURE BASEBALL/ SOFTBALL COMPLEX (PHASE 2) FOR PLEASANT PARK IN THE TOWN OF APEX.

2.2 Collaboration & Partnerships

The Town has an established record of facilitating collaboration with community athletic and wellness groups and established sports leagues in its existing facilities. The park project was developed as part of the 2014 Master Plan, which involved over eight months of outreach and engagement with Apex citizens as well as strong collaboration with neighboring municipal and county agencies working to implement a larger regional vision for recreation, special/ cultural events and festivals in the Triangle.

This application includes letters of endorsement and support from Team 91 Lacrosse, Pony Softball, West Raleigh Baseball, Wake Futbol Club, North Carolina Football Club, high school cross country coaches, Citizens for Apex Parks, the Apex Festival Commission, and Apex Chamber of Commerce which are just a few of the many groups that staff regularly works with and that utilize and support our facilities and program offerings.(see Section 8.2).

FIGURE 9: ENCHANTED FOREST, MAINTENANCE FACILITY, SIGNATURE FIELDHOUSE AND FIELD FOR PLEASANT PARK IN THE TOWN OF APEX.

The Town anticipates that the facility will be utilized by various community and recreational leagues as well as established athletic programs. In addition, the facility will be available to teams from Wake County public and private schools as a closely-located facility for use in the growing region of southwestern Wake County.

2.3 Evaluating Success

The Town remains committed to its transparency and responsible stewardship principles throughout all departments, and the APRCR Department remains committed to evaluating its programs and projects to ensure the best possible facilities and programs for Apex residents.

GOAL	EVALUATION METHOD	EVALUATION FREQUENCY
Increase capacity of youth and adult athletics by at least 25% in first three years to reduce existing waiting lists as much as possible.	Track participation numbers	Seasonally
Increase wellness and recreational activities by Apex residents and non-Apex residents by welcoming at least 200,000 visitors to Splashlantis and the Enchanted Forest playground areas each year.	Ticket/fee sales, usage reports	Annually
Increase economic impact of athletic tournament events in Apex by at least $4 million in each of the first three years, hosting at least 10 multi-day or weekend tournaments each year.	Visitor & participant tracking; ROI formula from Wake County	Annually for three years
Evaluate financial sustainability and management and operations costs	Formal budgeting process	Annually
Evaluate staff, programming, and resident satisfaction in accordance with Town & Department policies	Surveys, staff retreats, Council feedback	Annually

2.4 Consistency with Room Occupancy & Prepared Food/Beverage Operating Principles & Destination Strategic Plan

The Town of Apex fully supports the Wake County Room Occupancy and Prepared Food & Beverage Operating Principles established in 2017 and incorporates these principles into its plans for Pleasant Park. The park is a fully compliant, accountable, and viable solution to the important goals of:

- prioritizing the use of funds for projects that drive measurable, regular overnight visitation or positive return on investment (ROI);
- ensuring that project investments are secured by solid long-term plans, both operational and financial, that demonstrate viability and sustainability;
- support investments that complement economic development efforts and enhance quality of life experiences for visitors, newcomers, and long-time residents;
- create sports, arts and cultural opportunities through leveraging community investments and partnerships that benefit residents and enhance tourism offerings;
- engaging stakeholders representing varying entities, jurisdictions, and uses;
- supporting investments that consider emerging arts, sports, and cultural experiences and unmet needs;
- providing quality services and programs for citizens in a fair and equitable manner, particularly by meeting the significant unmet needs in Apex due to rapid growth & development;
- supporting investments that are current, relative, and market-competitive; and
- developing facilities that are aligned with overall Wake County tourism and economic development goals.

The project is also consistent with the Destination Strategic Plan, helping further priorities of focus for Wake County to grow tourism, including sports, events, destination development, and quality of place. In particular, this project most closely aligns with the sports priority focus of developing the needed inventory to include additional fields and courts to elevate the county as a competitive sports tourism destination by developing additional fields with the capability of hosting competitive and recreational sporting events. But in close order, developing a quality of place in the County through the design and implementation of the Enchanted Forest with themed play villages for visitors of all ages and abilities along with creating multi-functional adaptable spaces for cultural and special events and festivals.

3.0 Project Budget

3.1 Funded and Unfunded Phases Budget

	Phase Funded and Contracted for Construction	Unfunded Phases - Construction Pending Funding	Total
DESIGN & PERMITTING	$2,000,000.00	$180,000.00	$2,180,000.00
CONSTRUCTION ADMINISTRATION, BONDS & INSURANCE	$5,750,000.00	$750,000.00	$6,500,000.00
OVERALL SITE CLEARING, GRADING & EROSION CONTROL	$6,750,000.00		$6,750,000.00
RETAINING WALLS	$700,000.00		$700,000.00
SITE PAVING & SIDEWALKS	$2,950,000.00		$2,950,000.00
WATER & SEWER DISTRIBUTION	$2,100,000.00		$2,100,000.00
STORM DRAINAGE	$675,000.00		$675,000.00
PLAY EQUIPEMENT / SITE FURNISHINGS / SPLASH PAD	$2,700,000.00		$2,700,000.00
LANDSCAPING & GRASSING	$3,250,000.00	$250,000.00	
BRIDGES (ROADWAY, AMENITY AREA & CROSS COUNTRY)	$1,050,000.00		$1,050,000.00
SOCCER / LACROSSE / MP ARTIFICAL TURF FIELDS & FENCING	$4,200,000.00		$4,200,000.00
TENNIS / PICKLEBALL & BASKETBALL COURTS	$550,000.00		$550,000.00
MAIN FIELD HOUSE / MAINTENANCE BLDGE / PICNIC SHELTERS 2 & 3	$4,350,000.00		$4,350,000.00
SITE LIGHTING & UTILITY RELOCATIONS	$2,500,000.00	$1,200,000.00	
CROSS COUNTRY TRAIL GRADING AND SURFACING	$325,000.00	$200,000.00	$525,000.00
BASEBALL/ SOFTBALL ARTIFICIAL TURF FIELDS & FENCING		$3,200,000.00	$3,200,000.00
BASEBALL/SOFTBALL FIELD HOUSE & PLAZA AREA WITH FF&E		$1,400,000.00	$1,400,000.00
PICNIC SHELTER 1		$800,000.00	$800,000.00
OFF-SITE ROADWAY IMPROVEMENTS	$1,900,000.00	$350,000.00	$2,250,000.00
SUB TOTAL	**$41,750,000.00**	**$8,330,000.00**	**$50,080,000.00**
CONTINGENCY	$200,000.00	$1,666,000.00	$1,866,000.00
TOTAL	**$41,950,000.00**	**$9,996,000.00**	**$51,946,000.00**

***Unfunded Phase Budgets were formed based on preliminary cost estimates and are subject to change during the design and bid phase.**

Investment Ratios: While we anticipate that most of the Town's funding responsibilities will come from public sources, including the general obligation bond, the Town does plan to actively pursue funding opportunities through partnerships and sponsors and have been developing a marketing and partnership program (See Section 8.6).

3.2 Impact on Existing Infrastructure

Water and Sewer: The project has extended water service from the main service lines across South Salem Street at Pleasant Plains Road to the park. These extensions enable future water service extension into residential areas currently served by wells and also to undeveloped non-residential property adjacent to the site. All future connections will be managed by the Town in accordance with Town policies for redevelopment or well failures. The Town has ample water and sewer treatment capacity reserves and the project will not materially reduce these reserves. Sewer will be provided via on-site pump station. The water main extensions and this pump station will allow an adjoining commercial property that is currently unserved to develop, allowing for opportunities such as hotels and restaurants to be constructed at the adjoining NC540 interchange.

Greenways, Roads, and Schools: The full project will include over four miles of walking trails, multi-purpose paths, and sidewalks which are included in Phase I. The project includes significant on-site and off-site improvements to mitigate any traffic congestion created by the park project. While most park traffic will not coincide with typical peak traffic times, large event traffic will demand these improvements.

The project is solely recreational in nature and thereby will not add any additional burden on the Wake County Public School System (WCPSS). All of the proposed athletic fields will be constructed with synthetic turf. This will allow local WCPSS Athletic Directors to lease the fields during times when the fields are not typically in use. This opportunity has been utilized on other local facilities in the past during school turf renovation projects or periods of extended wet weather to reduce the burden and wear on the natural surface fields at most public-school facilities. This availability will reduce school field maintenance costs.

FIGURE 10/11/12: PEDESTRIAN BRIDGES AND BOARDWALKS ALONG CROSS COUNTRY TRAIL FOR PLEASANT PARK IN THE TOWN OF APEX

4.0 Project Timeline

PROJECT ACTION	START DATE	END DATE
STUDY AND ANALYSIS OF PROJECT	2016	Completed in 2017
SITE IDENTIFICATION	2016	Completed in 2017
PRELIMINARY COST ESTIMATES	2016	Completed in 2016
PARKS BOND APPROVAL	June 2016	Completed in 2017
MASTER PLAN APPROVAL	2017	Completed in 2017
LAND ACQUISITION	2017	Completed in 2017
BEGIN GRANT & FUNDRAISING EFFORTS	December 2017	Completed in 2022
REVISED COST ESTIMATES	2016	Completed in 2020
CONTRACTS FOR CONSTRUCTION & ADMINISTRATION	April 2018	Completed in 2022
ARCHITECTURAL & ENGINEERING STUDIES	2016	Completed in 2018
MAJOR SITE PLAN APPROVAL	2017	Completed in 2018
PERMITS OBTAINED	2018	Completed in 2018
PHASE I: INFRASTRUCTURE, GRADING, PAVING	2018	Spring 2023
PHASE I: FACILITY & AMENITIES	February 2020	Spring 2023
PHASE I: EQUIPMENT PURCHASE	February 2020	Spring 2023
PHASE II: BASEBALL/SOFTBALL FIELDS/FIELD HOUSE/PICNIC AREA/WALKING/RUNNING TRACK	July 2024	June 2026

5.0 Project Operating, Maintenance and Marketing Plan

The Pleasant Park project was developed as part of the Town's Master Planning process, which involved over eight months of meetings, surveys, and interviews to allow as much citizen involvement as possible. The park plan reflects the Town's commitment to excellence in recreational programming and amenities and follows the Town's existing marketing, operations, management, and finance best practices.

The operating cost of the facility was included within the Department's overall operating budget for facility construction, maintenance, and operations. The facility's initial funding is significantly supported by the 2017 Parks Bond and grant support, and as such the Department expects the primary expenses to be operations and programming staff and equipment. This will be mostly offset by registration fees and programming costs along with tournament and special event revenue by the third year of operation. The full Town budget can be found at www.apexnc.org/budget.

The Town is projecting a 6% increase in General Fund revenues over the prior fiscal year due primarily to the expanding tax base from new development and annexations, increased sales tax distributions, and development related fees.

FIGURE 13/14: PLAY VILLAGE IN THEENCHANTED FOREST FOR PLEASANT PARK IN THE TOWN OF APEX

5.1 Operations, Maintenance, and Marketing

The Pleasant Park facility will be managed within the Town budget for Parks, Recreation, and Cultural Resources, as are all greenway and park facilities. The APRCR Department has exceeded projected revenues and underspent projected expenses in each of the past ten years.

The Town will continue to provide maintenance and programming services for this facility, just as it has always done for its other amenities. The marketing for the facility will follow Department guidelines for existing facilities, as well as outreach and marketing principles utilized by the Department for existing tournaments and special events. The project is expected to become fully self-sustaining through program fees, tournament fees, and a minor outlay of Departmental funds as is consistent with other Town recreational amenities.

As part of the Pleasant Park marketing effort, the APRCR Department has developed a sponsorship package showcasing specific geographical areas that are available for naming rights and other partnerships opportunities. Designed with a strong emphasis on promoting the amenity and big-ticket areas, the package features compelling imagery of the unique elements that make up Pleasant Park, with 3D renderings, sketches, and inspirational photos that allow the reader to visualize the park in greater detail. In addition, the marketing materials also feature distinct facts about particular areas of Pleasant Park and the impact that this facility will have on the community. Once complete, the materials will be distributed to generate sponsorships and promote the park.

FIGURE 15: SIGNATURE FIELDHOUSE FOR PLEASANT PARK IN THE TOWN OF APEX

5.2 Operating Budget & Financial Results

See Attachment 8.3 for a copy of the Town of Apex W-9 Request for Taxpayer Identification Number and Certification and a copy of the 2018-2019 audit and management letter. The Town's Comprehensive Annual Financial Report (CAFR) is available at www.apexnc.org/finance and demonstrates the Town's success with moderate long-term debt and growth strategies for large projects. The Town of Apex has been awarded a Certificate of Achievement for Excellence in Financial Reporting for 24 consecutive years from the Government Finance Officers Association of the United States and Canada (GFOA). The Town also received its first GFOA Distinguished Budget Presentation Award last year.

FIGURE 16: SIGNATURE FIELD AND 3 ADDDITIONAL MULTI-PURPOSE FIELDS FOR PLEASANT PARK IN THE TOWN OF APEX

6.0 Project Visitor Estimates, Return on Investment and Performance Targets

Phase II includes the development of a four-field youth and adult baseball and softball complex with plazas, fieldhouse, maintenance storage facility, and 250 capacity picnic shelter with restrooms and storage. Phase II improvements will be used by Apex Parks, Recreational, and Cultural Resources leagues, as well as local schools and community groups. The synthetic turf fields will primarily be used by soccer, lacrosse, baseball, and softball teams in the region. Some of the athletic organizations that already use Town of Apex fields include Wake Futbol Club, North Carolina Football Club, Carolina Velocity Soccer Club, Jordan Lake Football Club, Trinity Soccer Academy, True Lacrosse, Team 91 Lacrosse, Red Devil Lacrosse, West Raleigh Baseball, and schools from the North Carolina High School Athletic Association and North Carolina Independent School Athletic Association. All of these organizations have expressed interest in partnering with the Town to host major tournaments and events at Pleasant Park.

The following chart details the projected visitor estimates for Pleasant Park:

	Regular Season Wake County Resident Visits	***Regular Season Non- County Resident Visits***	***Special Events Wake County Residents***	***Special Events Day Visitors****	***Special Events Overnight Visitors***	***Totals***
Annual Visitor Estimates:						
Apex Parks and Rec Programs	100,000	1,000				101,000
Lacrosse Programs	15,000	2,500	4,608	4,608	5,896	32,612
Youth Soccer Programs	25,000	1,000	6,800	6,800	41,449	81,049
Baseball/Softball Groups	10,000	1,000	2,083	2,083	7,974	23,140
Additional Community/School Rentals	15,000	1,000				16,000
Cross Country/5K Races	2,000	200	800	1,600	1,600	6,200
Amenity Visitors -Peak Season	525,000	52,500				577,500
Amenity Visitors - Off Season	225,000	22,500				247,500
Splash Pad	135,000	135,000				270,000
Tennis Courts	12,000	1,000				13,000
Basketball, Pickleball, Sand Volleyball	20,000	5,000				25,000
Athletic Field (Drop In)	10,000	1,000				11,000
Totals	1,094,000	223,700	14,291	15,091	56,919	1,404,001

* These visitors will come for a multi-day event but are close enough they will not stay overnight. See note in PHII calc chart.

Many of the community groups that will use these facilities are currently using facilities outside of the Town to meet their participation needs, going as far away as Fayetteville to host programs for Wake County residents. Pleasant Park will allow many of those existing programs (in addition to the new programs noted above) to be relocated back to Wake County.

Results from Visitor Estimates & County Return on Investment Worksheet

Phase II Calculations: Pleasant Park			
Estimated Wake County Residential Visitors (annual)	1,108,291	--	--
Estimated Day Visitors (annual total) special event day visits 15091 for 2 days	253,882	$21.00 daily meal rate	$5,331,522.00
Estimated Overnight Visitors (annual): 57,919 for two nights	113,838	$35.00 daily meal rate	$4,054,330.00
Estimated Overnight Visitors (annual): 57, 919 for two-day events (x 2 nights) = 115,838	115,838 ÷ 2.7 party size	$117 room rate	$5,019,646.67
Total Direct Spending	--	--	**$14,405498.67**
Total Food & Beverage Tax Revenue (annually)		(1% Food & Beverage Tax)	$93,858.52
Total Occupancy Tax Revenue (annually)		(6% Occupancy Tax)	$301,178.80
Total Taxes Collected Annually			**$395,037.32**
Grant Request Total			$3,500,000
÷ $395,037.32 (total annual tax revenue)			**ROI: 8.8 years**

ASSUMPTIONS & CALCULATIONS:

Calculations for these estimates are based on usage at other Town of Apex parks and from the Apex Parks and Recreation programs, revenues, and visitor count at neighboring municipal parks in Wake County, and estimates provided partnering organizations and the Greater Raleigh Sports Alliance.

The following highlights the assumptions made for each of the visitor estimate categories:

Apex Parks and Recreation Programs: Based on the number of participants and visitors per season for each sport: youth soccer (2,000 participants X 24 visits per season = 48,000 visits), adult soccer (500 participants X 16 visits per season = 8,000 visits), youth lacrosse (100 participants X 16 visits per season = 1,600 visits), youth softball (500 participants X 24 visits per season = 12,000 visits), adult softball (1,200 participants X 22 visits per season = 26,400 visits), and summer camps (800 participants X 5 visits per season = 4,000 visits).

Lacrosse Community Programs: Regular Season residents (50 visitors per rental X 300 total group rentals = 15,000 Wake County residents); Special Event visitors assumes four lacrosse events and uses data provided by the Greater Raleigh Sports Alliance for average total visitors and overnight visitors per event (9,216 visitors per event / 5,896 overnight visitors per event/ 3,320 day visitors x2 days per event).

Youth Soccer Programs: Regular Season residents (50 visitors per rental X 500 total group rentals = 25,000 Wake County residents); Special Events visitors assumes eight total soccer events and uses data provided by the Greater Raleigh Sports Alliance for average total visitors and overnight visitors per event (6,800 attendees per event/ 4,149 overnight visitors per event/ 2,651 day visitors x2 days per event).

Baseball/Softball Groups: Regular Season residents (100 visits per rental X 100 group rentals = 10,000 visits); Special Events visitors assumes eight baseball/softball events and uses data provided by the Greater Raleigh Sports Alliance for average total visitors and overnight visitors per event. (Baseball = 5,000 visitors

per event/ 3,588 overnight visitors per event/ 1,412 day visitors x2 days per event) (Softball = 6,000 visitors per event/ 4,386 overnight visitors per event/ 1,614 days visitors x2 days per event)

Additional Community/School Rentals: Other sports at 60 visitors per rental with 100 total group rentals for a total of 6,000 visits and school practices and games at 10,000 visits (100 visitors per rental X 100 group rentals).

Cross Country/5K Races Special Events: 4 events with 100 residents per event, 200-day visitors per event, and 200 overnight visitors per event for a total of 2,000 visits.

For the splash pad, visitors will vary depending on the time of year, with Memorial Day-Labor Day considered the peak visiting months. The Town anticipates 3,000 local visitors per day at peak times, based on 15-minute cycles with four cycles per hour and eight hours per day of facility operation. Based on a 90-day period, an estimated 270,000 visits will occur, with about half residents and half non-residents based on other municipal usage records.

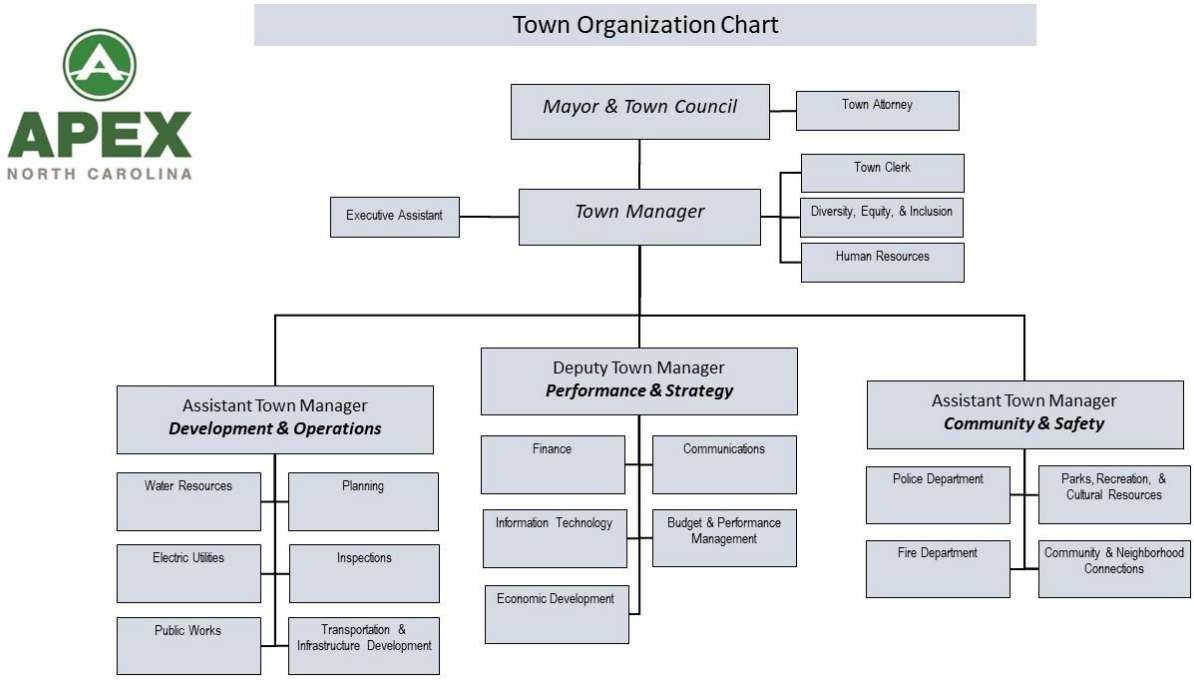
For the playground areas, visitors are expected to vary between peak season and off-season visits. The Town estimates 2,500 local visitors per day from April-October, and 1,500 visitors per day from November-March. This results in 525,000 peak-season visitors and 225,000 off-season visitors annually.

FIGURE 17/18: PLAY VILLAGES IN THE ENCHANTED FOREST FOR PLEASANT PARK IN THE TOWN OF APEX

7.0 Organizational Information

7.1 Organization History & Background

The Town of Apex, incorporated in 1873, is governed by a five-member Town Council and Mayor. Jacques Gilbert serves as the Mayor and the Mayor Pro Tem is Audra Killingsworth. Council Members include Terry Mahaffey, Ed Gray, Arno Zegerman, and Brett Gantt. Nonpartisan elections are held in odd years and conducted by the Wake County Board of Elections. Municipal operations are overseen by Catherine Crosby, Town Manager, Shawn Purvis, Deputy Town Manager, and Marty Stone and Demetria John, Assistant Town Manager(s).



The Town of Apex, located in the southwestern corner of Wake County, has seen tremendous population growth since its first ranking on the Money Magazine Best Places to Live in 2007 (at number 14). It was named the #1 Best Place to Live in 2015.

The Parks, Recreation, and Cultural Resources Department, led by Director Craig Setzer, is a part of the newly created Community and Safety Division of the Town. This Division was created to be a leader in meeting and providing services to Apex residents. In 2017, working with Apex residents' groups, area nonprofits, and other Town staff, the department prepared a Parks Bond that was passed with a 76% approval rate. The bond, which institutes a property tax increase to provide up to $48 million in parks and recreation amenities funding, is to be utilized for four specific projects identified by Apex residents: Beaver Creek Greenway (Project is awaiting NCDOT approval for bid advertisement), Middle Creek Greenway (Town will open bids for this project January 31, 2023), Community Center Expansion/Senior Center (This project is complete and open.), and Pleasant Park (Phase I of the project will be complete in Spring of 2023, and Phase II is expected to be complete in June 2026).

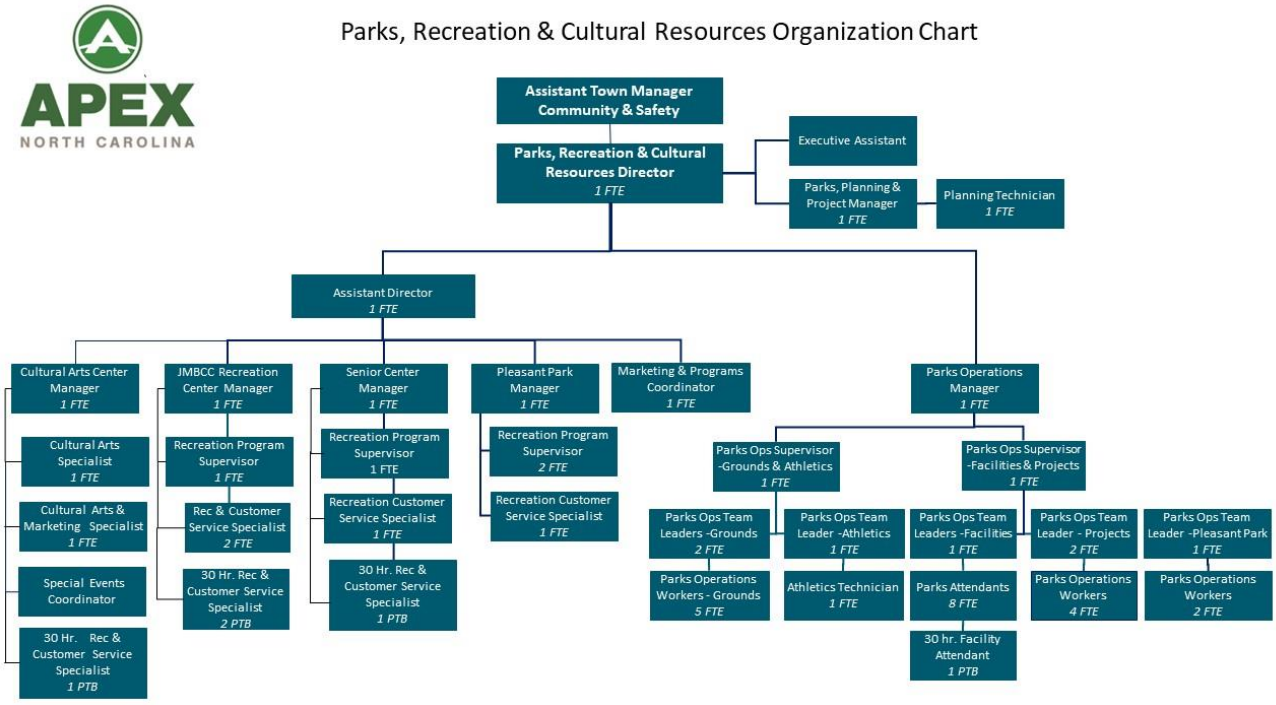
FIGURE 19: PLAY VILLAGES IN THE ENCHANTED FOREST FOR PLEASANT PARK IN THE TOWN OF APEX

The Parks Bond initiative was one of several commitments made by the Town Council over the past several years to increase the number and variety of parks and recreation amenities, and the Pleasant Park project was approved by the Board in the Apex Parks, Recreation, Greenways and Open Space Master Plan.

See Attachment 8.4 for certification that there are no conflicts of interest or pending litigation that would impact this project.

7.2 Proposal Team Experience & Similar Projects

The Town of Apex, along with its contracted firms, has years of experience successfully conducting similar Projects in the fields of parks, recreation, and cultural resources.



Craig Setzer, Director: Town of Apex Parks, Recreation and Cultural Resources *Bachelor of Recreation Management/Concentration in Parks and Recreation from Appalachian State University* Mr. Setzer has over 20 years of experience in municipal parks & recreation. 2 years of his experience has been in his current position as Director. He currently oversees 46 full time team members, 500 acres of parkland, over 20 miles of public greenway and 20 different sites for public recreation. Prior to that he served as the Park Operations Manager for 7 years. His duties included maintenance management of approximately 406 acres of parks, 4 school parks and an estimated 10 miles of greenways. He has experience assisting with the design of several parks and their facilities including the Apex Nature Park, Salem Pond Park, Hunter Street Park and Seagroves Farm Park. He also has played an integral role in the artificial turf renovation of the soccer fields at Hunter St. and the Apex Nature Park. Prior to becoming the Parks Operations Manager Mr. Setzer's primary duties were in athletic programming. Mr. Setzer was responsible for running numerous youth and adult athletic leagues and tournaments. He has been involved in administering traditional sports, such as soccer, baseball, basketball and softball, as well as nontraditional sports, such as dodgeball. While programming, he successfully increased participation numbers in each of the leagues and events he was involved with. He was also heavily involved in the rentals/reservations of all athletic fields/facilities. Mr. Setzer also has experience managing a recreational facility. Mr. Setzer managed a recreation facility including racquetball courts, a gymnasium, classrooms, playground and a pool. His responsibilities included programming, scheduling maintenance, administering the budget and supervision of employees. Mr. Setzer completed the National Recreation and Park Association Director's School, and has completed the Park Maintenance Management School through the National Recreation and Park Association. He is currently a member of the North Carolina Parks Association.

David Wood, Assistant Director: Town of Apex Parks, Recreation and Cultural Resources *Bachelor of Science in Parks, Recreation and Tourism from Virginia Commonwealth University. Master of Science, Parks and Recreation Administration, Arizona State University.* Mr. Wood has over 34 years of experience in State, national, and municipal parks & recreation. In 2022 he was hired to his current position as Director. He currently supervises the Halle Cultural Arts Center Manger, John M Brown Community Center Manger, Pleasant Park Manger and the Department's Marketing Specialist. Prior to that he served as the Cultural Arts Center Manager for 15 years, and Community Center Manger for 9 years. His duties included supervisory work overseeing facility operations and staffing of the Halle Cultural Arts Center providing a diverse range of cultural arts, both performance and visual arts for all segments of the community. In this role, Apex has hosted over 100 special events, public art programs to include a variety of murals and sculpture pieces throughout Apex. Mr. Wood has experience managing environmental education programs at the State level developing curriculum for 20 different State Parks in Arizona to be used in pre, on-site and post classroom activities that covered core competencies for 5th grade curriculum. He also managed the oversight and award of over $10,000,000 in grant funds annually while working for Arizona State Park through the Federal Land and Water Conservation Funds. Mr. Wood was Adjutant Faculty Member at Arizona State University teaching a variety of classes in the Parks and Recreation Administration program. Additionally, Mr. Wood currently serves in the North Carolina Air National Guard where he is the Intelligence Superintendent. Serving for 29 years, Mr. Wood has deployed numerous times managing the NC Air National Guard Intelligence Operations squadron. He compiles, segregates, evaluates, researches, interprets, analyzes, and disseminates intelligence information in support combat and peacetime operations. He established intelligence collection requirements, conducted intelligence training and prepared mission reports for over 500 missions during his Air Force service.

Angela Reincke, Parks Planning Project Manager: Town of Apex Parks, Recreation & Cultural Resources
Bachelor of Science in Landscape Architecture from Purdue University
Ms. Reincke has 25 years of experience in Public Planning with an emphasis in Parks and Greenways. With the gold medal awarded Arlington Heights Park District, IL she led the design and development of the 50 plus acre Lake Arlington (2.5 miles of greenway, playgrounds, and educational/boating camp facility), the 56-acre, 9-hole, par 3, Nickols Knoll Golf Course on a Village leased landfill and development of Melas Sports Complex, leased from the Metropolitan Sanitary District through the Village of Mount Prospect. With James Martin and Associates, she was awarded the Daniel Flaherty Award for Park Excellence for the North School Park project. In addition to planning experience with Palm Beach County and the Town of Cary, Ms. Reincke has also provided insight for Wake County

Greenway Systems Plan in which over 70% of survey responses were provided from Apex residents. She also was on Wake Counties Master Plan project consultant selection team. In addition to the Pleasant Park project, the Town of Apex's Park, Recreation and Cultural Resources Department is currently in the design and development of 3 major greenway corridors (White Oak Creek, Beaver Creek, and Middle Creek). There are also 19 developer constructed greenway segments and several other smaller Town managed greenway connector projects in the works. The Town was recently awarded an LWCF grant for the Salem Pond Park project which includes a universal playground with environmental and historical education components. Ms. Reincke has been an active contributor of the Apex Community and the Triangle region as a 15-year member and Chair of the Apex Parks, Recreation and Cultural Resources Advisory Commission, past President of Citizen's for Apex Parks securing funding for the construction of Kidstowne Playground ($150,000), renovation of the Halle Cultural Arts Center ($1M) and the development of the Rodgers Family Skate Plaza at Trackside ($300,000). Other notable positions include TBJ's 40 under 40 (2007), Triangle Reality Check, Member of the Western Area Plan Advisory Commission, and Advisor on the Durham Submittal Process Review.

Patrick Fitzsimons, Pleasant Park Manager: Town of Apex Parks, Recreation & Cultural Resources

Bachelor of Arts in Economics from Amherst College

Master of Arts in Parks, Recreation & Tourism Management from NC State University

Mr. Fitzsimons has over 14 years of experience in municipal parks & recreation. In 2022, he was promoted to Pleasant Park Manager. In this position, he will be responsible for the daily operation of the park. He will coordinate large athletic tournaments and special events, oversee the opening of the Town's first splash pad, and work with Parks staff to operate and maintain all elements of the park. Mr. Fitzsimons also manages all aspects of the Town's athletic programs. He supervises a staff of 2 full-time athletic programmers and 1 full-time customer service representative, in addition to more than a hundred part-time scorekeepers, officials, and other staff and volunteer positions. Mr. Fitzsimons works with numerous athletic associations, schools, travel teams, and other groups that reserve town fields. Prior to assuming the role of Park Manager, Mr. Fitzsimons spent several years in athletic programming, running a wide variety of youth and adult athletic leagues and tournaments. He has been involved in coordinating traditional sports, such as soccer, baseball and softball, as well as alternative sports, such as lacrosse, ultimate Frisbee, and flag football. He has successfully increased participation numbers and expanded age groups in each of the leagues and events he has been involved with. He has also created new programs to meet changing trends and increasing demand from a growing population. Mr. Fitzsimons also has prior experience managing large athletic complexes, as well as maintaining facility schedules for fields and gyms throughout the Town. He has served as tournament director for a variety of large-scale tournaments and coordinated many different special events. Mr. Fitzsimons has also been involved in advancing the profession through his work with the North Carolina Recreation & Park Association (NCRPA). He has served as chair of various committees, where he has led educational sessions and helped fundraise for the Association.

Brian Barnes, Parks Operations Manager: Town of Apex Parks, Recreation and Cultural Resources Mr. Barnes has over 19 years of experience in municipal parks & recreation, 15 of which have been with Parks Operations for the Town of Apex. Mr. Barnes has progressed through all levels of positions in the Park operations division starting as an Operations Worker in 2008. The last 2 years of his experience have been in his current position as Parks Operations Manager. His duties include maintenance management of approximately 610 acres of parks, 4 school parks and over 20 miles of greenways. Utilizing a staff of 30 full time employees and 6-10 LSE employees the Park Operations division cares for 15 basketball courts, 13 tennis courts, 12 Jr tennis / pickleball courts, 13 baseball/softball fields, 8 natural turf fields, 4 synthetic turf fields, 12 play grounds, 11 picnic shelters, 11 restroom facilities, Rodgers family Skate Plaza, Elevate Fitness Course, 2 dog parks, disc golf course, 4 miles of natural trail, John M Brown Community Center, Apex Senior Center and the Halle Cultural Art Center. Mr. Barnes is currently a certified playground inspector and Certified Aquatic Facility Operator.

WithersRavenel is under contract to the Town of Apex for design and engineering services for Pleasant Park. WithersRavenel is a full-service civil and environmental engineering firm, based locally in Cary, with a long history of successful projects in the Triangle region and statewide, particularly with local and state government partners.

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Katie Schwing, Senior Planner – Long Range Transit

Department(s): Planning

Requested Motion

Motion to approve an Amendment to the American with Disabilities Act (ADA) Paratransit Services Agreement and Renewal No. 2 with Wake County, effective July 1, 2024 through June 30 2025, and to authorize the Town Manager, or their designee, to execute on behalf of the Town.

Approval Recommended?

Yes

Item Details

The ADA Paratransit Service Agreement between Town of Apex and Wake County establishes the terms and responsibilities for the operation of the GoApex Route 1 complementary paratransit services, known as GoApex Door to Door. The main purpose of this proposed amendment is to renew the agreement for another year, as well as to update the maximum cost per trip to $75.18 per hour per trip.

This amendment also updates Attachment A, the GoApex Paratransit Policy including Appendices A, B, and D. These are the GoApex Route 1 map, the GoApex Door to Door Service Area map, and the GoApex Door to Door application form, respectively. The two maps are updated based on the professional maps used in the GoApex Ride Guides for the upcoming service change effective June 15th.

Attachments

- CN2-A1: Amendment to Renewal of the ADA Paratransit Services Agreement No. 2
- CN2-A2: Amendment to Renewal of ADA Paratransit Services Agreement No. 1 (CONT-2023-142)
- CN2-A3: Attachment A: GoApex ADA Paratransit Policy
- CN2-A4: Attachment B: Wake County Complaints and Appeals Policy

STATE OF NORTH CAROLINA

COUNTY OF WAKE

ADA PARATRANSIT SERVICES AGREEMENT AMENDMENT AND RENEWAL #2

This ADA Paratransit Services Agreement Amendment and Renewal #2 (the, or this **"Renewal #2"**) is made and entered into this ___ day of _____, 2024 by and between the Town of Apex, a municipal corporation of the State of North Carolina ("**Town**"), and Wake County, a political subdivision of the State of North Carolina ("**County**"). Town and County may hereinafter be referred to collectively as the "**Parties.**"

W I T N E S S E T H

WHEREAS, the Town and County entered into an agreement entitled, "ADA Paratransit Services Agreement" on or about July 1st, 2022 (the **"Agreement"**) in which the County agreed to serve as the general Americans with Disabilities Act paratransit operator for the Town in accordance with the GoApex Paratransit Policy; and

WHEREAS, the Parties entered into an ADA Paratransit Services Agreement Amendment and Renewal (hereinafter "Renewal #1") on July 1, 2023 which amended and renewed the Agreement; and

WHEREAS, the Parties desire to again renew the Agreement in accordance with its terms as well as update certain provisions of the Agreement to address the increase in costs of paratransit trips and to make minor adjustments to the attachments incorporated into the Agreement as the need arises; and

WHEREAS, both Parties wish to memorialize the same through this Renewal #2 and amend certain provisions of the Agreement.

NOW, THEREFORE, in consideration of the foregoing, the Parties do hereby agree to renew and amend the Agreement as follows:

1. Record Keeping, Reporting and Reimbursements. Section 3 of the Agreement, entitled "Record Keeping, Reporting and Reimbursements," subsection "B" is hereby amended to read as follows:

B. The invoice will include the actual cost of each trip plus the portion of the annual fee prorated for each month. The cost of each paratransit trip will be adjusted to account for the number of passengers and the number of funding sources contributing to the cost of the entire trip, as this is a shared ride service. In no event shall the cost attributed to the Town exceed $75.18 per hour per trip. The County will include trip cost details in the monthly invoice. The annual overhead fee shall include:

- $5,000 for annual overhead to Wake County.

- $10,400 annual overhead to GoWake Access for the processing of applications.
- $3,660 for the cost of a part-time employee to accept trip reservations on Sunday and holidays.
- $1,200 for the first year of service only for training.

The total annual overhead cost for the first year of Service shall be $20,260 or $1,688.33 per month. The total annual overhead cost for subsequent years of Service shall be $19,060, or $1,588.33 per month.

2. Appendices. Attachment A, including all appendices of Attachment A, are hereby amended as shown in the attached which are hereby incorporated into this Renewal #2.

3. Renewal. In accordance with Section 20 of the Agreement, the Parties hereby agree to renew the Agreement, as amended, for one year beginning July 1, 2024 and ending June 30, 2025, unless further renewed in accordance with the Agreement.

4. Effective Date. This Renewal shall be effective upon execution by both Parties.

The Agreement and Renewal #1 are not otherwise modified except as provided herein.

IN WITNESS WHEREOF, the Parties have entered into this Renewal effective this ___ day of _____, 2024.

Wake County

By:_____
Wake County Manager or Designee

By: _____
Nannette M. Bowler, JD
Director, Wake County Health
& Human Services

The person responsible for monitoring Wake County contract performance requirements is Anita Davis-Haywood.
Department Head Initials: _____

By: _____
Annemarie Maiorano
Deputy Director of Operations
Wake County Health & Human Services

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Chief Finance Officer

Town of Apex

_____
Randal E. Vosburg, Town Manager

Attest:

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Antwan Morrison, Finance Director

CONT-2023-112

STATE OF NORTH CAROLINA

COUNTY OF WAKE

ADA PARATRANSIT SERVICES AGREEMENT AMENDMENT AND RENEWAL

This ADA Paratransit Services Agreement Amendment and Renewal (the, or this **"Renewal"**) is made and entered into this ___ day of _____, 2023 by and between the Town of Apex, a municipal corporation of the State of North Carolina ("**Town**"), and Wake County, a political subdivision of the State of North Carolina ("**County**"). Town and County may hereinafter be referred to collectively as the "**Parties.**"

W I T N E S S E T H

WHEREAS, the Town and County entered into an agreement entitled, "ADA Paratransit Services Agreement" on or about July 1st, 2022 (the **"Agreement"**) in which the County agreed to serve as the general Americans with Disabilities Act paratransit operator for the Town in accordance with the GoApex Paratransit Policy; and

WHEREAS, the Parties desire to renew the Agreement in accordance with its terms as well as update certain provisions of the Agreement to address the increase in costs of paratransit trips and to make minor adjustments to the attachments incorporated into the Agreement as the need arises; and

WHEREAS, both Parties wish to memorialize the same through this Renewal and amend certain provisions of the Agreement.

NOW, THEREFORE, in consideration of the foregoing, the Parties do hereby agree to renew and amend the Agreement as follows:

1. Record Keeping, Reporting and Reimbursements. Section 3 of the Agreement, entitled "Record Keeping, Reporting and Reimbursements," subsection "B" is hereby amended to read as follows:

B. The invoice will include the actual cost of each trip plus the portion of the annual fee prorated for each month. The cost of each paratransit trip will be adjusted to account for the number of passengers and the number of funding sources contributing to the cost of the entire trip, as this is a shared ride service. In no event shall the cost attributed to the Town exceed $60.00 per hour per trip. The County will include trip cost details in the monthly invoice. The annual overhead fee shall include:

- $5,000 for annual overhead to Wake County.
- $10,400 annual overhead to GoWake Access for the processing of applications.
- $3,660 for the cost of a part-time employee to accept trip reservations on Sunday and holidays.

- $1,200 for the first year of service only for training.

The total annual overhead cost for the first year of Service shall be $20,260 or $1,688.33 per month. The total annual overhead cost for subsequent years of Service shall be $19,060, or $1,588.33 per month.

2. Amendment. Section 10 of the Agreement, entitled "Amendment," is hereby amended to read as follows:

> "This Agreement and its attachments contain the full understanding of the Parties. Any extension, modification, or addendum to this Agreement must be in writing and executed with the same formality as this Agreement, except as otherwise provided herein.
>
> It is recognized that minor modifications of the attachments to the Agreement that do not impact the substance of the Agreement may be needed from time to time. Staff representatives of the Parties are permitted to update and amend the attachments to this Agreement with changes that are solely administrative in nature, in order to support the day-to-day implementation of the Agreement. The designated staff representative for the Town of Apex shall be the Director of Planning. The designated staff representative for Wake County shall be the Wake County Human Services Transportation Manager. These changes may include, but are not limited to: editing text for clarity, updating contact information when needed, updating processes that assist with staff's implementation of the Agreement, or other items not affecting the intent of the Agreement or agreed-upon costs. Proposed changes shall be made in writing and will go into effect upon agreement of staff representatives of both parties, and shall be accompanied by adequate communication to customers and interested parties. For the purpose of said writing, confirmation through electronic mail by the staff representatives shall be sufficient. This permission shall not apply to extensions, modifications, or addenda affecting the text or intent of the Agreement itself."

3. Appendices. Appendices A, B, and D are hereby amended as shown in the attached which are hereby incorporated into this Renewal.

4. Renewal. In accordance with Section 20 of the Agreement, the parties hereby agree to renew the Agreement for one year beginning July 1, 2023 and ending June 30, 2024, unless further renewed in accordance with the Agreement.

5. Effective Date. This Renewal shall be effective upon execution by both Parties.

The Agreement and Amendment #1 are not otherwise modified except as provided herein.

IN WITNESS WHEREOF, the Parties have entered into this Renewal effective this ___ day of _____, 2023.

Wake County

By:_____
Wake County Manager or Designee

By: _____
Nannette M. Bowler, JD
Director, Wake County Health
& Human Services

The person responsible for monitoring Wake County contract performance requirements is Anita Davis-Haywood.
Department Head Initials: _____

By: _____
Annemarie Maiorano
Deputy Director of Operations
Wake County Health & Human Services

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Chief Finance Officer

Town of Apex

_____
Catherine Crosby, Town Manager

Attest:

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Antwan Morrison, Finance Director

2024

Americans with Disabilities Act Paratransit Policy

Table of Contents

Introduction

The Americans with Disabilities Act of 1990 (ADA) requires that public entities that operate non-commuter fixed route transportation services also provide complementary Paratransit service for individuals whose disabilities make them unable to use the fixed route system. In addition, public entities subject to the ADA regulations must develop and administer a process for determining if individuals who request service meet the regulatory requirements for eligibility.

Essentially, the ADA requires that Paratransit service be "comparable" to the fixed route service in terms of service levels and availability. There are six (6) service criteria that are used to evaluate ADA Paratransit service comparability to the fixed route. These criteria only represent the minimum service standards and can be exceeded if the local governing body so chooses. The six (6) basic criteria for determining ADA comparability to fixed route service are as follows:

1. Availability in the same area served by the fixed route. Specifically, service must be made available to all origins and destinations within a width of ¾ of a mile on each side of each fixed route. This includes an area within ¾ miles radius at the end of each fixed route as well;
2. Available to any ADA Paratransit eligible persons at any requested time on any particular day in response to a request for service made the previous day;
3. ADA Paratransit fares that are no more than twice the fare that would be charged to an individual paying full fare for a trip of similar length, at a similar time of day on the fixed route system;
4. There can be no trip restrictions or priorities based on trip purpose;
5. Service must be made available to eligible persons on a next day basis; and
6. There can be no constraints on the amount of service that is provided to any eligible person. Specifically, there can be no operating practice that significantly limits the availability of service to ADA Paratransit eligible individuals.

ADA Paratransit service must be provided to all individuals who are unable, because of their disability, to use the fixed route system, some of the time or all of the time. The criteria for determining eligibility are also regulated by the ADA and the Town of Apex must have a documented process in place to determine if an individual qualifies for ADA paratransit service.

The purpose of this ADA Plan is to document how the Town of Apex intends to meet the requirements for providing paratransit service for the GoApex fixed route system.

Transit Service Providers

GoApex will initially consist of one fixed route that will operate from 6:00am to 10:00pm, Monday through Saturday. The fixed route service will be operated by the Town of Cary. The GoApex paratransit service will be operated by Wake County and will meet all requirements of the ADA, the Code of Federal Regulations (CFR) Title 49 (Transportation), Part 37 - Transportation Services for Individuals with Disabilities and Part 38 - Accessibility Specifications for Transportation Vehicles, and the Federal Transit Administration Circular 4710.1 – Americans with Disabilities Act Guidance.

Transit Service Area, Trip Type, Trip Purpose, Schedule

<u>Service Area</u>

A map of GoApex Route 1 is attached as Appendix A. This route is accessible to persons with disabilities and persons who use wheelchairs. GoWake Access will provide ADA paratransit service to origins and destinations within the paratransit service area of GoApex Route 1, which is the area within ¾-mile of

the fixed-route service. All trip origins and destinations will be within the designated service area. A map of the paratransit service area is provided as Appendix B.

Service Type and Trip Purpose

GoApex complementary paratransit service for ADA-eligible users will be origin-to destination service. This includes:

- Paratransit feeder service to an accessible fixed route, where such service enables the individual to use the fixed route bus system for part of the trip;
- Service from a person's origin to their requested destination.
- Providing transportation services only to authorized passengers.
- Providing door-to-door transportation service for clients as long as it is safe to do so, and while the vehicle remains in full view of the driver. Drivers are not permitted to enter passengers' home or other facilities for any reason. Drivers are not permitted to sign passengers in or out of service buildings.
- Passengers in wheelchairs will be given assistance up and down suitable ramps; however, drivers are not permitted to push wheelchairs up or down any number of steps.
- Requiring all passengers, including those in wheelchairs, to wear seatbelts for their safety. Vendor reserves the right to refuse service to passengers who refuse to comply with this request.
- Children under the age of twelve (12) must be transported with adult supervision.
- Children requiring child restraint seats will be properly secured, using an appropriate child restraint seat provided by the adult, prior to departure.

Wake County will accept and handle all disability trip requests on an equal basis and will not prioritize or restrict trip purposes for paratransit riders. Paratransit service will be provided during the same time period as the GoApex fixed route system.

Since paratransit is a shared-ride service, paratransit rides between Point A and Point B will usually take longer, and involve more intermediate stops, than a taxi ride between the same two points. However, trips would be scheduled to avoid a substantial number of intermediate stops and an excessive total trip time to prevent the service from becoming prohibitively inconvenient. GoWake Access would implement the GoApex Route 1: ADA Paratransit Capacity Constraints Policy and Procedures to monitor ADA paratransit service performance to ensure that operational patterns and practices that may indicate capacity constraints are identified in a timely way. The referenced policy and procedures document is provided as Appendix C.

The Town of Apex plans to operate GoApex Route 1 as a fare-free service; therefore, a fare will not be collected from GoApex ADA paratransit passengers.

Schedule

GoApex Door to Door paratransit service currently operates Monday through Saturday from 6:00am – 10:00pm and will not operate on the following holidays: New Year's Day, Martin Luther King Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Eve, and Christmas Day. At a to-be-determined date, GoApex Route 1 may begin operating on Sundays from 7:00am – 9:00pm and on all holidays except Thanksgiving Day and Christmas Day, and may operate a modified schedule on Christmas Eve.

To ensure that complementary paratransit drivers can complete their drop-offs no later than the latest fixed route drop-off, GoWake Access may establish a latest-available return-trip pickup time that reflects the likely travel times for requested trips.

Fleet Inventory, Vehicle Requirements, and Lift Securement and Use

As required by the ADA, per agreements with the Town of Cary and Wake County, the transit fleet serving GoApex Route 1 and the complementary paratransit service will be 100% wheelchair accessible to ensure that persons needing a wheelchair have equivalent access to the transportation services as ambulatory persons.

Vehicles providing the GoApex paratransit service will have the GoWake Access brand. Each vehicle will have capacity for 8 to 10 passengers. Each vehicle will be equipped with a wheelchair lift and will be maintained consistent with the GoWake Access policies. GoWake Access will comply with accessibility specifications for transportation vehicles found in 49 CFR Part 38.

When a lift is discovered to be inoperative, GoWake Access will take the vehicle out of service before the beginning of the vehicle's next service day and ensure that the lift is repaired before the vehicle returns to service. If there is no spare vehicle to take the place of a vehicle with an inoperable lift, such that taking the vehicle out of service would reduce the transportation service GoWake Access is able to provide, GoWake Access will keep the vehicle in service with an inoperable lift for no more than five days.

In accordance with ADA regulations, GoWake Access will provide service to all individuals using mobility devices that fit within the capacity of the lift being operated. Use of the securement system on GoWake Access vehicles will be a required condition of service. All wheelchairs and mobility devices must be secured to the passenger's satisfaction before transport. When transporting passengers using mobility devices, GoWake Access can suggest but not require passengers transfer to a van/bus seat. The passenger, in this case, has the final decision as to whether a transfer is appropriate given the passengers' particular disability.

As the regulations require, a passenger who cannot enter the vehicle using the stairs or ramp, but who does not use a wheelchair, will be allowed to enter the vehicle using the lift. GoWake Access does not provide wheelchairs or other mobility devices.

Eligibility Requirements, Application Process, and Appeals

Paratransit service is available only to individuals with a disability that prevents them from using the fixed route service. The process to initiate eligibility to use paratransit service associated with GoApex Route 1 is consistent with the ADA and the CFR.

GoWake Access will coordinate eligibility screening and determine service provision using an approved Door to Door Application (see Appendix D). According to the CFR, GoWake Access will make an application determination no more than 21 days following the submission of a complete application. If, by a date 21 days following the submission of a complete application, GoWake Access has not made a determination of eligibility, the applicant will be treated as eligible and provided service until and unless GoWake Access denies the application. GoWake Access' determination concerning eligibility will be made in writing. If the determination is that the individual is ineligible, the determination will state the reasons for the finding.

The Town of Apex, in coordination with Wake County, has established an administrative appeal process for denied applicants in the Town of Apex ADA Plan in accordance with the ADA and CFR, this is outlined in Appendix E. For people granted eligibility, the documentation of eligibility will include at least the following information: the individual's name, the name of the transit provider, the telephone number of the GoWake Access paratransit coordinator, an expiration date for eligibility (if applicable), and any conditions or limitations on the individual's eligibility, including the use of a Personal Care Attendant.

Persons denied ADA paratransit eligibility or suspended from service for no-shows or other reasons will have the ability to submit an appeal following the process outlined in Appendix E.

GoWake Access will provide paratransit service for visitors in the GoApex paratransit service area in accordance with the ADA and the CFR. Individuals that other transit agencies have determined to be ADA paratransit eligible can present documentation of eligibility received from these other agencies. GoWake Access will give 'full faith and credit' to the ID card or other documentation from the other transit agency. Visitors with disabilities may not have documentation of ADA paratransit eligibility from another transit agency. For visitors whose disability is apparent, no additional documentation is required. For visitors whose disability is not apparent, requiring documentation of disability, such as a letter from a medical professional will be permitted. GoWake Access will make paratransit service available for any combination of 21 days during any 365-day period beginning with the visitor's first use of the service.

Reservations

Making Reservations and Waiting Lists

Requirements regarding trip reservation will align with the ADA, CFR, and GoWake Access Policy. Every effort will be made to not deny paratransit trips in the GoApex Route 1 paratransit service area during fixed-route operations per the ADA. If a trip is denied, then it will be reported. Waiting lists may not be used to access the ADA paratransit service. Transportation services will be provided on a coordinated, shared ride service design. Disability service will not be limited because of capacity constraints. The number of trips provided to an individual will not be restricted. System capacity will be continually monitored and evaluated to determine the need for modification of resources, such as number of drivers, number of support staff, and number of vehicles. System capacity is considered to be 1 passengers/hour. System performance is measured by the number of passengers/hour the system is carrying, the number of trip denials, and the number of late pickups the system is experiencing.

All transportation reservations must be made through the GoWake Access Call Center. All pickup and drop-off times must be established during the time of trip reservation. GoWake Access will have the option to make trip reservations up to 14 days in advance of an eligible individual's desired trips. Riders must call at least the day before the trip to schedule a ride. GoWake Access will make next-day trip reservation service available during all normal business hours of its administrative offices, as well as during times, comparable to normal business hours, on a day when the entity's offices are not open before a service day. The reservation service on any day does not have to be provided directly by a "real person". An answering machine or other technology will suffice. An individual will be able to reserve service for any time during the next day of service. If an eligible rider leaves a voicemail on a day when GoWake Access offices are not open before a day of service and the eligible rider is unable to be reached, GoWake Access will provide the trip at the time requested. GoWake Access may negotiate pickup times with the passenger, but GoWake Access will not require an eligible rider to schedule a trip to begin more than one hour before or after the individual's desired departure time. The negotiation

window of one hour before or after the individual's desired departure time can be used unless the trip has constraints with respect to when they can begin (e.g., not before the end of the individual's workday or not until after an appointment is over). When scheduling by appointment time, a rider may request either a pickup time or a drop-off time for a given trip, but not both.

Pickup Times

Pickup windows will be consistent with the FTA Circular. Pickup windows will be no longer than 30 minutes in total. GoWake Access will establish a pickup window policy for GoApex Route 1 paratransit service to "bracket" the 30-minute window around the negotiated pickup time (-15/+15 window). If GoWake Access needs to adjust the pickup window, the agency will renegotiate the pickup time with the rider. Such renegotiations with the rider will occur no later than a day before the scheduled travel day. Any negotiations are subject to rider acceptance; if the rider refuses, GoWake Access will provide the trip as previously negotiated. If GoWake Access is unable to reach the rider, the agency will provide the trip as previously negotiated. A driver is considered late if he/she arrives outside of the pickup window.

Drop-off Times

Drop-off times will be consistent under the GoWake Access policy. If the eligible individual gives a time by which they must arrive at their destination, the paratransit trip drop-off must be on time or early. If the passenger arrives at their destination past the designated drop-off time, this would be considered a late trip. If the eligible individual makes a trip reservation for a specific pickup time then a drop-off time does not apply, other than it cannot be an excessively long trip.

No Show Definition and Policy

The Town of Apex maintains a paratransit no-show policy and is included as Appendix F. This policy requests that passengers be ready to be transported within the scheduled 30-minute pick-up window. A No-Show occurs when all of the following criteria are met:

- There has been no call by the rider to cancel the scheduled trip at least 1 hour prior to the start of the pickup window.
  AND
- The vehicle arrives at the scheduled pickup location within the 30-minute pickup window.
  AND
- The driver has waited 5 minutes after arriving during the pickup window.

After waiting for 5 minutes, the driver is instructed to leave a No-Show tag, and proceed to the next destination.

Accompanying Passengers, Attendants and Companions

The CFR requires that paratransit service be provided to one person accompanying the eligible individual in addition to the eligible individual's Personal Care Attendant (PCA). Other accompanying passengers will be served on a space-available basis. In order to be considered "accompanying" the eligible individual, the other individual(s) must have the same origin and destination as the eligible individual. GoWake Access will require that the eligible individual reserve space for the companion(s) when the individual reserves his or her own ride.

Assistance

Drivers are trained to provide minimal assistance only. Drivers are not trained to provide medical assistance. Passengers are advised that drivers are not permitted to operate a scooter or electric wheelchair onto the lift. The passenger is responsible for getting onto the lift with minimal driver assistance for these devices.

Packages

Passengers will be transported with up to two packages, so long as they can carry them on their own. Packages must fit under seats or be secured to the satisfaction of the driver'.

Accommodating Other Mobility Devices, Life Support Equipment or Service Animals

GoWake Access will permit the use of a lift for personal transportation devices when used as a mobility device by eligible customers as long as it does not exceed the capacity of the lift utilized including the user, per 49 CFR §38. All paratransit passengers will be permitted to travel with service animals trained to assist them.

Use of Portable Oxygen/Respirator Equipment

As required by the ADA, persons using GoWake Access may bring respirator, portable oxygen, and/or other life support equipment on board our vehicles, as long as they do not violate the law or rules relating to the transportation of hazardous materials. All equipment must be small enough to fit into the vehicle safely without obstructing the aisle and/or blocking emergency exits.

Other Assistance

All material made available to applicants and passengers of GoApex complementary paratransit service will be provided in accessible formats upon request. For visually-impaired customers, phone calls will be made in addition to letters referenced in this document. Mobility training will be made available upon request.

Appeals Process

If you have been denied ADA paratransit eligibility or suspended from service for no-shows or other reasons you have the ability to submit an appeal. The appeal process is outlined in Appendix E.

Attachments:

Appendix A: GoApex Route 1 Fixed Route Map

Appendix B: GoApex Route 1 Paratransit Service Area Map

Appendix C: GoApex Route 1 ADA Paratransit Capacity Constraints Policy and Procedures

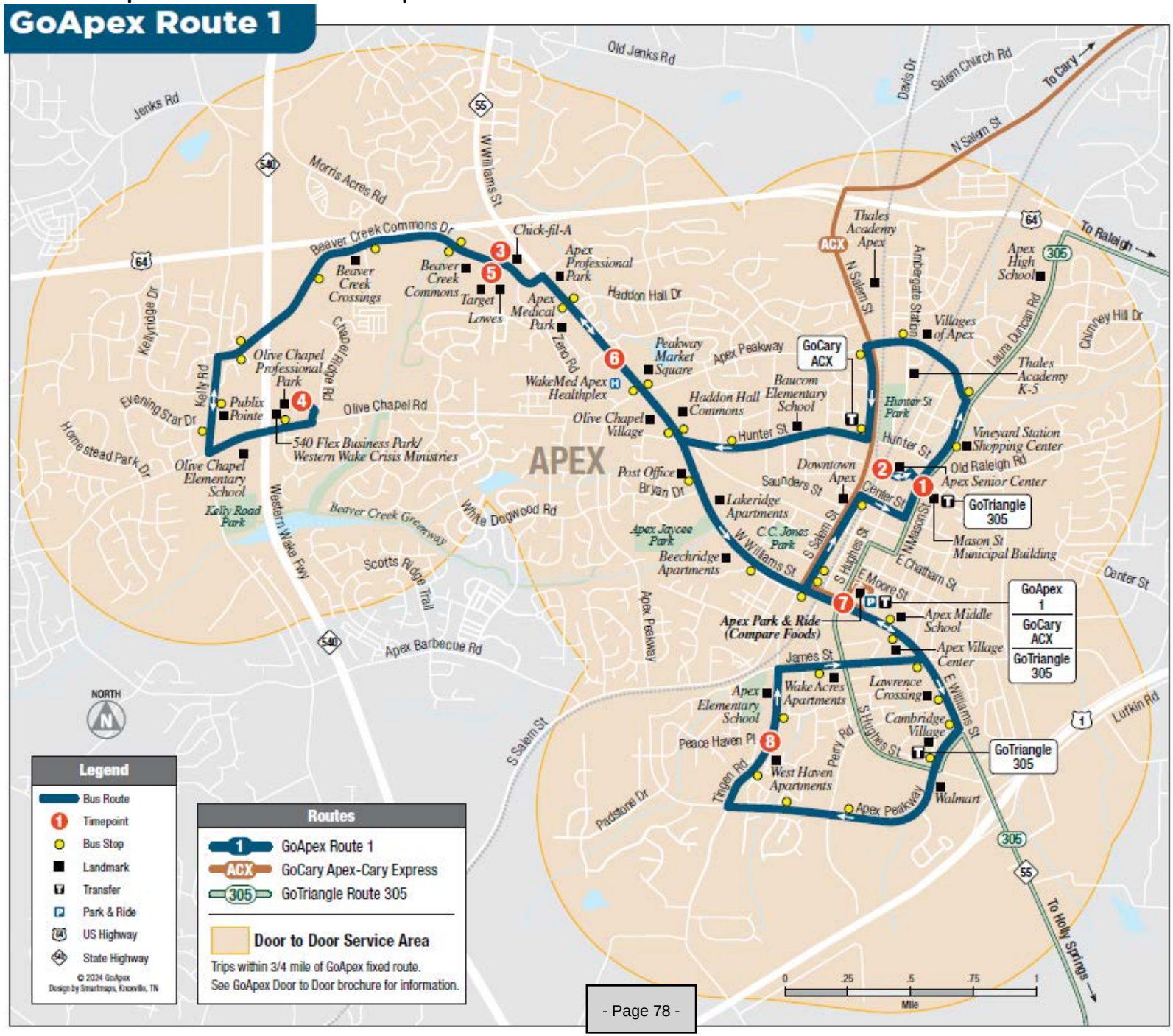
Appendix D: Town of Apex Door to Door Application

Appendix E: Town of Apex Appeal Process

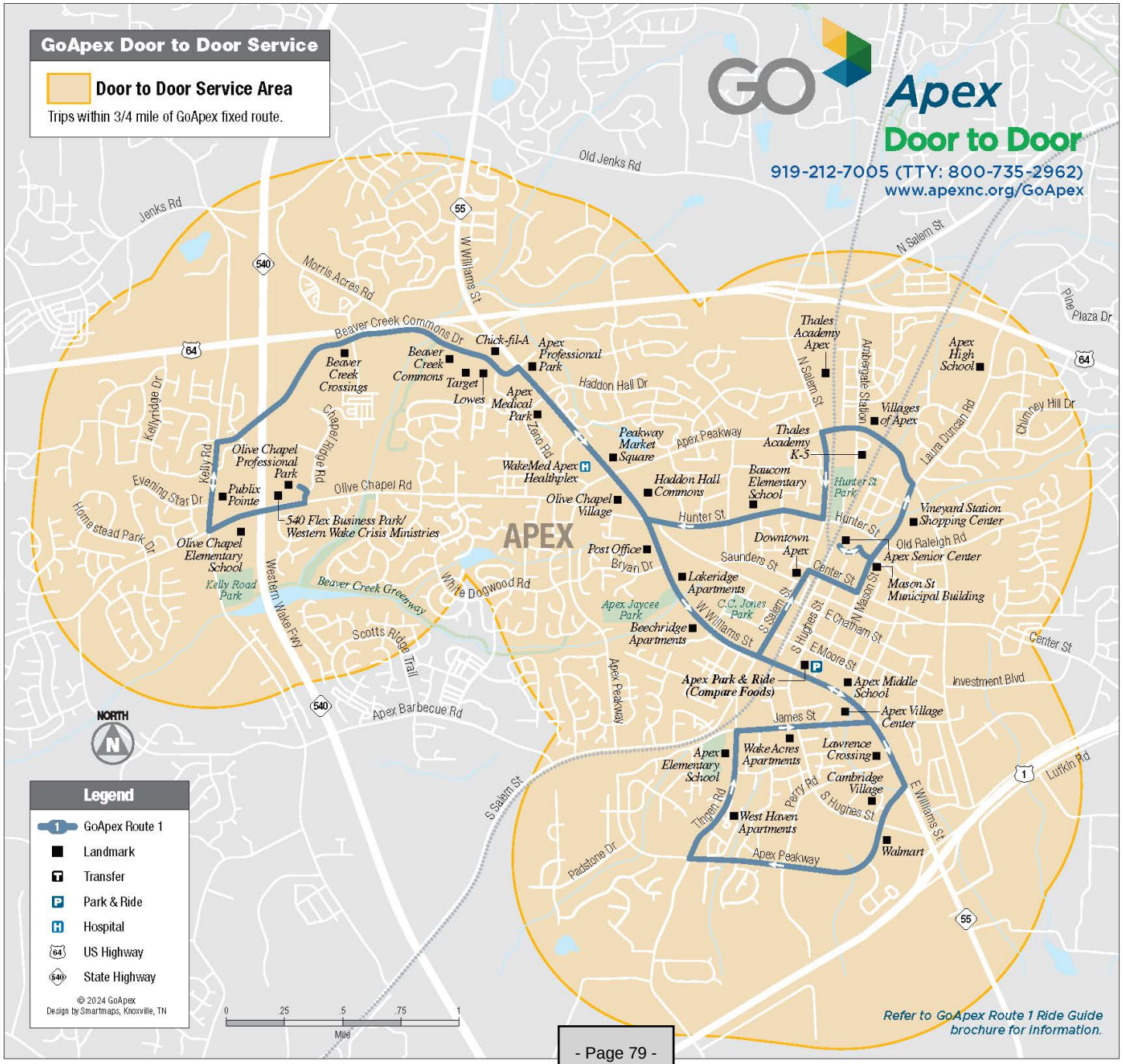
Appendix F: Town of Apex No-Show Policy

Appendix G: Subscription Service Policy

Appendix A: GoApex Route 1 Fixed Route Map



Appendix B: GoApex Route 1 Paratransit Service Area Map



Appendix C: GoApex Route 1 ADA Paratransit Capacity Constraints Policy and Procedures

GoApex Route 1: ADA Paratransit Capacity Constraints Policy and Procedures

It is important for GoWake Access and the Town of Apex to monitor ADA paratransit service performance to ensure that operational patterns and practices that may indicate capacity constraints are identified in a timely way.

Excessive Trip Length Policy and Standard

The length of a GoApex paratransit client's ride should be comparable to a ride on the fixed-route service. This includes walk time at both ends of a trip, wait time for a bus, onboard ride time, and transfer time, if applicable. After a year of paratransit operations, The Town of Apex will set a standard for the percentage of ADA paratransit trips with travel times equal to or less than a similar fixed route trip.

Data Analysis Procedures

1. GoWake Access will identify the average paratransit travel time for all GoApex Route 1 paratransit trips. Average travel time can be calculated by reservations/scheduling software. Average travel time over a year's period, which would take into account seasonable variations, will be collected during the first year of service operations.
2. GoWake Access will use scheduling software to generate a list of trips with travel times exceeding that average based on an analysis of the trips taken that month.
3. The Town of Apex will compare travel times for those trips to fixed route itineraries for the same origin and destination and day of week/time of day. Fixed route itineraries should include an estimate of walk, travel, and transfer time for the fixed routes a client would use to make a comparable fixed route trip.
   Travel times of comparable fixed route trips will be generated by Google Transit or some other online trip planner, as long as all the elements of the trip (walk, wait, travel, transfer) are included in the itinerary.
   Depending on how many trips are on the long trips list, all trips or a sample (every Xth trip, for example) will be analyzed. A sample of 20-30 trips is sufficient.
4. The Town of Apex will calculate the percentage of paratransit trips with travel times that exceed their fixed route equivalents, based on the month's sample. This percentage will be compared against the Town of Apex's standard. The Town of Apex will share these results with GoWake Access.
5. Regardless of the percentage of trips with excessive trip length is within the standard, GoWake Access will also take a closer look at the long trips to see if there is a pattern that should be addressed. For example, clients who are the first on and the last off the vehicle on a regular run to a human service program may experience long travel times every day that could be alleviated by splitting that run in two.

Appendix D: GoApex Paratransit Service Application

www.apexnc.org/GoApex

Application for GoApex Door to Door Complementary ADA Paratransit Service

GoApex Door to Door is a shared ride service for persons with disabilities that prevent them from using GoApex fixed route service. This service will be provided by GoWake Access.

Interested individuals must complete an eligibility application and receive approval from GoWake Access before reservations will be accepted.

Instructions

Applicants should complete and sign parts A and B of the application. A qualified human services or medical professional with knowledge of your disability must then complete Part C. The fully completed, signed application must then be submitted to GoWake Access for review.

Once your completed application is received it will be reviewed for eligibility. You will be notified in writing of the determination of eligibility within 21 days by GoWake Access. If eligibility is not determined within 21 days of receipt of a completed application, the applicant will be treated as eligible and provided service until a final eligibility determination is made.

Submit your application by Mail to:

GoWake Access
Attn: GoApex ADA Eligiblity Intake
4401 Bland Rd
Raleigh, NC 27609

OR, Submit your application by Email to:
TransportationADAApplications@wake.gov

Version Effective September 2023

Application

Please complete Parts A and B, then have a medical professional with knowledge of your disability complete Part C. This application will not be reviewed for eligibility until all three parts have been completed.

Date of Application: _____

Part A. General Information (please complete all fields)

Name _____

Date of Birth _____

Physical Address _____

City _____ State _____ Zip Code _____

Mailing Address (if different) _____

City _____ State _____ Zip Code _____

Home Phone _____ Cell Phone _____

Email Address _____

Note: *By providing your email address, you agree to receive email communication from GoWake Access and/or The Town of Apex. If you subscribe to the email service option, your email address will not be given to third parties in accordance with state law. We will only use the email to: (1) communicate with you about GoApex matters; (2) share emergency information with you; and/or (3) contact you regarding any email subscriber administrative issues that may arise. For questions, please call (919) 249-1043 or (919) 212-7005.*

Part A, Continued:

Emergency Contact Information

Name _____ Relationship _____

Home Phone _____Cell Phone _____

Are you:

Deaf / Hard of Hearing ☐ Yes ☐ No

Dial 711? ☐ Yes ☐ No

Part A, Continued:

Do you require any of the following? (check all that apply)

Manual Wheelchair	☐ Yes	☐ No
Power Wheelchair	☐ Yes	☐ No
Motorized Scooter	☐ Yes	☐ No
Cane	☐ Yes	☐ No
Walker	☐ Yes	☐ No
Crutches	☐ Yes	☐ No
Braces	☐ Yes	☐ No
Service Animal	☐ Yes	☐ No
Oxygen	☐ Yes	☐ No

Other (please explain):

If you use a wheelchair or scooter:

What is the combined weight (_____ lbs) of the passenger and the wheelchair/scooter?

What is the length (_____ inches) and width (_____ inches) of the wheelchair/scooter?

Is your home equipped with a wheelchair ramp? ☐ Yes ☐ No

IMPORTANT NOTE: Passengers who use wheelchairs/scooters must have a ramp if steps are present. Driver's will not "bump" passengers up/down stairs or in/out of houses/buildings. Lastly, please be aware that the lift capacity is 750lbs.

I understand that the purpose of the application is to determine if I am eligible for GoApex's Door to Door transportation service. I certify that the information provided in this application is true and correct to the best of my knowledge and that the application will be returned to me if it is not complete, which delays processing. I understand that falsification or misrepresentation of facts, or changes in my medical condition, may result in changes to my certification status. I further understand that additional information from my healthcare professional related to my disability or medical condition may be required for ADA complementary paratransit service and will be used to help determine my eligibility. I agree to notify GoWake Access if I no longer need to use the GoApex Door to Door service.

Signature of Applicant: _____ **Date**: _____

(Applicants must be 18 years of age to sign independently. Otherwise, the signature of a guardian is required.)

If someone other than the applicant has completed this application, the following information must be provided.

Printed Name: _____

Signature: _____

Daytime Telephone Number: _____

Relationship to Applicant: _____ **Date**: _____

Applicant Name _____

Part B. Disabling Condition and Certification

1. What is the disability or health condition that prevents you from using GoApex's fixed route buses? (Please be specific but use layman's terms).

2. How does this disability or health condition limit or prevent you from using GoApex's fixed route service? Please be specific.

3. Are the conditions you described:

   ☐ Permanent ☐ Vary day to day ☐ Temporary

   If Temporary, what is the anticipated end date? _____

4. Do you have medically defined cold sensitivity? ☐ Yes ☐ No

   Above or below what temperatures? _____

   If Yes, please explain: _____

5. Do you have medically defined heat sensitivity? ☐ Yes ☐ No

   Above or below what temperatures? _____

   If Yes, please explain: _____

Part B, Continued:

6. Do other weather conditions affect your disability? ☐ Yes ☐ No

   If Yes, please explain:

7. Do you have a visual impairment? ☐ Yes ☐ No ☐ Sometimes

   If Yes or Sometimes, please explain:

8. Is your breathing affected by weather or environmental conditions?
   ☐ Yes ☐ No ☐ Sometimes

   If Yes or Sometimes, please explain:

9. Are any of the following skills affected by your disability?

   If the answer is Sometimes, Never, or Not Sure, please explain by describing the effect and the extent of limitation caused by the disability.

   Applicant can:

   a) Cross a street with ☐ 2-3 lanes ☐ 4-6 lanes ☐ Never

      Comments: _____

   b) Step on/off curbs ☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

      Comments: _____

Part B, Continued:

c) Stand on a moving bus holding onto a handrail

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

If sometimes, how long (in minutes)?_____

Comments: _____

d) Find my own way to the bus stop without assistance

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

e) Find my own way to the bus stop if I receive training

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

f) Travel alone outside the house

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

g) Leave the house on time

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

Part B, Continued:

h) Seek and act on directions

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

i) Safely and independently travel ¼ of a mile (4 blocks) without help from another person

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

j) Wait at a bus stop ☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

If sometimes, how long (in minutes)? _____

Comments: _____

k) Board the correct bus ☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

l) Transfer from one bus to another

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

m) Exit at the correct destination

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

Part B, Continued:

n) Tell/monitor time ☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

o) Walk on hills/steep terrain

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

p) Deal with unexpected situations

☐ Always ☐ Sometimes ☐ Never ☐ Not Sure

Comments: _____

10. If GoApex offered free training on how to ride the fixed route buses, would you be interested?

☐ Yes ☐ No

If No, please explain: _____

_____

11. Do you require a Personal Care Attendant (PCA) to assist with travel? A PCA is any individual who assists you with carrying out your life activities and is different than a guest or companion. Your PCA may accompany you at no additional charge.

☐ Yes, Sometimes ☐ Yes, Always ☐ No

12. How far can you walk/travel by yourself or with the assistance of a mobility aid (choose one of the options below and fill in a number beside it)?

☐ Feet ☐ Blocks ☐ Miles

Applicant Name _____

Authorization for Release of Information

I authorize the professional who has completed part C of this application to release to GoWake Access, information about my disability or health condition and its effect on my ability to travel on the GoApex fixed route service. I understand that I may revoke this authorization at any time.

I, the applicant, understand that the purpose of this application is to determine my eligibility to use the GoApex Door to Door services. I agree to release the information requested to GoWake Access and any eligibility review panel and understand that the information contained herein will be treated confidentially, unless otherwise required by law. I understand further that GoWake Access reserves the right to request additional information at its discretion. I agree to notify GoWake Access of any changes in the status of my disability that affects my ability to use the GoApex Door to Door services. I also understand that this may affect my eligibility as a rider.

C. Health Care Provider Verification

Signature of Applicant: _____ **Date**: _____

(Applicants must be 18 years of age to sign independently. Otherwise, the signature of a guardian is required.)

Dear Verifying Professional:

You are being asked by the applicant named in Part A of this application to provide information regarding their ability to use the public transportation services of GoApex, as described in Part B. GoApex provides transportation services to eligible persons with disabilities who cannot use regular fixed route bus services. The information you provide

will allow us to evaluate the request and determine the individual's specific needs. Thank you for your cooperation in this matter.

PLEASE NOTE: The GoApex fixed route bus service available within the Town of Apex is accessible to persons with disabilities.

The individual applying for service under the Americans with Disabilities Act (ADA) **MUST BE UNABLE TO ACCESS THESE SERVICES** due to:

- Conditions which prevent them from getting to or from a GoApex fixed route bus stop, or transferring between vehicles **and/or**

- Conditions which prevent them from being able to plan for, board, ride, or disembark an ADA accessible fixed-route vehicle

The completed application must be submitted to GoWake Access within thirty (30) days of completion by the selected professional and can be returned to the applicant or sent to the following:

By Mail: GoWake Access
Attn: GoApex ADA Eligibility Intake
4401 Bland Rd
Raleigh, NC 27609

By Email: TransportationADAApplications@wake.gov

(PLEASE PRINT)

Name of Applicant: _____

1. Capacity in which you know the applicant: _____

2. When was the applicant last treated or seen by you? _____

3. On average, how frequently is the applicant seen by you? _____

4. Has the applicant been diagnosed with a physical, cognitive, psychological, or other disability that would prevent them from using GoApex's fixed route bus service?

   ☐ Yes ☐ No

5. Is the applicant's disability:

   ☐ Physical ☐ Cognitive ☐ Psychological ☐ Other

6. What is the applicant's disability (Please be specific but use layman's terms)?

7. What is the date of onset? _____

8. Does the applicant's disability or condition prevent the use of regular fixed route bus service?

   ☐ Yes, Sometimes ☐ Yes, Always ☐ No

   If Sometimes or Always, please explain:

9. Could the applicant use regular fixed route buses with travel training? Travel training is an instructional process where individuals learn how to navigate and ride public transit safely and independently. It can be offered through one-on-one training or group training.

☐ Yes, Sometimes ☐ Yes, Always ☐ No

If Sometimes or Always, please explain:

11. How far can the applicant walk/travel by themselves or with the assistance of a mobility aid? (choose one of the options below and fill in a number beside it)

☐ Feet ☐ Blocks ☐ Miles

12. What is the expected duration of this individual's condition?

☐ Temporary: Approximate expected duration until ____ ____ _____

☐ Long-term: Potential for improvement or periods of remission

☐ Permanent: No expectation of functional improvement

I have read Parts A and B in their entirety ☐ Yes ☐ No

I agree with the information provided in Part B ☐ Yes ☐ No

If no, please explain:

Please choose the statement below which best represents your professional opinion regarding the applicant's use of public transportation:

☐ The applicant should be able to access fixed route public transportation successfully.

☐ The applicant can use fixed route public transportation successfully but may need to utilize Door to Door service **under certain conditions** due to a disabling condition or functional limitation.

Please explain conditions:

☐ The applicant cannot use fixed route public transportation due to a disabling condition or functional limitation and requires Door to Door service **without conditions**.

Printed Name _____

Title _____
(If not a licensed physician, please indicate Title & Certification)

Organization/Practice _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone #: _____

Fax #: _____

Email address: _____

Signature: _____ **Date**: _____

Applicant Name _____

FOR GOWAKE ACCESS USE ONLY

APPROVED ____ DENIED ____

UNCONDITIONAL ____ CONDITIONAL ____ TEMPORARY ____

ISSUED BY _____ TITLE _____

DATE _____ FILE NUMBER _____

Appendix E: GoApex Appeal Process

Denial of Paratransit Service

GoWake Access will carefully review each application to ensure that only qualified persons are approved. Upon completion of review, a letter of certification or denial will be mailed. If your application for paratransit service was denied, you have the right to appeal this decision.

ADA Application Appeals

To appeal the decision, you will need to submit your request in writing, sixty (60) days within receipt of the denial letter.

Appeals may be mailed to:

ATTN: Paris Butler, GoWake Access
4401 Bland Road Raleigh, NC 27609

Your appeal will be heard by an ADA Appeals Board. The ADA Appeals Board consists of individuals who are not involved in the initial certification process. Their decision is made independently of the ADA Certification Process.

Upon receipt of your letter, GoApex will set up a meeting with the ADA Appeals Board. You will be notified by mail of the date and time of this meeting. You will have the opportunity to submit any additional information and written evidence and/or arguments to support your qualifications for service. You may bring a representative with you to this meeting.

You will be notified of the Appeals Board's decision in writing within thirty (30) days of the hearing. The Board's decision is final.

Denial of Paratransit Service Due to No-Show:

If a rider has a pattern and practice of No-Shows/Late Cancellations as provided above, GoWake Access will send them a suspension letter or email, proposing to suspend service with instructions on the appeals process (with an option for an in-person appeal). The notice will specify the basis of the proposed action and set forth the proposed suspension. The notice will advise the individual of the right to appeal the assessment of any no-shows/late cancellations and/or suspensions of service by submitting a letter of appeal to GoWake Access. Individuals will have 60 days (or 90 days if the individual has a good reason for delay) from the date of the written notice to submit their request for an appeal. GoWake Access will not require such requests to include the basis or reasons for the appeal. The choice to submit written information in advance of or instead of an appeal hearing would be for the appellant to make. GoWake Access will provide the individual with a hearing to present information and arguments and review the situation and provide the individual with transportation services if the decision to suspend transportation services was wrong. A local hearing will be held within five (5) days of the individual's request unless the individual asks for it to be postponed. The hearing can be postponed (for a good reason), for as much as 10 calendar days. To the extent practicable, the individuals deciding appeals will not be those involved with the initial decision to suspend service. GoWake Access will provide written

notification of the decision and the reasons for it. GoWake Access will not be required to provide paratransit service to the individual pending the determination on appeal. However, if a decision has not been made within 30 days of the completion of the appeal process, GoWake Access will provide paratransit service from that time until and unless a decision to deny the appeal is issued. Critical needs clients such as, dialysis and chemotherapy patients will not have their paratransit services suspended. All appeals must be submitted in writing within 30 days. Please include the time, date and pickup address of the no-showed ride you are appealing.

Appendix F: GoApex No Show Policy

No-Shows and Late Cancellations

No-Show and Late Cancellation policies will be in compliance with the ADA and CFR. To avoid a No-Show or late cancellation, the client must be ready at the designated place for pickup within the pickup window given by the Customer Service Representative.

No-Show

A No-Show occurs when all of the following criteria are met:

- There has been no call by the rider to cancel the scheduled trip at least 1 hour prior to the start of the pickup window.
  AND
- The vehicle arrives at the scheduled pickup location within the 30-minute pickup window.
  AND
- The driver has waited 5 minutes after arriving during the pickup window.

After waiting for 5 minutes, the driver is instructed to leave a No-Show tag, and proceed to the next destination.

Late Cancellation

A late cancellation occurs when the rider does not call to cancel a specific scheduled trip at least 1 hour prior to start of the pickup window. Late cancellations will be treated as “No-Shows”.

No-Shows Beyond Passenger’s Control

Trips cancelled for reasons that are beyond the rider’s control will not be considered “No-Shows”. This includes missed trips resulting due to sudden illness, family or personal emergency, transit connection delay, appointment delay, extreme weather conditions, operator error, paratransit lateness, or other unforeseen reasons for which it is not possible to call to cancel in time or to take trips as scheduled.

Subsequent Trips

If a rider has a No-Show for the outgoing portion of a round trip, they will still keep return trips and subsequent trips on schedules unless there was an indication from a rider or other reliable source that they will not need the return trips. GoWake Access will attempt to contact the client to see if they need the return trip to avoid another No-Show.

No-Show Notifications

GoWake Access will send a written warning after five (5) No-Shows. The written correspondence will list the total number of No-Shows and the percent of No-Shows in reference to the total number of trips booked in the calendar month. Specific dates, times, and locations of each No-Show in the calendar month will be provided in writing upon rider request.

Pattern and Practice of No-Shows

Riders may be suspended from paratransit service when they show a “pattern and practice” of No-Shows, which occurs when:

- A rider has five (5) or more No-Shows in a calendar month; AND
- The number of No-Shows represents more than 15% of the trips booked by the rider in a calendar month.

Suspension Periods

The following suspension periods shall apply:

- 1st violation: Warning Letter/Email
- 2nd violation: 7-day suspension
- 3rd violation: 14-day suspension
- 4th violation: 30-day suspension

Notification of No-Show Policy

ADA Patron Address

Dear

It is the policy of GoApex to inform our patrons of factors that may affect their transit services. No-shows are one of those factors.

No-Shows, as well as late cancellations, result in wasted trips which could have been used by other passengers. It is the policy of GoApex to record each customer's no-shows and apply appropriate sanctions when customers establish a pattern of excessive No-Shows.

For your information, attached is the policy that provides what defines a No-Show and what actions may be taken.

Thank you for your patronage.

Appendix G: Subscription Service Policy

For GoApex Door to Door passengers who need a ride to the same place, at the same time, on a daily, weekly, or monthly basis, "Subscription Service" is offered as a privilege to help meet passengers' scheduling and transit needs. This service allows a passenger to schedule their ongoing trips with one call. The passenger will then be automatically placed on the Door to Door schedule each week. Passengers may ask the GoWake Access call center representative for more details regarding this option. All GoApex Door to Door customers are able to request multiple trips in one call as long as the advance notice requirements are met (i.e., trip requests are made between one (1) and fourteen (14) days in advance). Subscription trips are different in that once the recurring reservation is set up, the customer does not have to call in to reserve those ongoing trips over time.

- This service is a privilege. Based on demand, it may be necessary to limit the number of subscription trips, to allow for providing service to the greatest number of customers. If this happens, requests may be resubmitted at a later date if the time slot becomes available.
- GoApex reserves the right to limit subscription trips to maintain 50% or less subscription trips at any given time period per Americans with Disabilities Act guidelines for paratransit service (see 49 CFR §37.133). Subscriptions trips are taken on a first-come, first-served basis and are limited based on overall demand by time of day.
    - Time periods are considered an hourly period (ex. 8am-9am) on any given day of the week, and apply to both outgoing and return trips. For example, subscription trips may be fully booked at the 8am hour on Mondays, but be available at the 2pm hour.
- The GoApex Door to Door No Show Policy applies to subscription service.

Subscription Trip Cancellations:

- If you are receiving subscription service, it is important to let GoWake Access know immediately if you do not need a ride on a particular pre-scheduled day. This way, GoWake Access can make the adjustment on their paratransit service schedule in advance.
    - For example, if a passenger has subscription service for a trip to school each weekday, they will need to cancel trips in advance of holiday and vacation times when school is not in session. This will help us avoid unnecessary trips or missed connections.
    - Trips cancelled less than one week in advance will jeopardize the ability of others to reserve that time slot and are subject to the GoApex No-Show policy.
    - Passengers cancelling one-third (33%) of their subscription trips in one month may lose the recurring time slot, even if cancellations are made with adequate notice.
- Passengers may cancel their subscription service by calling the trip reservation line. Please be clear about whether you are cancelling <u>one</u> trip or <u>all</u> subscription trips.

Attachment B – Wake County Complaints and Appeals Policy

COMPLAINTS

Was there a problem with your transportation?

For a commendation or a complaint to be filed, the customer must call the GoWake Access Call Center at (919) 212-7005 press option 4 or contact the Consumer Experience Management Team at 919-212-7155. Complaints may also be filed online:
http://www.wakegov.com/humanservices/administration/Pages/HSComplaintForm.aspx

Complaints must be reported within 24-48 hours after the incidence. The representative will enter the information into a database and distribute to the appropriate person. We appreciate any and all timely feedback, with as much detail as possible.

The GoWake Access staff will follow up with the appropriate persons to correct and resolve the issue. The customer will receive a phone call/letter verifying that the complaint was filed and what the corrective measures are.

If dissatisfied with the resolution, then clients may appeal actions taken on complaint resolutions within 7 days of the date of the resolution notification by addressing the Transportation Manager in writing at the address below. The appeal should include all relevant information.

GoWake Access Services
220 Swinburne Street
PO Box 46833
Raleigh, NC 27620-6833
Attn: Anita Davis, Transportation Manager

APPEALS

Complainant may appeal actions taken on complaint resolution within seven (7) days of date of resolution notification by addressing the Transportation Manager in writing at the address below. The appeal should include all relevant information.

Wake County Human Services
Transportation Manager
220 Swinburne St
P O Box 46833
Raleigh, NC 27620-6833

The Transportation Manager will attempt to resolve the appeal by contacting the complainant and other relevant parties. If the Transportation Manager cannot resolve the complaint in three (3) business days, then the appeal will be forwarded and considered by the WCHS Deputy Director. The WCHS Deputy Director will respond to the complainant in writing within five (5) working days. The decision of the WCHS Director is final. Appeals and their final resolution will be entered into the Lotus Notes database

and will be reported as part of the GoWake Access vendor's monthly management report, which is provided to GoWake Access staff and Sponsor Agencies.

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerk's Office

Requested Motion

Motion to adopt a Resolution Directing the Town Clerk to Investigate Petition Received, to accept the Certificate of Sufficiency by the Town Clerk, and to adopt a Resolution Setting the Date of a Public Hearing for June 25, 2024, on the Question of Annexation - Apex Town Council's intent to annex 11.42 acres, located at 7019 Roberts Road (Roberts Crossing Phase No. 2), Satellite Annexation No. 780 into the Town Corporate limits.

Approval Recommended?

Yes

Item Details

The Town Clerk certifies to the investigation of said annexation. Adoption of the Resolution authorizes the Town Clerk to advertise said public hearing by electronic means and on the Town of Apex's website.

Attachments

- CN3-A1: Resolution Directing the Town Clerk to Investigate Petition
  - Certificate of Sufficiency by the Town Clerk
  - Resolution Setting Date of Public Hearing
- CN3-A2: Legal Description – Satellite Annexation No. 780
- CN3-A3: Aerial Map – Satellite Annexation No. 780
- CN3-A4: Plat Map – Satellite Annexation No. 780
- CN3-A5: Annexation Petition – Satellite Annexation No. 780

RESOLUTION DIRECTING THE TOWN CLERK
TO INVESTIGATE PETITION RECEIVED UNDER G.S.§ 160A-58.1

Satellite Annexation Petition No. 780
7019 Roberts Road – Roberts Crossing Phase No. 2 – 11.42 acres

WHEREAS, G.S. §160A- 58.2 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Apex deems it advisable to proceed in response to this request for annexation;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, that the Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify to the Town Council the result of his investigation.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert
Mayor

ATTEST:

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

CERTIFICATE OF SUFFICIENCY BY THE TOWN CLERK

Satellite Annexation Petition No. 780
7019 Roberts Road – Roberts Crossing Phase No. 2 – 11.42 acres

To: The Town Council of the Town of Apex, North Carolina

I, Allen L. Coleman, Town Clerk, do hereby certify that I have investigated the annexation petition attached hereto, and have found, as a fact, that said petition is signed by all owners of real property lying in the noncontiguous area described therein, in accordance with G.S.§ 160A-58.1(b), as amended.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Town of Apex, North Carolina this 11th day of June, 2024.

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

(Seal)

RESOLUTION SETTING DATE OF PUBLIC HEARING
ON THE QUESTION OF ANNEXATION PURSUANT TO G.S.§ 160A-58.2 AS AMENDED

Satellite Annexation Petition No. 780
7019 Roberts Road – Roberts Crossing Phase No. 2 – 11.42 acres

WHEREAS, a petition requesting annexation of the non-contiguous area described herein has been received; and

WHEREAS, the Town Council of Apex, North Carolina has by Resolution directed the Town Clerk to investigate the sufficiency thereof; and

WHEREAS, Certification by the Town Clerk as to the sufficiency of said petition has been made;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, North Carolina that:

Section 1. A public hearing on the question of annexation of the area described herein will be held at the Apex Town Hall at 6 o'clock p.m. on the 25th day of June, 2024.

Section 2. The area proposed for annexation is described as attached.

Section 3. Notice of said public hearing shall be published on the Town of Apex Website, www.apexnc.org, Public Notice, at least ten (10) days prior to the date of said public hearing.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert, Mayor

ATTEST:

_____
Allen L. Coleman, Town Clerk

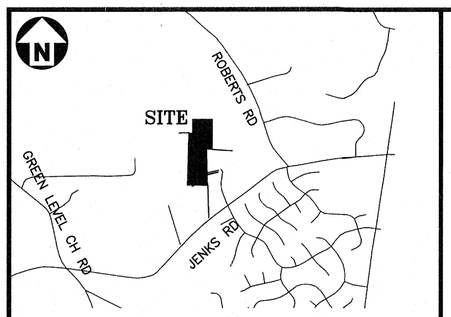
Attachment: Legal Description

7019 ROBERTS ROAD
PIN#: 0733323058
WHITE OAK TOWNSHIP – WAKE COUNTY-NORTH CAROLINA
ANNEXATION DESCRIPTION

BEGINNING AT AN EXISTING IRON PIPE AT THE INTERSECTION OF THE COMMON CORNER OF SVK ROBERTS RD LLC PIN#: 0733323058, DB. 19299 PG. 1050 AND HAROLD WALTER MEDER, TRUSTEE & NANCY JANIS MEDER, TRUSTEE PIN:0733316822 DB. 1988 PG. 1257 AS SHOWN IN BOOK OF MAPS 1988 PG. 415, HAVING NC NAD83(2011) GRID COORDINATES OF N732024.40, E2033488.33

- THENCE SOUTH 01°42'48" EAST A DISTANCE OF 680.55 FEET TO A 1.5” EIP;
- THENCE NORTH 88°43'02" WEST A DISTANCE OF 394.37 FEET TO A ¾”IPS;
- THENCE NORTH 01°38'14" EAST A DISTANCE OF 985.57 FEET TO A 1” EIP;
- THENCE SOUTH 87°35'21" EAST A DISTANCE OF 69.92 FEET TO A POINT;
- THENCE NORTH 00°15'17" EAST A DISTANCE OF 264.02 FEET TO A 1” EIP;
- THENCE SOUTH 89°46'55" EAST A DISTANCE OF 384.75 FEET TO A POINT;
- THENCE SOUTH 00°13'58" WEST A DISTANCE OF 580.60 FEET TO A POINT;
- THENCE NORTH 86°09'18" WEST A DISTANCE OF 107.90 FEET TO A 2” EIP WHICH IS THE POINT OF BEGINNING, HAVING AN AREA OF 497,439 SQUARE FEET, 11.42 ACRES

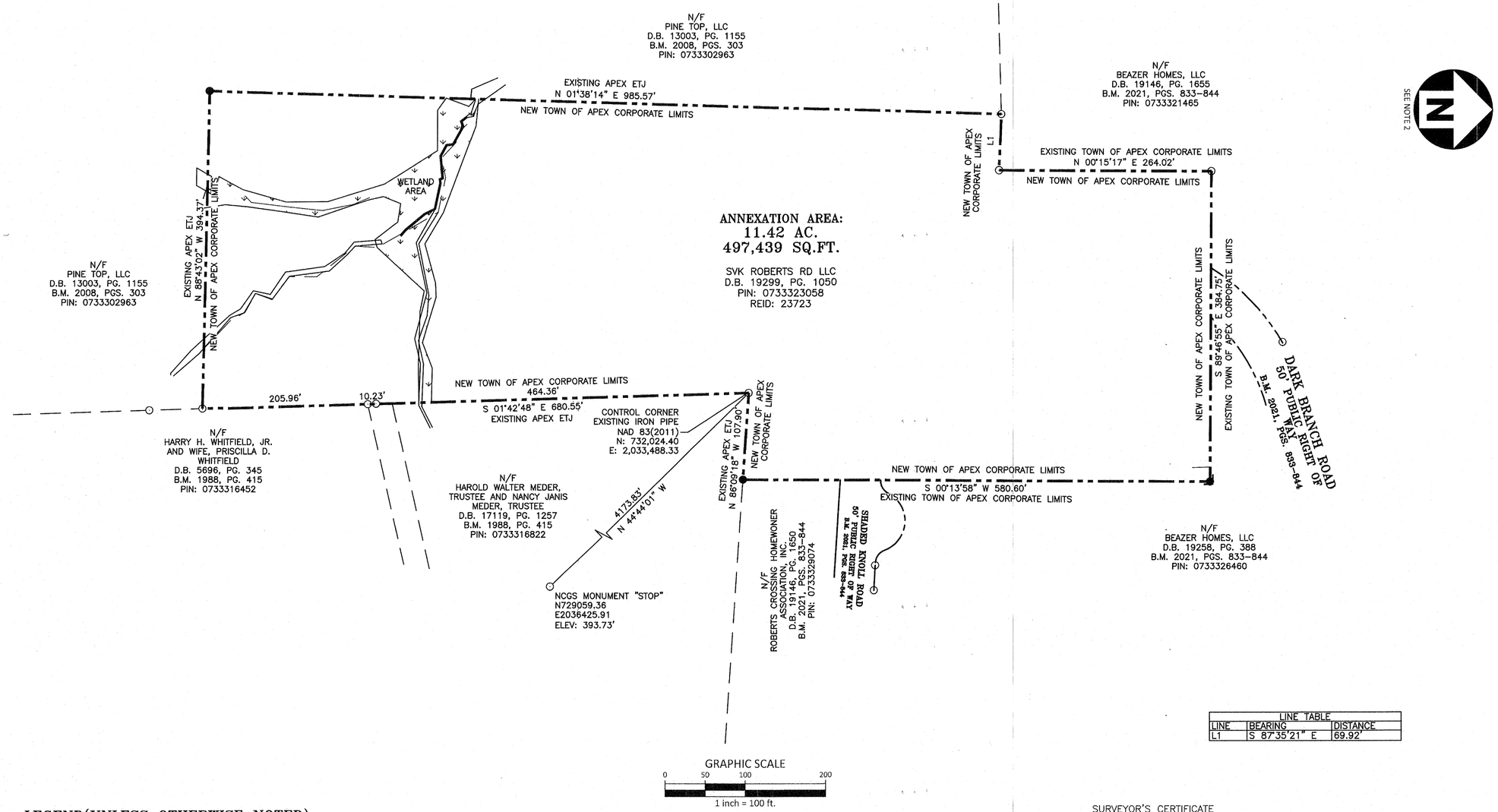

Prepared by: Town of Apex Planning Department
April 2024
February 2024 Aerial Photography
Brook Pine Trl
Holtwood Way
540
Greenmoor
Tuftin Trce
NC 540 Hwy SB
NC 540 Hwy NB
Clark Creek Ln
Trelawney Ln
Shaded Knoll Rd
Autumn Rain St
Roberts Rd
Annexation #780
Jenks Rd
Spire Blvd
Falcons Reach
Old Kestrel Dr
Meadows at Walden Creek
Reabody Pl
Jainix Green
0
300
600
Feet



VICINITY MAP
NOT TO SCALE

GENERAL NOTES

1. THIS IS A SURVEY OF AN EXISTING PARCEL(S) OF LAND. THIS IS AN ANNEXATION SURVEY.
2. BEARINGS FOR THIS SURVEY ARE BASED ON GRID NORTH NAD83 (2011).
3. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.
4. ZONING: PUD-CZ
5. AREA BY COORDINATE GEOMETRY.
6. FLOOD NOTE: THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE "X" AS DEFINED BY F.E.M.A F.I.R.M COMMUNITY PANEL #3720073300K DATED 07/19/2022.
7. 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.
8. NO EVIDENCE OF EARTH MOVING ACTIVITIES OCCURRING ON SITE.
9. NO EVIDENCE OF STREET CHANGES.



LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 87°35'21" E	69.92'

GRAPHIC SCALE
0 50 100 200
1 inch = 100 ft.

LEGEND(UNLESS OTHERWISE NOTED)

- ▲ CALCULATED POINT
- ■ CONCRETE MONUMENT
- ○ IRON PIPE
- ● IRON PIPE SET
- — — — — — ADJOINER
- ANNEXATION
- BOUNDARY
- RIGHT OF WAY

ANNEXATION # _____ I, ALLEN COLEMAN, CMC, NCCC, TOWN CLERK, APEX, NORTH CAROLINA CERTIFY THIS A TRUE AND EXACT MAP OF ANNEXATION ADOPTED THE _____ DAY OF_____, 2024, BY THE TOWN COUNCIL. I SET MY HAND AND SEAL OF THE TOWN OF APEX,_____DAY/MONTH/YEAR

_____ ALLEN COLEMAN, CMC, NCCC, TOWN CLERK

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 SEE, PAGE MAP); THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY AS CALCULATED IS 1:70,371+; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER AND SEAL THIS 02 DAY OF MAY, 2024 A.D.

TYPE OF PLAT

I HEREBY CERTIFY THIS PLAT OF THE FOLLOWING TYPE:
G.S. 47-30 (F)(11)(D). THAT THE SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXEMPTION OR EXCEPTION TO THE DEFINITION OF SUBDIVISION.

John R. Pickens 5/2/2024

JOHN R. PICKENS, PROFESSIONAL LAND SURVEYOR L-3297

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

CLIENT

CITYPLAT
107 FAYETTEVILLE STREET
RALEIGH, NORTH CAROLINA 27601

7019 ROBERTS ROAD

SATELLITE ANNEXATION MAP
FOR THE TOWN OF APEX
7019 ROBERTS ROAD
WAKE COUNTY, NORTH CAROLINA
WHITE OAK TOWNSHIP,

NORTH CAROLINA PROFESSIONAL SEAL L-3297 LAND SURVEYOR JOHN R. PICKENS

REVISIONS

NO.	DATE	
1	04. 02. 2024	APEX REVIEW COMMENTS

PLAN INFORMATION

PROJECT NO.	CTP-23001
FILENAME	CTP23001-A1
CHECKED BY	JBT
DRAWN BY	JRP
SCALE	1"=100'
DATE	03-07-2024

SHEET

1-1

M:\Projects\CTP\CTP23001\02-Geomatics\Survey\Plats\CTP23001-A1.dwg, 5/2/2024 11:18:57 AM, John Pickens

Petition for Voluntary Annexation

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.

Application #: # 780 Submittal Date: 3-26-2024

Fee Paid $ 200.00 Check # 4319

To The Town Council Apex, North Carolina

1. We, the undersigned owners of real property, respectfully request that the area described in Part 4 below be annexed to the Town of Apex, ■ Wake County, ☐ Chatham County, North Carolina.
2. The area to be annexed is ■ contiguous, ☐ non-contiguous (satellite) to the Town of Apex, North Carolina and the boundaries are as contained in the metes and bounds description attached hereto.
3. If contiguous, this annexation will include all intervening rights-of-way for streets, railroads, and other areas as stated in G.S. 160A-31(f), unless otherwise stated in the annexation amendment.

Owner Information

SVK Roberts Rd LLC	0733-32-3058
Owner Name (Please Print)	Property PIN or Deed Book & Page #
(919) 757-7462	parekhp@yahoo.com
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address

Surveyor Information

Surveyor: McAdams - Jay Taylor PLS

Phone: 410-703-8918 Fax: N/A

E-mail Address: jtaylor@mcadamsco.com

Annexation Summary Chart

Property Information		Reason(s) for annexation (select all that apply)	
Total Acreage to be annexed:	11.42	Need water service due to well failure	☐
Population of acreage to be annexed:	0	Need sewer service due to septic system failure	☐
Existing # of housing units:	0	Water service (new construction)	☑
Proposed # of housing units:	56	Sewer service (new construction)	☑
Zoning District*:	PUD-CZ (#17CZ20)	Receive Town Services	☑

*If the property to be annexed is not within the Town of Apex's Extraterritorial Jurisdiction, the applicant must also submit a rezoning application with the petition for voluntary annexation to establish an Apex zoning designation. Please contact the Planning Department with questions.

PETITION FOR VOLUNTARY ANNEXATION

Application #: #780 Submittal Date: 3-26-2024

COMPLETE IF SIGNED BY INDIVIDUALS:

All individual owners must sign. (If additional signatures are necessary, please attach an additional sheet.)

Please Print	Signature
Please Print	Signature
Please Print	Signature
Please Print	Signature

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of, _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

COMPLETE IF A CORPORATION:

In witness whereof, said corporation has caused this instrument to be executed by its President and attested by its Secretary by order of its Board of Directors, this the _____ day of _____, 20_____.

Corporate Name _____

SEAL

By: _____
President (Signature)

Attest:

_____
Secretary (Signature)

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

PETITION FOR VOLUNTARY ANNEXATION

Application #: #780 Submittal Date: 3-26-2024

COMPLETE IF IN A LIMITED LIABILITY COMPANY

In witness whereof, SVK Roberts Rd LLC a limited liability company, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the 03 day of 11, 2023

Name of Limited Liability Company SVK Roberts Rd LLC
VERA VENKATA SATYA PUPPALA

By: _____
Signature of Member/Manager

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Betty R. Ennis, a Notary Public for the above State and County, this the 3rd day of November, 2023.

BETTY R. ENNIS NOTARY PUBLIC SEAL *** WAKE COUNTY, NC

Betty R. Ennis
Notary Public

My Commission Expires: 8-05-2025

COMPLETE IF IN A PARTNERSHIP

In witness whereof, _____, a partnership, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the _____ day of _____, 20_____.

Name of Partnership _____

By: _____
Signature of General Partner

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerk's Office

Requested Motion

Motion to adopt a Resolution Directing the Town Clerk to Investigate Petition Received, to accept the Certificate of Sufficiency by the Town Clerk, and to adopt a Resolution Setting the Date of a Public Hearing for June 25, 2024, on the Question of Annexation - Apex Town Council's intent to annex 3.95 acres, located at 0 Dezola Street (Horton Road Amenity Parcel), Annexation No. 781 into the Town Corporate limits.

Approval Recommended?

Yes

Item Details

The Town Clerk certifies to the investigation of said annexation. Adoption of the Resolution authorizes the Town Clerk to advertise said public hearing by electronic means and on the Town of Apex's website.

Attachments

- CN4-A1: Resolution Directing the Town Clerk to Investigate Petition
  - Certificate of Sufficiency by the Town Clerk
  - Resolution Setting Date of Public Hearing
- CN4-A2: Legal Description – Annexation No. 781
- CN4-A3: Aerial Map – Annexation No. 781
- CN4-A4: Plat Map – Annexation No. 781
- CN4-A5: Annexation Petition – Annexation No. 781

RESOLUTION DIRECTING THE TOWN CLERK
TO INVESTIGATE PETITION RECEIVED UNDER G.S.§ 160A-31

Annexation Petition No. 781
0 Dezola Street – Horton Road Amenity Parcel – 3.95 acres

WHEREAS, G.S. §160A- 31 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Apex deems it advisable to proceed in response to this request for annexation;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, that the Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify to the Town Council the result of his investigation.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert
Mayor

ATTEST:

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

CERTIFICATE OF SUFFICIENCY BY THE TOWN CLERK

Annexation Petition No. 781
0 Dezola Street – Horton Road Amenity Parcel – 3.95 acres

To: The Town Council of the Town of Apex, North Carolina

I, Allen L. Coleman, Town Clerk, do hereby certify that I have investigated the annexation petition attached hereto, and have found, as a fact, that said petition is signed by all owners of real property lying in the area described therein, in accordance with G.S.§ 160A-31, as amended.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Town of Apex, North Carolina this 11th day of June, 2024.

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

(Seal)

RESOLUTION SETTING DATE OF PUBLIC HEARING
ON THE QUESTION OF ANNEXATION PURSUANT TO G.S.§ 160A-31 AS AMENDED

Annexation Petition No. 781
0 Dezola Street – Horton Road Amenity Parcel – 3.95 acres

WHEREAS, a petition requesting annexation of the area described herein has been received; and

WHEREAS, the Town Council of Apex, North Carolina has by Resolution directed the Town Clerk to investigate the sufficiency thereof; and

WHEREAS, Certification by the Town Clerk as to the sufficiency of said petition has been made;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, North Carolina that:

Section 1. A public hearing on the question of annexation of the area described herein will be held at the Apex Town Hall at 6 o'clock p.m. on the 25th day of June, 2024.

Section 2. The area proposed for annexation is described as attached.

Section 3. Notice of said public hearing shall be published on the Town of Apex Website, www.apexnc.org, Public Notice, at least ten (10) days prior to the date of said public hearing.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert, Mayor

ATTEST:

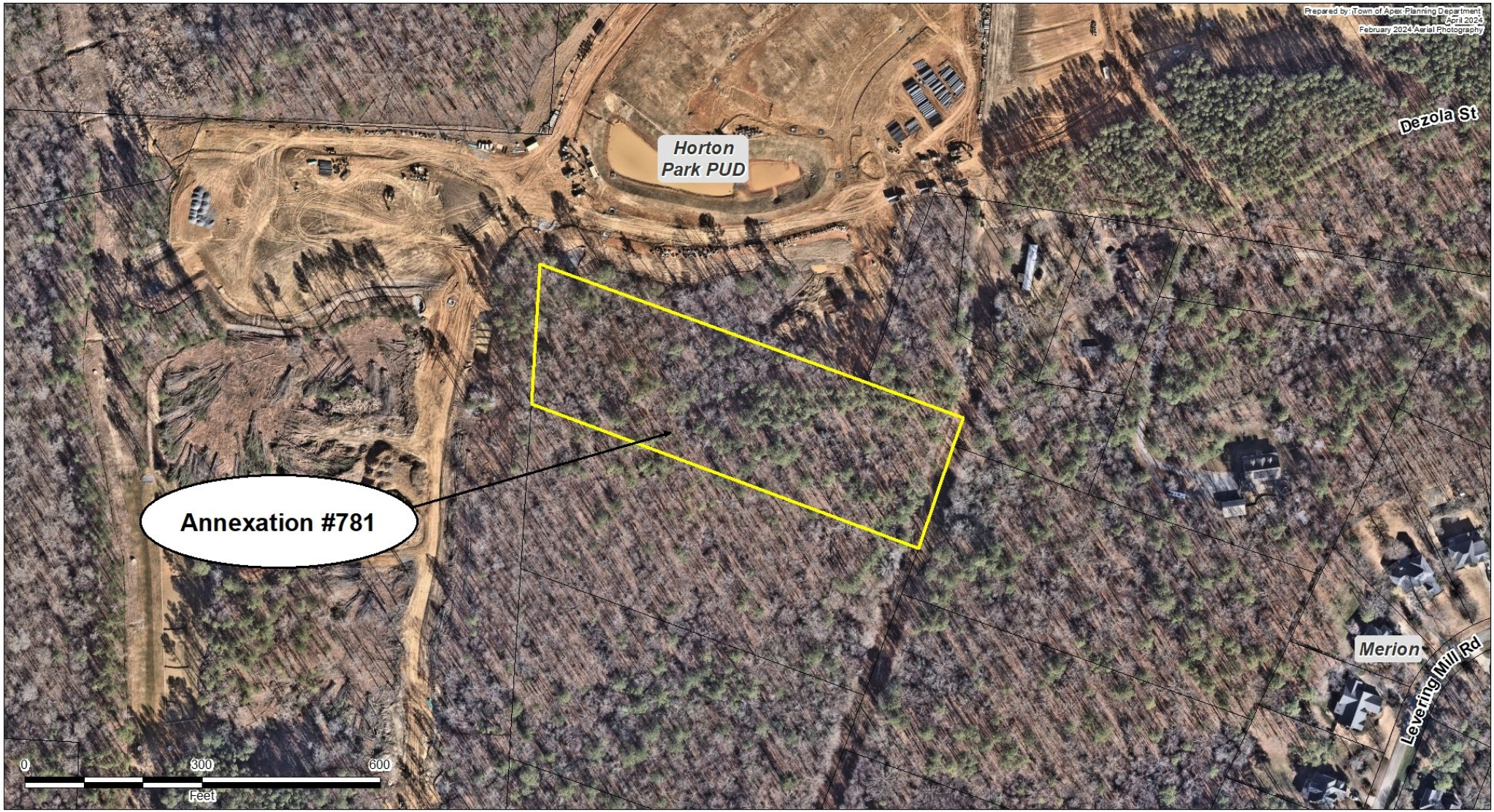
_____
Allen L. Coleman, Town Clerk

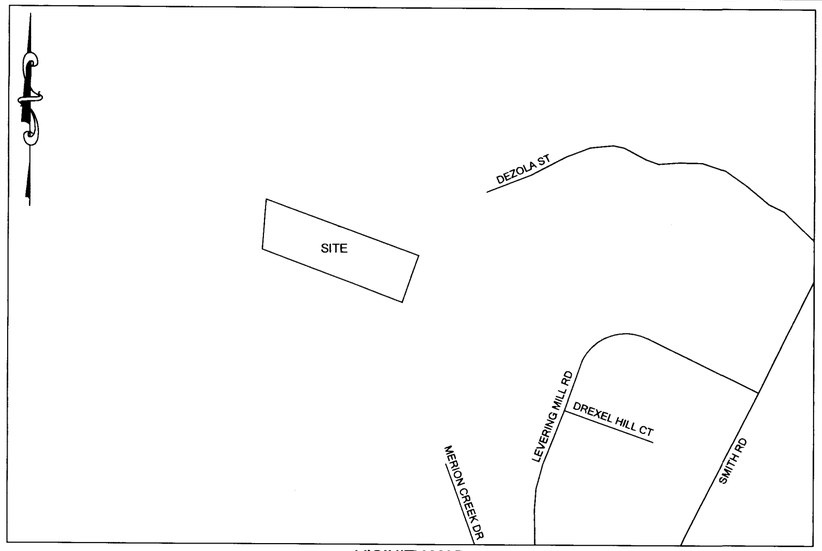
Attachment: Legal Description

BEING ALL OF THAT PARCEL NOW OR FORMERLY OF HORTON PARK INVESTMENTS, LLC AS DESCRIBED IN DEED BOOK 19103 AT PAGE 782 OF THE WAKE COUNTY REGISTER OF DEEDS (PIN: 0750299045), SAID PARCEL BEING LOCATED IN THE TOWN OF APEX, WHITE OAK TOWNSHIP, WAKE COUNTY, NORTH CAROLINA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A ¾" IRON PIPE FOUND ON THE SOUTHWESTERN CORNER OF THE HEREIN DESCRIBED PARCEL, SAID IRON BEING THE TRUE POINT OF BEGINNING AND HAVING NORTH CAROLINA STATE PLAIN COORDINATES OF N: 709,039.59' AND E: 2,052,582.26'; THENCE, FROM THE POINT OF BEGINNING, N03°36'08"E A DISTANCE OF 247.41 FEET TO A ¾" IRON PIPE FOUND; THENCE, S70°02'13"E A DISTANCE OF 585.53 FEET TO A ¾" IRON PIPE FOUND; THENCE, S70°05'11"E A DISTANCE OF 174.98 FEET TO A ¾" IRON PIPE FOUND; THENCE, S19°54'51"W A DISTANCE OF 49.65 FEET TO A ¾" IRON PIPE FOUND; THENCE, S19°54'51"W A DISTANCE OF 187.19 FEET TO A ¾" IRON PIPE FOUND; THENCE, N70°05'44"W A DISTANCE OF 691.03 FEET TO THE POINT OF BEGINNING.

THE DESCRIBED PARCEL CONTAINS 172,059 SQUARE FEET OR 3.95 ACRES, MORE OR LESS.


Prepared by: Town of Apex Planning Department
April 2024
February 2024 Aerial Photography
Horton
Park PUD
Dezola St
Annexation #781
Merion
Levering Mill Rd
0
300
600
Feet



VICINITY MAP
NOT TO SCALE

ANNEXATION # _____

I, ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK, APEX, NORTH CAROLINA CERTIFY THIS A TRUE AND EXACT MAP OF ANNEXATION ADOPTED THE _____ DAY OF_____, 20___, BY THE TOWN COUNCIL. I SET MY HAND AND SEAL OF THE TOWN OF APEX, _____. DAY/MONTH/YEAR

_____
ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK

-SEAL-

LEGEND

- EXISTING BOUNDARY CORNER FOUND
- BOUNDARY CORNER SET
- COMPUTED POINT
- CONCRETE MONUMENT FOUND
- PROPERTY LINE SURVEYED
- PROPERTY LINE NOT SURVEYED
- EASEMENTS
- AREA HEREBY ANNEXED TO THE TOWN OF APEX
- TOWN OF APEX CORPORATE LIMITS (PER WAKE COUNTY GIS)

EIP	EXISTING IRON PIPE
EIR	EXISTING IRON REBAR
BM	BOOK OF MAPS
DB	DEED BOOK
PG	PAGE
R/W	RIGHT OF WAY

CLASS OF SURVEY: A
POSITIONAL ACCURACY: 0.06'
TYPE OF GPS FIELD PROCEDURE: NC REAL TIME NETWORK
DATES OF SURVEY: DECEMBER 2022
DATUM/EPOCH: NAD83/NSRS2011
GEOID MODEL: 18
COMBINED GRID FACTOR (CONTROL CORNER 1): 0.999888709
UNITS: US SURVEY FEET

NOTES

1. THIS SURVEY WAS PREPARED BY BATEMAN CIVIL SURVEY COMPANY UNDER THE SUPERVISION OF JOSHUA R. DAVIDSON, PLS.
2. ALL DISTANCE ARE HORIZONTAL GROUND DISTANCE AND ALL BEARINGS ARE BASED ON GPS OBSERVATIONS, NAD83 / NSRS 2011 / SPC, UNLESS OTHERWISE SHOWN.
3. PROPERTY LIES IN ZONE "X" PER NATIONAL INSURANCE PROGRAM FLOOD INSURANCE RATE MAP #3720075000K, DATED 07/19/2022.
4. SITE ZONED "RR" FOR THE TOWN OF APEX PER WAKE COUNTY GIS.
5. AREAS COMPUTED BY COORDINATE METHOD.
6. SURVEY PERFORMED WITHOUT THE BENIFIT OF A TITLE REPORT.

NAD 83 / NSRS 2011 / SPC

THIS MAP IS CONSIDERED PRELIMINARY, NOT FOR RECORDATION, CONVEYANCE OR SALES UNLESS SIGNED AND SEALED BY THE LICENSED SURVEYOR.

I, JOSHUA R. DAVIDSON, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN DB 19103 PG 782); THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND AS SHOWN HERE ON; THAT THE RATIO OF PRECISION AS CALCULATED IS 1:10,000+; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 17 DAY OF April, A.D., 2024.

I, FURTHER THAT IN ACCORDANCE WITH G.S. 47-30-F-11-D; CERTIFY THAT THE SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXEMPTION OR EXCEPTION TO THE DEFINITION OF SUBDIVISION.

NORTH CAROLINA PROFESSIONAL SEAL L-5350 LAND SURVEYOR JOSHUA ROBERT DAVIDSON

JOSHUA R. DAVIDSON, PLS
NC LICENSE NO. L-5350

4/15/2024
DATE

N/F
HORTON PARK INVESTMENTS, LLC
PIN: 0750492891
REID: 0033171
DB 19103 PG 782
BM 2022 PG 1378

3/4" EIP

PROPERTY LINES REMOVED PER BM 2022 PG 1376

S70° 02' 13"E
585.53'

N03° 36' 08"E
247.41'

CONTROL CORNER 1
3/4" EIP
(NAD 83/NSRS 2011/SPC)
N: 709,039.59'
E: 2,052,582.26'

3/4" EIP

N/F
HORTON PARK INVESTMENTS, LLC
PIN: 0750299045
REID: 0203127
DB 19103 PG 782
BM 1988 PG 754
BM 2022 PG 1376

AREA: 172,059 SF / 3.95 AC
HEREBY ANNEXED

N70° 05' 44"W
691.03'

N/F
ALTON RICHARDSON
TERESA RICHARDSON
PIN: 750288880
REID: 0203129
DB 7245 PG 786
BM 1988 PG 754

50' COLONIAL PIPELINE EASEMENT
PER DB 1568 PG 336, DB 1587 PG 49,
& DB 1588 PG 785

N/F
MFW INVESTMENTS, LLC
PIN: 0750393140
REID: 0513878
DB 17483 PG 228
BM 2019 PG 1735

3/4" EIP

S70° 05' 11"E
174.98'

3/4" EIP

CONTROL CORNER 2
3/4" EIP
(NAD 83/NSRS 2011/SPC)
N: 709,027.03'
E: 2,053,312.58'

49.64'

3/4" EIP

S19° 54' 51"W
238.83' (T)
187.19'

3/4" EIP

N/F
LANA HORTON COFFER
PIN: 750385765
REID: 0203128
DB 12894 PG 785
BM 1988 PG 754

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

TOTAL AREA TO BE ANNEXED TO THE TOWN OF APEX
172,059 SF / 3.95 AC

BATEMAN CIVIL SURVEY COMPANY
ENGINEERS • SURVEYORS • PLANNERS
2524 RELIANCE AVENUE, APEX, NC 27539
PHONE: (919) 577-1080 FAX: (919) 577-1081
INFO@BATEMANCIVILSURVEY.COM
NCBELS FIRM# C-2378

ANNEXATION MAP FOR THE TOWN OF APEX

PIN: 0750299045, REID: 0203127
AS RECORDED IN DB 19103 PG 782
0 DEZOLA ST, APEX
WHITE OAK TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

REVISIONS
1.
2.
3.
4.

DRAWN BY: ELS
CHECKED BY: JRD
SCALE: 1" = 60'
DATE: 03/21/2024
JOB NUMBER: 220188B

SHEET 1 OF 1

P:\2022 Projects\220188b Horton Park\SURVEY\DWG\220188b Horton Amenity Parcel Annexation.dwg

PETITION FOR VOLUNTARY ANNEXATION
Town of Apex, North Carolina

ANNEXATION PETITION SUBMISSION: Applications are due by 12:00 pm on the first business day of each month. See the "Annexation Petition Schedule" on the website for details.

ANNEXATION FEE: $200.00

VOLUNTARY ANNEXATION: Upon receipt of a valid petition signed by all of the owners of real property in the area described therein, the Town may annex an area either contiguous or not contiguous to its primary corporate limits when the area meets the standards set out under North Carolina General Statutes 160A-31 and 160A-58.1. A petition submitted pursuant to North Carolina General Statute 160A-58.1 need not be signed by the owners of real property that is wholly exempt from property taxation under the Constitution and laws of North Carolina, nor by railroad companies, public utilities as defined in G.S. 62-3(23), or electric or telephone membership corporations.

HARD COPY SUBMITTAL REQUIREMENTS:

- Town of Apex Petition for Annexation with original wet ink signatures. No photocopies or scanned images.
- Petition Fee

ELECTRONIC SUBMITTAL REQUIREMENTS: GEOCIVIX (IDT Plans)

- Town of Apex Petition for Annexation
- Written Metes and Bounds Legal Description: Submit original PDF. Scanned documents will not be accepted.
- Electronic plat submittal (18" x 24")

REVIEW AND APPROVAL PROCESS:

- **SUBMITTAL:** Submit hard copy application with original wet signatures (no photo copies or scanned images) and fee to the Department of Planning and Community Development and upload an electronic copy of the application, legal description and Annexation Plat via GeoCivix.
- **REVIEW BY STAFF:** The Planning Department and Development Services Department review the annexation submission. Comments will be sent to the applicant via email.
- **DESIGNATION OF ANNEXATION NUMBER:** The application is assigned an annexation number once the annexation petition is received.
- **ANNEXATION PLAT SUBMISSION:** After the map and legal description are deemed sufficient by the Town of Apex, the applicant is required to submit three (3) 18"x24" Mylar annexation plats to the Planning Department by the due date on the attached Annexation Schedule.
- **1ST TOWN COUNCIL MEETING:** This Town Council Meeting is typically held the second Tuesday of each month. The Town Council will pass a resolution directing the Town Clerk to investigate the annexation petition. The Town Clerk will present to the Town Council a Certificate of Sufficiency indicating that the annexation petition is complete. A resolution setting the date of the public hearing is then approved.
- **LEGAL ADVERTISEMENT:** A legal advertisement will be published on the Town of Apex's website no more than 25 days and no less than 10 days prior to the date of the public hearing.
- **2ND TOWN COUNCIL MEETING/PUBLIC HEARING:** This Town Council Meeting is typically held the fourth Tuesday of each month. The Town Council will either adopt or deny an ordinance to extend the corporate limits of the Town of Apex.
- **RECORDATION:** If the annexation is approved by the Town Council, the Town Clerk will have the Annexation Plats recorded at the Wake County or Chatham County Register of Deeds, as appropriate. Wake County or Chatham County will keep one of the recorded plats, one copy will be returned to the Planning Department, and the surveying company is given the remaining recorded Annexation Plat.

FOR WELL AND/OR SEPTIC FAILURES:

If the purpose of the petition is to connect to public water and/or sewer, contact Water Resources Program Coordinator Jessica Sloan at 919-372-7478 or jessica.sloan@apexnc.org to confirm that public water and/or sewer is available to the property. In order to receive public water and/or sewer services from the Town of Apex, refer to the checklist of items below to assist with obtaining one or both of these services:

- Apply for a plumbing permit with the Building Inspections and Permitting Department.
- The plumbing permit and associated costs for water and/or sewer will be included with the permit.

Please refer to the Town of Apex Fee Schedule for the list of current fees.

PETITION FOR VOLUNTARY ANNEXATION

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.

Application #: # 781 Submittal Date: 3-28-2024

Fee Paid $ 200.00 Check # 6257

TO THE TOWN COUNCIL APEX, NORTH CAROLINA

1. We, the undersigned owners of real property, respectfully request that the area described in Part 4 below be annexed to the Town of Apex, ☒ Wake County, ☐ Chatham County, North Carolina.
2. The area to be annexed is ☒ contiguous, ☐ non-contiguous (satellite) to the Town of Apex, North Carolina and the boundaries are as contained in the metes and bounds description attached hereto.
3. If contiguous, this annexation will include all intervening rights-of-way for streets, railroads, and other areas as stated in G.S. 160A-31(f), unless otherwise stated in the annexation amendment.

OWNER INFORMATION

Horton Park Investments, LLC	0750299045
Owner Name (Please Print)	Property PIN or Deed Book & Page #
919-422-1166	pablo@prmsinv.com
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address

SURVEYOR INFORMATION

Surveyor: Bateman Civil Survey

Phone: 919-577-1080 Fax: 919-577-1081

E-mail Address: e.schroeder@batemancivilsurvey.com

ANNEXATION SUMMARY CHART

Property Information		Reason(s) for annexation (select all that apply)	
Total Acreage to be annexed:	3.95 ac	Need water service due to well failure	☐
Population of acreage to be annexed:	0	Need sewer service due to septic system failure	☐
Existing # of housing units:	0	Water service (new construction)	☐
Proposed # of housing units:	0	Sewer service (new construction)	☐
Zoning District*:	RR	Receive Town Services	☑

*If the property to be annexed is not within the Town of Apex's Extraterritorial Jurisdiction, the applicant must also submit a rezoning application with the petition for voluntary annexation to establish an Apex zoning designation. Please contact the Planning Department with questions.

PETITION FOR VOLUNTARY ANNEXATION

Application #: #781 Submittal Date: 3-28-2024

COMPLETE IF IN A LIMITED LIABILITY COMPANY

In witness whereof, Horton Park Investments a limited liability company, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the 26 day of March, 2024

Name of Limited Liability Company Horton Park Investments, LLC

By: Ray Schmitt
Signature of Member/Manager
Ray Schmitt/CFO

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Cameron Williamson, a Notary Public for the above State and County, this the 26 day of March, 2024.

Cameron Williamson
Notary Public

SEAL

CAMERON WILLIAMSON NOTARY PUBLIC WAKE COUNTY, NC

My Commission Expires: 6/16/26

COMPLETE IF IN A PARTNERSHIP

In witness whereof, _____, a partnership, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the _____ day of _____, 20_____.

Name of Partnership _____

By: _____
Signature of General Partner

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerk's Office

Requested Motion

Motion to adopt a Resolution Directing the Town Clerk to Investigate Petition Received, to accept the Certificate of Sufficiency by the Town Clerk, and to adopt a Resolution Setting the Date of a Public Hearing for June 25, 2024, on the Question of Annexation - Apex Town Council's intent to annex 2.4938 acres, Townes on Tingen, Annexation No. 782 into the Town Corporate limits.

Approval Recommended?

Yes

Item Details

The Town Clerk certifies to the investigation of said annexation. Adoption of the Resolution authorizes the Town Clerk to advertise said public hearing by electronic means and on the Town of Apex's website.

Attachments

- CN5-A1: Resolution Directing the Town Clerk to Investigate Petition
  - Certificate of Sufficiency by the Town Clerk
  - Resolution Setting Date of Public Hearing
- CN5-A2: Legal Description – Annexation No. 782
- CN5-A3: Aerial Map – Annexation No. 782
- CN5-A4: Plat Map – Annexation No. 782
- CN5-A5: Annexation Petition – Annexation No. 782

RESOLUTION DIRECTING THE TOWN CLERK
TO INVESTIGATE PETITION RECEIVED UNDER G.S.§ 160A-31

Annexation Petition No. 782
Townes on Tingen – 2.4938 acres

WHEREAS, G.S. §160A- 31 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Apex deems it advisable to proceed in response to this request for annexation;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, that the Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify to the Town Council the result of his investigation.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert
Mayor

ATTEST:

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

CERTIFICATE OF SUFFICIENCY BY THE TOWN CLERK

Annexation Petition No. 782
Townes on Tingen – 2.4938 acres

To: The Town Council of the Town of Apex, North Carolina

I, Allen L. Coleman, Town Clerk, do hereby certify that I have investigated the annexation petition attached hereto, and have found, as a fact, that said petition is signed by all owners of real property lying in the area described therein, in accordance with G.S.§ 160A-31, as amended.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Town of Apex, North Carolina this 11th day of June, 2024.

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

(Seal)

RESOLUTION SETTING DATE OF PUBLIC HEARING
ON THE QUESTION OF ANNEXATION PURSUANT TO G.S.§ 160A-31 AS AMENDED

Annexation Petition No. 782
Townes on Tingen – 2.4938 acres

WHEREAS, a petition requesting annexation of the area described herein has been received; and

WHEREAS, the Town Council of Apex, North Carolina has by Resolution directed the Town Clerk to investigate the sufficiency thereof; and

WHEREAS, Certification by the Town Clerk as to the sufficiency of said petition has been made;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, North Carolina that:

Section 1. A public hearing on the question of annexation of the area described herein will be held at the Apex Town Hall at 6 o'clock p.m. on the 25th day of June, 2024.

Section 2. The area proposed for annexation is described as attached.

Section 3. Notice of said public hearing shall be published on the Town of Apex Website, www.apexnc.org, Public Notice, at least ten (10) days prior to the date of said public hearing.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert, Mayor

ATTEST:

_____
Allen L. Coleman, Town Clerk

Attachment: Legal Description

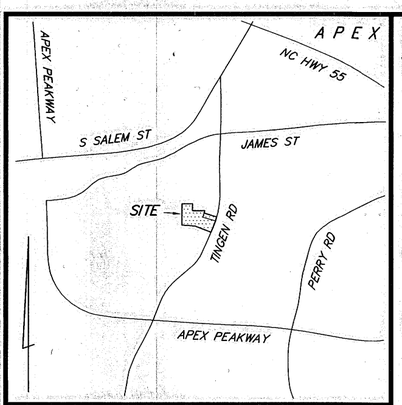
Smith & Smith Surveyors, P.A.
P.O. Box 457
Apex, N.C. 27502
(919) 362-7111
Firm License No. C-0155

Lying and being in Town of Apex ETJ, White Oak Township, Wake County, North Carolina, and described more fully as follows to wit:

BEGINNING at an existing iron pipe in the southern property line of Board Of Education Of Wake County (D.B. 1206, Pg. 475) located South 87° 38' 14" West, 386.99 feet from an existing concrete monument bearing NAD 83 (2011) coordinate values of North 716,853.62 feet, East 2,042,741.33 feet; thence South 02° 17' 00" East, 106.59 feet to a disturbed existing iron pipe; thence North 88° 16' 28" East, 215.58 feet to an existing iron pipe; thence South 16° 40' 12" West, 51.01 feet to an existing iron pipe; thence South 73° 24' 21" East, 139.77 feet to an iron pipe set on the western right of way of Tingen Road ~ NCSR 1153; thence with western right of way of Tingen Road the following 3 calls: South 18° 28' 28" West, 70.22 feet to an iron pipe set; thence South 18° 22' 11" West, 128.78 feet to a magnetic nail set; thence South 26° 55' 13" West, 14.61 feet to an iron pipe set; thence leaving western right of way of Tingen Road North 69° 14' 31" West, 232.35 feet to an existing iron pipe; thence North 85° 57' 48" West, 189.63 feet to an existing iron pipe; thence North 01° 24' 14" East, 289.75 feet to an existing concrete monument; thence North 87° 40' 19" East, 129.84 feet to the BEGINNING, containing 2.4938 total acres more or less.

This description was prepared for the sole purpose of annexation of a municipal boundary and for no other use.


Annexation #782
Apex Elementary School
Wragby Ln
James Ext St
Owlsmoor Ln
James Street Station
Eversley Ct
Miniey Way
West Haven Townhomes
Harbor Haven Dr
Shelter Haven Dr
Tingen Rd
Peace Haven Pl
Kissena Ln
Perry Farms
Glaston Ct
Sparta Ln
Perry Hills
Litton St
SCHOOL
Prepared by: Town of Apex Planning Department, April 2024
February 2024 Aerial Photography
0
200
400
Feet



VICINITY MAP (NOT TO SCALE)

I, STALEY C. SMITH, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION AS RECORDED IN:
D.B. 19232, PG. 2696
BOOK OF MAPS 1997, PAGE 1930
THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS BROKEN LINES AND WERE PLOTTED FROM INFORMATION AS REFERENCED HEREON; THAT THE RATIO OF PRECISION AS CALCULATED WAS 1: 51,567 AND THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30(j) AS AMENDED.

CERTIFY THAT THE GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) WAS USED TO PERFORM A PORTION OF THIS SURVEY AND THE FOLLOWING INFORMATION WAS USED:

Class of survey: A
Positional Accuracy: < 0.10' AT 95% CONFIDENCE LEVEL
Type of GPS field procedure: NCRTN/VRS
Dates of survey: 6-15-2021
Datum/Epoch: NAD 83 (2011)
Published/Fixed-control use: NCGS BASE STATION "NCJL" (PID DL3891)
Geoid model: 2018
GPS/GNSS LOCALIZATION POINT: N= 716,853.62 E= 2,042,741.33
Combined grid factor(s): 0.99990441
Units: U.S. SURVEY FOOT

WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER, AND SEAL THIS 6TH DAY OF MAY, A.D., 2024.

NORTH CAROLINA PROFESSIONAL SEAL L-3766 LAND SURVEYOR STALEY C. SMITH

Staley C Smith
Professional Land Surveyor
L-3766
License Number

ALBERT BYRD ET UX. HEIRS
D.B. 1854, PG. 663

ALBERT BYRD ET UX. HEIRS
D.B. 1326, PG. 514

ISOLINE BYRD
D.B. 1340, PG. 108

BOARD OF EDUCATION OF WAKE COUNTY
D.B. 1206, PG. 475
B.M. 2003, PG. 1861

ANNEXATION # 102
(1987±)

ANNEXATION # 322
B.M. 2001, PG. 2396

ECM
EIP DISTURBED
13.83'
129.84' TOTAL
N 87°40'19" E
116.01'
IN
OUT
TOWN OF APEX CORPORATE LIMITS
FLOW
EIP
S 02°17'00" E
106.59'
386.99'
N 87°38'14" E
TIE ONLY
IN
OUT
TOWN OF APEX CORPORATE LIMITS
ECM
GPS/GNSS LOCALIZATION POINT
N.C. GRID COORDINATE
NAD 83 (2011)
N= 716,853.62
E= 2,042,741.33
U.S. SURVEY FOOT UNITS

JOHN AMOROSO
JAME L. AMOROSO
D.B. 7287, PG. 240 ~ TRACT ONE

TIE ONLY
132.28'
S 15°58'49" E

N.C. GRID
NAD 83 (2011)

EASTON, JR.
ET UX.
D.B. 7358, PG. 304
B.M. 1982, PG. 604

1" EIS

TINGEN ROAD (NCSR 1153)
PUBLIC R/W WIDTH VARIES

TIE ONLY
100.51'
S 17°19'44" W

MANGUM HEIRS
D.B. 2009, PG. 515

FLAT EIS

GALLOWAY
D.B. 1633, PG. 415

"BALDWIN CEMETERY"

CURTIS LEROY EPPS
D.B. 16623, PG. 473

DANIEL EPPS, JR.
D.B. 17051, PG. 1299 ~ TRACT 2

WEST HAVEN NC, LLC
D.B. 18944, PG. 939
B.M. 1999, PG. 209 ~ "LOT B"

ANNEXATION # 243
B.M. 1998, PG. 253

288.75'
N 01°24'14" E

215.58'
N 88°16'28" E

EIP
EIP DISTURBED
FLOW

S 16°40'12" W
51.01'

JOHN AMOROSO
JAME L. AMOROSO
D.B. 7287, PG. 240 ~ TRACT TWO

139.77'
S 73°24'21" E

IPS
S 18°08'27" W
70.20'

D.B. 19232, PG. 2696
TRACT ONE

940

NAIL SET AT BASE OF EIP

139.32'
S 73°24'21" E

IPS

TEMPORARY CONSTRUCTION EASEMENT D.B. 15893, PG. 2712
FEE SIMPLE R/W D.B. 15893, PG. 2712
S 18°28'28" W
70.22'

D.B. 19232, PG. 2696
TRACT TWO

1010

PERMANENT DRAINAGE EASEMENT D.B. 15893, PG. 2712
TEMPORARY CONSTRUCTION EASEMENT D.B. 15893, PG. 2712
FEE SIMPLE R/W - D.B. 15893, PG. 2712
S 18°22'11" W
128.78'

30" CURB & GUTTER
CURB INLET
FES 15" RCP
TEMPORARY CONSTRUCTION EASEMENT D.B. 15893, PG. 2712
CONCRETE LID
UTILITY POLE TOA # 07245
MNS
5' CONCRETE SIDEWALK
S 26°55'13" W
14.61'
IPS
10' X 70' SIGHT TRIANGLE B.M. 2001, PG. 2353
OVERHEAD UTILITY
TIE ONLY
66.14'
S 57°33'21" E
1" EIS
OUT
IN
TOWN OF APEX CORPORATE LIMITS

2.4938 ACRES TOTAL ANNEXED

ANNEXATION # _____

I, ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK, Apex, North Carolina certify this is a true and exact map of annexation adopted the _____ day of _____, 2024. by the Town Council. I set my hand and seal of the Town of Apex, _____, 2024.

ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK

OUT
EIP
60.18'
N 86°06'06" W
TIE ONLY
IN
TOWN OF APEX CORPORATE LIMITS
EIP
20' TYPE "B" BUFFER B.M. 2001, PG. 2353
N 85°57'48" W
189.63'
FLOW
EIP
OUT
IN
TOWN OF APEX CORPORATE LIMITS
N 69°14'31" W
232.35'
FLOW

WESTHAVEN TOWNHOMES HOMEOWNERS' ASSOCIATION
D.B. 13251, PG. 1696
B.M. 2006, PG. 1766

20' PUBLIC SANITARY SEWER EASEMENT B.M. 2001, PG. 2353

WESTHAVEN TOWNHOMES
B.M. 2006, PG. 1552

WESTHAVEN TOWNHOMES
B.M. 2003, PG. 386

20' TYPE "B" BUFFER B.M. 2001, PG. 2353

WESTHAVEN TOWNHOMES HOMEOWNERS' ASSOCIATION
D.B. 13251, PG. 1696
B.M. 2006, PG. 1766

ANNEXATION # 290
B.M. 1999, PG. 1960

HARBOR HAVEN DRIVE
50' PUBLIC R/W
B.M. 2001, PG. 2353

30' TYPE "D" STREET FRONT BUFFER B.M. 2001, PG. 2353

Legend
EIP – ● – Existing Iron Pipe
EIS – ● – Existing Iron Stake
IPS – ○ – Iron Pipe Set
MNS – ○ – Magnetic Nail Set
ECM – ■ – Existing Concrete Monument
XXX – – Street Address (Typical)
R/W – – Right Of Way (Approximate)
– Guy Anchor
TOA – – Town of Apex
FES – – Flared End Section
RCP – – Reinforced Concrete Pipe
NAD 83 (2011) – – NORTH AMERICAN DATUM 1983 (YEAR OF ADJUSTMENT)
VRS – – Virtual Reference Station
PIN – – Parcel Identification Number
PID – – Permanent Identifier
NCSR – – North Carolina Secondary Road
GPS – – Global Positioning System
VRS – – Virtual Reference Station
NCGS – – North Carolina Geodetic Survey
NCRTN – – North Carolina Real-Time Network

Surveyed Line
Surveyed Line
Line (not surveyed)
Approximate Right Of Way Line (not surveyed)
Existing Buffer/Easement (not surveyed)
Existing Buffer/Easement (not surveyed)
Existing Town of Apex Corporate Limits (not surveyed)

SURVEYOR NOTES:

1. THE PROPERTY SHOWN HEREON MAY BE SUBJECT TO COVENANTS, CONDITIONS, RESTRICTIONS, RIGHTS OF WAY, AND EASEMENTS OF RECORD AFFECTING THE SAME.
2. NO TITLE SEARCH HAS BEEN PERFORMED BY THIS FIRM DURING THE COURSE OF THIS SURVEY.
3. THIS SURVEYOR DOES NOT CERTIFY TO THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITIES, BURIAL GROUNDS, OR ANY SUBSURFACE FEATURES THAT MAY OR MAY NOT BE PRESENT ON THIS SITE.
4. ALL DISTANCES ARE HORIZONTAL U.S. SURVEY FOOT UNIT GROUND MEASUREMENTS.
5. AREA DETERMINED USING THE COORDINATE GEOMETRY METHOD.
6. CURRENT ZONING IS TOWN OF APEX HDMF-CZ (HIGH DENSITY MULTI-FAMILY RESIDENTIAL - CONDITIONAL ZONING 21CZ27)
7. THIS MAP WAS PREPARED FOR THE SOLE PURPOSE OF ANNEXATION OF A MUNICIPAL BOUNDARY. THIS MAP SHOULD NOT BE USED TO TRANSFER PROPERTY SHOWN HEREON.

0 15 40 80
U.S. SURVEY FOOT
1 inch = 40 ft.

RECORDED IN BOOK OF MAPS 2024, PAGE _____.

ANNEXATION MAP for the TOWN OF APEX

JVI BUILDING & DEVELOPMENT, INC.

TOWN OF APEX ETJ, WHITE OAK TOWNSHIP, WAKE COUNTY, NORTH CAROLINA

LISTED OWNER
(NOT A TITLE VERIFICATION)
JVI BUILDING & DEVELOPMENT, INC.
2509 SOUTHWINDS RUN
APEX, NC 27502

PIN 0741-26-4605
0741-26-6614

Smith & Smith, Surveyors, P.A.
P.O. BOX 457
APEX, N.C. 27502
(919) 362-7111
FIRM LICENSE No. C-0155

FIELD DATE	JUNE 14, 2021
SCALE	1" = 40'
DRAWN BY	WBH
PROJ. NO.	2021-50

PETITION FOR VOLUNTARY ANNEXATION

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.

Application #:		Submittal Date:	
Fee Paid	$	Check #	

TO THE TOWN COUNCIL APEX, NORTH CAROLINA

1. We, the undersigned owners of real property, respectfully request that the area described in Part 4 below be annexed to the Town of Apex, ■ Wake County, ☐ Chatham County, North Carolina.
2. The area to be annexed is ■ contiguous, ☐ non-contiguous (satellite) to the Town of Apex, North Carolina and the boundaries are as contained in the metes and bounds description attached hereto.
3. If contiguous, this annexation will include all intervening rights-of-way for streets, railroads, and other areas as stated in G.S. 160A-31(f), unless otherwise stated in the annexation amendment.

OWNER INFORMATION

JVI Building & Development, Inc., Joey Iannone	0741-26-6614, DB 19232, PG 2696
Owner Name (Please Print)	Property PIN or Deed Book & Page #
(919) 387-8846	joey@jviconstruction.com
Phone	E-mail Address
JVI Building & Development, Inc., Joey Iannone	0741-26-4605, DB 19232 PG 2696
Owner Name (Please Print)	Property PIN or Deed Book & Page #
(919) 387-8846	joey@jviconstruction.com
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address

SURVEYOR INFORMATION

Surveyor: Smith & Smith Surveyors, P.A.

Phone: (919) 362-7111 Fax:

E-mail Address: Staley Smith staley@smithandsmithsurveyors.net

ANNEXATION SUMMARY CHART

Property Information		Reason(s) for annexation (select all that apply)	
Total Acreage to be annexed:	2.4938	Need water service due to well failure	☐
Population of acreage to be annexed:	0	Need sewer service due to septic system failure	☐
Existing # of housing units:	1	Water service (new construction)	☑
Proposed # of housing units:	20	Sewer service (new construction)	☑
Zoning District*:	HDMF-CZ	Receive Town Services	☑

*If the property to be annexed is not within the Town of Apex's Extraterritorial Jurisdiction, the applicant must also submit a rezoning application with the petition for voluntary annexation to establish an Apex zoning designation. Please contact the Planning Department with questions.

PETITION FOR VOLUNTARY ANNEXATION

Application #: #782 Submittal Date: 4-1-2024

COMPLETE IF SIGNED BY INDIVIDUALS:

All individual owners must sign. (If additional signatures are necessary, please attach an additional sheet.)

Please Print	Signature
Please Print	Signature
Please Print	Signature
Please Print	Signature

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of, _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

COMPLETE IF A CORPORATION:

In witness whereof, said corporation has caused this instrument to be executed by its President and attested by its Secretary by order of its Board of Directors, this the 12 day of MARCH, 2024.

Corporate Name JVI Building & Development, Inc.

SEAL

By: _____
President (Signature)

Attest: _____
~~Secretary (Signature)~~ FOR PEAK ENGINEERING & DESIGN (ATTEST)

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, DANIEL H. WOODS, a Notary Public for the above State and County, this the 12 day of MARCH, 2024.

_____
DANIEL H. WOODS Notary Public

SEAL

DANIEL H. WOODS NOTARY PUBLIC WAKE COUNTY NORTH CAROLINA

My Commission Expires: 11/18/28

Petition for Voluntary Annexation

Application #: _____ Submittal Date: _____

Complete If In A Limited Liability Company

In witness whereof, _____ a limited liability company, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the ____ day of _____, 20____.

Name of Limited Liability Company _____

By: _____
Signature of Member/Manager

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

Complete If In A Partnership

In witness whereof, _____, a partnership, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the _____ day of _____, 20_____.

Name of Partnership _____

By: _____
Signature of General Partner

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerk's Office

Requested Motion

Motion to adopt a Resolution Directing the Town Clerk to Investigate Petition Received, to accept the Certificate of Sufficiency by the Town Clerk, and to adopt a Resolution Setting the Date of a Public Hearing for June 25, 2024, on the Question of Annexation - Apex Town Council's intent to annex 0.672 acres, Castleberry Reserve, Satellite Annexation No. 783 into the Town Corporate limits.

Approval Recommended?

Yes

Item Details

The Town Clerk certifies to the investigation of said annexation. Adoption of the Resolution authorizes the Town Clerk to advertise said public hearing by electronic means and on the Town of Apex's website.

Attachments

- CN6-A1: Resolution Directing the Town Clerk to Investigate Petition
  - Certificate of Sufficiency by the Town Clerk
  - Resolution Setting Date of Public Hearing
- CN6-A2: Legal Description – Satellite Annexation No. 783
- CN6-A3: Aerial Map – Satellite Annexation No. 783
- CN6-A4: Plat Map – Satellite Annexation No. 783
- CN6-A5: Annexation Petition – Satellite Annexation No. 783

RESOLUTION DIRECTING THE TOWN CLERK
TO INVESTIGATE PETITION RECEIVED UNDER G.S.§ 160A-58.1

Satellite Annexation Petition No. 783
Castleberry Reserve – 0.672 acres

WHEREAS, G.S. §160A- 58.2 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Apex deems it advisable to proceed in response to this request for annexation;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, that the Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify to the Town Council the result of his investigation.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert
Mayor

ATTEST:

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

CERTIFICATE OF SUFFICIENCY BY THE TOWN CLERK

Satellite Annexation Petition No. 783
Castleberry Reserve – 0.672 acres

To: The Town Council of the Town of Apex, North Carolina

I, Allen L. Coleman, Town Clerk, do hereby certify that I have investigated the annexation petition attached hereto, and have found, as a fact, that said petition is signed by all owners of real property lying in the noncontiguous area described therein, in accordance with G.S.§ 160A-58.1(b), as amended.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Town of Apex, North Carolina this 11th day of June, 2024.

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

(Seal)

RESOLUTION SETTING DATE OF PUBLIC HEARING
ON THE QUESTION OF ANNEXATION PURSUANT TO G.S.§ 160A-58.2 AS AMENDED

Satellite Annexation Petition No. 783
Castleberry Reserve – 0.672 acres

WHEREAS, a petition requesting annexation of the non-contiguous area described herein has been received; and

WHEREAS, the Town Council of Apex, North Carolina has by Resolution directed the Town Clerk to investigate the sufficiency thereof; and

WHEREAS, Certification by the Town Clerk as to the sufficiency of said petition has been made;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, North Carolina that:

Section 1. A public hearing on the question of annexation of the area described herein will be held at the Apex Town Hall at 6 o'clock p.m. on the 25th day of June, 2024.

Section 2. The area proposed for annexation is described as attached.

Section 3. Notice of said public hearing shall be published on the Town of Apex Website, www.apexnc.org, Public Notice, at least ten (10) days prior to the date of said public hearing.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert, Mayor

ATTEST:

_____
Allen L. Coleman, Town Clerk

Attachment: Legal Description

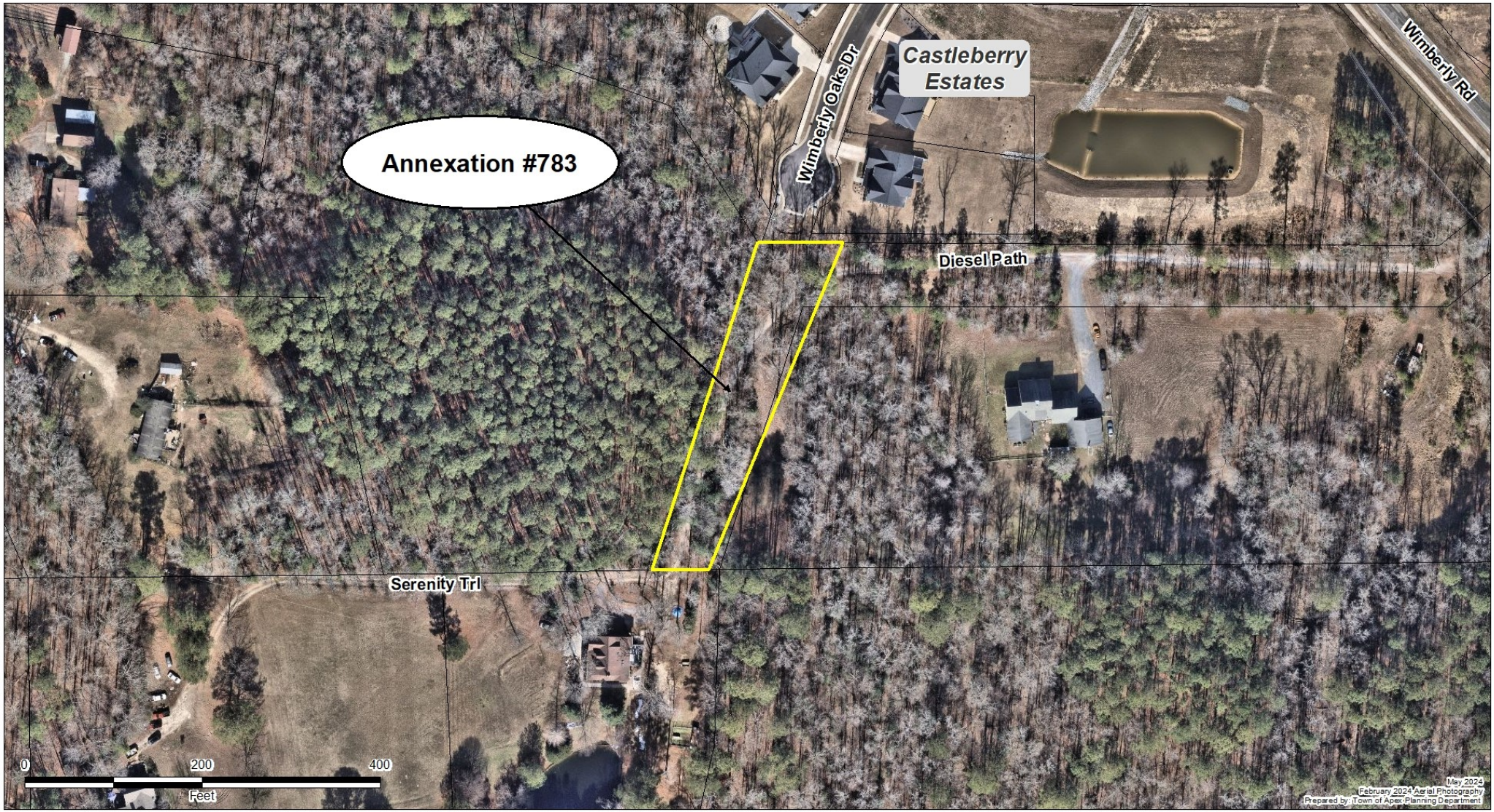
Legal Description

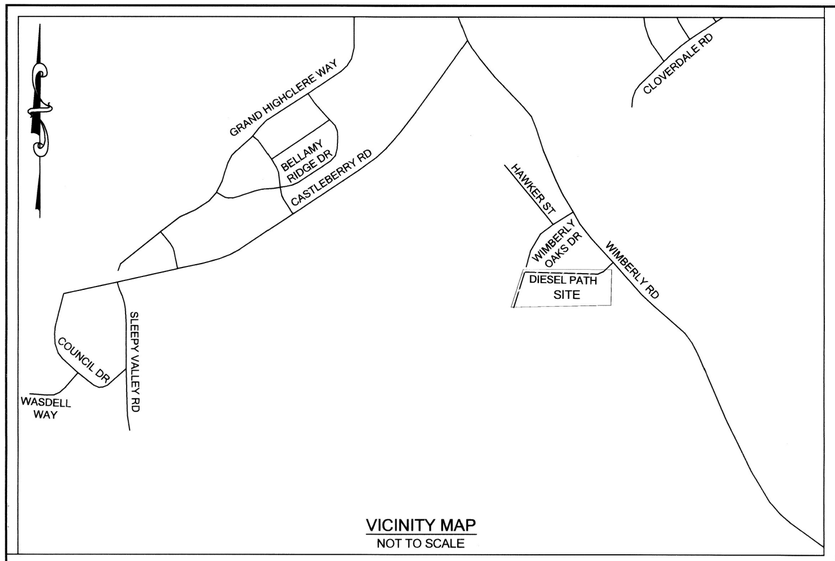
Annexation of 0.672 acre Access Parcel

BEING A PORTION OF THAT PARCEL, NOW OR FORMERLY OF JILL L. SANSOUCY AND SCOTT OLSON AS DESCRIBED IN DB 11370, PG 2312 (PIN 0723216874) SAID AREA BEING LOCATED IN THE TOWN OF APEX, WHITE OAK TOWNSHIP, WAKE COUNTY, NORTH CAROLINA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A 1/2" IRON PIPE FOUND ON THE NORTHWESTERN CORNER OF THE PROPERTY NOW OR FORMERLY OF JILL L. SANSOUCY AND SCOTT OLSON AS DESCRIBED IN DB 11370, PG 2312 (PIN 0723216874) SAID IRON BEING THE TRUE POINT OF BEGINNING AND HAVING NORTH CAROLINA STATE PLAIN COORDINATES OF N= 732,059.23' AND E= 2,022,262.54'; THENCE, FROM THE POINT OF BEGINNING, S89°49'02"E A DISTANCE OF 95.79 FEET TO A COMPUTED POINT; THENCE, S22°22'45"W A DISTANCE OF 396.87 FEET TO A 1" IRON PIPE FOUND; THENCE, S88°59'08"W A DISTANCE OF 63.66 FEET TO A ¾" IRON PIPE SET; THENCE, N17°53'44"E A DISTANCE OF 387.14 FEET TO THE POINT OF BEGINNING.

SAID AREA CONTAINING 29,257 SQUARE FEET OR 0.672 ACRES, MORE OR LESS.


Annexation #783
Castleberry Estates
Wimberly Oaks Dr
Wimberly Rd
Diesel Path
Serenity Trl
0
200
400
Feet
May 2024
February 2024 Aerial Photography
Prepared by: Town of Apex Planning Department



VICINITY MAP
NOT TO SCALE

ANNEXATION # _____

I, ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK, APEX, NORTH CAROLINA CERTIFY THIS A TRUE AND EXACT MAP OF ANNEXATION ADOPTED THE _____ DAY OF _____, 20___, BY THE TOWN COUNCIL. I SET MY HAND AND SEAL OF THE TOWN OF APEX, _____. DAY/MONTH/YEAR

_____ ALLEN COLEMAN, CMC, NCCCC,
TOWN CLERK

LEGEND

- EXISTING BOUNDARY CORNER FOUND
- BOUNDARY CORNER SET
- COMPUTED POINT
- CONCRETE MONUMENT FOUND
- PROPERTY LINE SURVEYED
- PROPERTY LINE NOT SURVEYED
- EASEMENTS
- TOWN OF APEX CORPORATE LIMITS (PER WAKE COUNTY GIS)

EIP	EXISTING IRON PIPE
EIR	EXISTING IRON REBAR
BM	BOOK OF MAPS
DB	DEED BOOK
PG	PAGE
R/W	RIGHT OF WAY

CLASS OF SURVEY: A
POSITIONAL ACCURACY: 0.07'
TYPE OF GPS FIELD PROCEDURE: NC REAL TIME NETWORK
DATES OF SURVEY: OCTOBER 2022 & APRIL 2023
DATUM/EPOCH: NAD83/NSRS2011
GEOID MODEL: 18
COMBINED GRID FACTOR (CONTROL CORNER 1): 0.999904548
UNITS: US SURVEY FEET

NOTES

1. THIS SURVEY WAS PREPARED BY BATEMAN CIVIL SURVEY COMPANY UNDER THE SUPERVISION OF JOSHUA R DAVIDSON, PLS.
2. ALL DISTANCE ARE HORIZONTAL GROUND DISTANCE AND ALL BEARINGS ARE BASED ON GPS OBSERVATIONS, NAD83 / NSRS 2011 / SPC, UNLESS OTHERWISE SHOWN.
3. PROPERTY LIES IN ZONE "X" PER NATIONAL INSURANCE PROGRAM FLOOD INSURANCE RATE MAP #3720072300K, DATED 07/19/2022.
4. SITE ZONED "R-80W" FOR WAKE COUNTY PER COUNTY GIS.
5. AREAS COMPUTED BY COORDINATE METHOD.
6. SURVEY PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT.
7. ALL BOUNDARY CORNERS SET ARE 3/4" IRON PIPE SET (3/4" IPS), UNLESS OTHERWISE NOTED.
8. THE SOLE PURPOSE OF THIS PLAT IS TO ANNEX 0.672 ACRES TO THE TOWN OF APEX. THIS IS NOT A BOUNDARY SURVEY. NO EXISTING STRUCTURES OR FEATURES OF THE SUBJECT PARCEL ARE SHOWN.

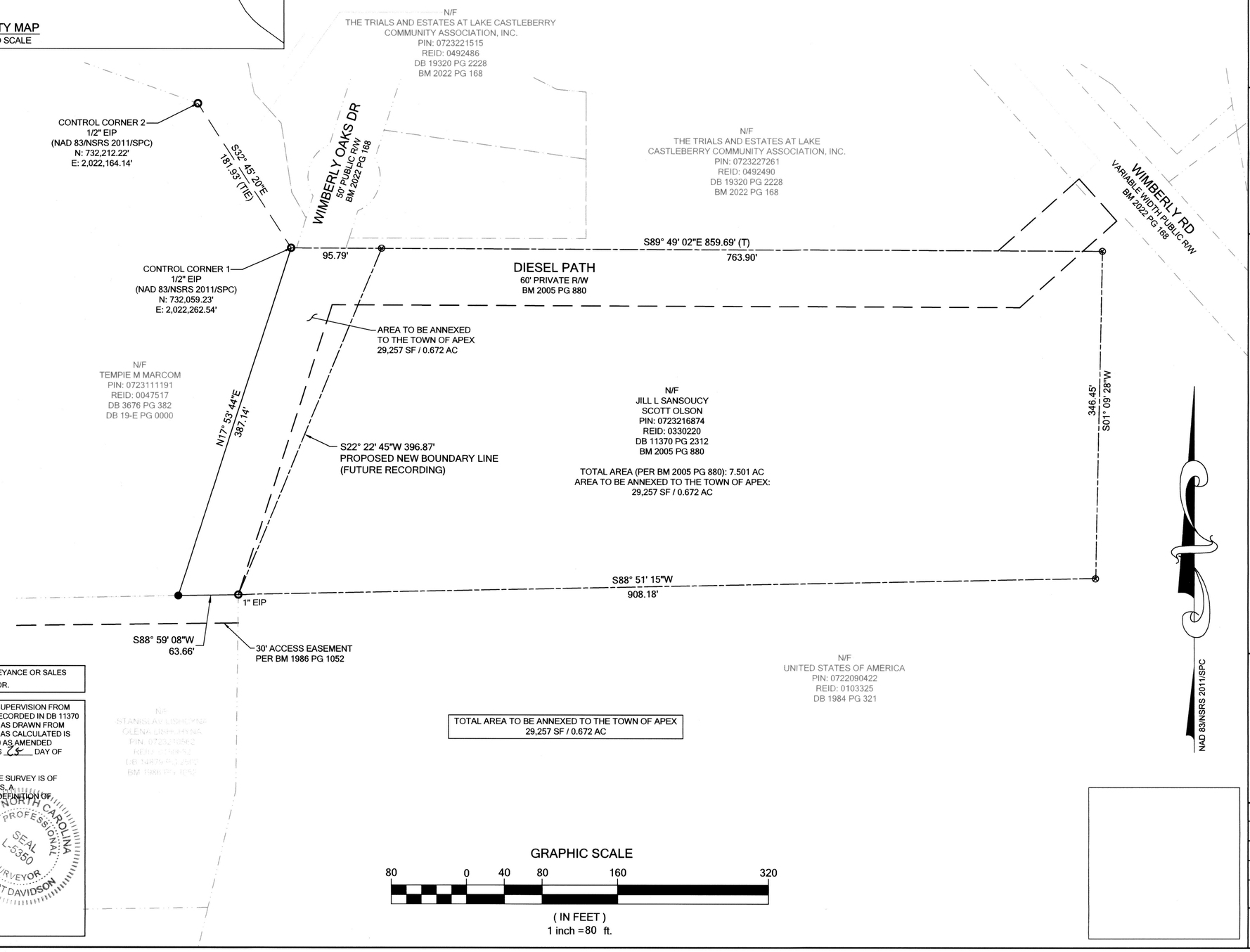
THIS MAP IS CONSIDERED PRELIMINARY, NOT FOR RECORDATION, CONVEYANCE OR SALES UNLESS SIGNED AND SEALED BY THE LICENSED SURVEYOR.

I, JOSHUA R. DAVIDSON, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN DB 11370 PG 2312); THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND AS SHOWN HERE ON; THAT THE RATIO OF PRECISION AS CALCULATED IS 1:10,000+; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 25 DAY OF May, A.D., 2024.

I FURTHER THAT IN ACCORDANCE WITH G.S. 47-30-F-11-D; CERTIFY THAT THE SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXEMPTION OR EXCEPTION TO THE DEFINITION OF SUBDIVISION.

NORTH CAROLINA PROFESSIONAL SEAL L-5350 LAND SURVEYOR JOSHUA ROBERT DAVIDSON

05/25/2024
JOSHUA R. DAVIDSON, PLS — DATE
NC LICENSE NO. L-5350



TOTAL AREA TO BE ANNEXED TO THE TOWN OF APEX
29,257 SF / 0.672 AC

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

BATEMAN CIVIL SURVEY COMPANY
ENGINEERS • SURVEYORS • PLANNERS
2524 RELIANCE AVENUE, APEX, NC 27539
PHONE: (919) 577-1080 FAX: (919) 577-1081
INFO@BATEMANCIVILSURVEY.COM
NCBELS FIRM# C-2378

SATELLITE ANNEXATION MAP FOR THE TOWN OF APEX

PIN: 0723216874, REID: 0330220
AS RECORDED IN DB 11370 PG 2312
4201 DIESEL PATH, APEX
WHITE OAK TOWNSHIP - WAKE COUNTY - NORTH CAROLINA

REVISIONS
1. REVISED PER TOWN OF APEX COMMENTS (05/09/2024)
2.
3.
4.

DRAWN BY: ELS
CHECKED BY: JRD
SCALE: 1" = 80'
DATE: 03/28/2024
JOB NUMBER: 220679

SHEET 1 OF 1

P:\2022 Projects\220679 Castleberry\DWG\220679 Castleberry Access Annexation.dwg

PETITION FOR VOLUNTARY ANNEXATION

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.

Application #: #783 Submittal Date: 4-18-2024

Fee Paid $ 200.00 Check # CC

TO THE TOWN COUNCIL APEX, NORTH CAROLINA

1. We, the undersigned owners of real property, respectfully request that the area described in Part 4 below be annexed to the Town of Apex, ☒ Wake County, ☐ Chatham County, North Carolina.
2. The area to be annexed is ☐ contiguous, ☒ non-contiguous (satellite) to the Town of Apex, North Carolina and the boundaries are as contained in the metes and bounds description attached hereto.
3. If contiguous, this annexation will include all intervening rights-of-way for streets, railroads, and other areas as stated in G.S. 160A-31(f), unless otherwise stated in the annexation amendment.

OWNER INFORMATION

Jill Sansoucy and Scott Olson	A 0.672 acre portion of PIN 0723216874; Deed Book 11370, Page 2312
Owner Name (Please Print)	Property PIN or Deed Book & Page # See attached Exhibits for a comple description
c/o Jennifer Trudnak, Broker, 804-683-9434	jennifer@jentrudnakrealestate.com
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address

SURVEYOR INFORMATION

Surveyor: Bateman Civil Survey Company - Joshua Davidson, PLS

Phone: (919) 577-1080 Fax: (919) 577-1081

E-mail Address: josh@batemancivilsurvey.com

ANNEXATION SUMMARY CHART

Property Information		Reason(s) for annexation (select all that apply)	
Total Acreage to be annexed:	0.672	Need water service due to well failure	☐
Population of acreage to be annexed:	0	Need sewer service due to septic system failure	☐
Existing # of housing units:	0	Water service (new construction)	☑
Proposed # of housing units:	0	Sewer service (new construction)	☑
Zoning District*:	R-80W	Receive Town Services	☑

*If the property to be annexed is not within the Town of Apex's Extraterritorial Jurisdiction, the applicant must also submit a rezoning application with the petition for voluntary annexation to establish an Apex zoning designation. Please contact the Planning Department with questions.

PETITION FOR VOLUNTARY ANNEXATION

Application #: #783 Submittal Date: 4-18-2024

COMPLETE IF SIGNED BY INDIVIDUALS:

Matthew J. Carpenter, Authorized Agent
Please Print

Signature

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Amanda C. Turner, a Notary Public for the above State and County, this the 1st day of, April, 2024.

Amanda C. Turner
Notary Public

SEAL

My Commission Expires: 6/26/2025

AGENT AUTHORIZATION FORM

Application #: #783 Submittal Date: 4-18-2024

Jill Sansoucy and Scott Olson is the owner* of the property for which the attached application is being submitted:

- ☑ Rezoning: For Conditional Zoning and Planned Development rezoning applications, this authorization includes express consent to zoning conditions that are agreed to by the Agent which will apply if the application is approved.
- ☑ Site Plan
- ☑ Subdivision
- ☐ Variance
- ☑ Other: Annexation Petition

The property address is: Approximately 0.67 acres of 4201 Diesel Path (PIN 0723216874); Area #1 and Area #2 on the attached Exhibit A

The agent for this project is: Matthew J. Carpenter

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

Agent Name: Matthew J. Carpenter

Address: 301 Fayetteville Street, Suite 1400, Raleigh, NC 27601

Telephone Number: 919-835-4032

E-Mail Address: MatthewCarpenter@parkerpoe.com

Signature(s) of Owner(s)*

Jill Sansoucy — Type or print name — 3.18.24 — Date

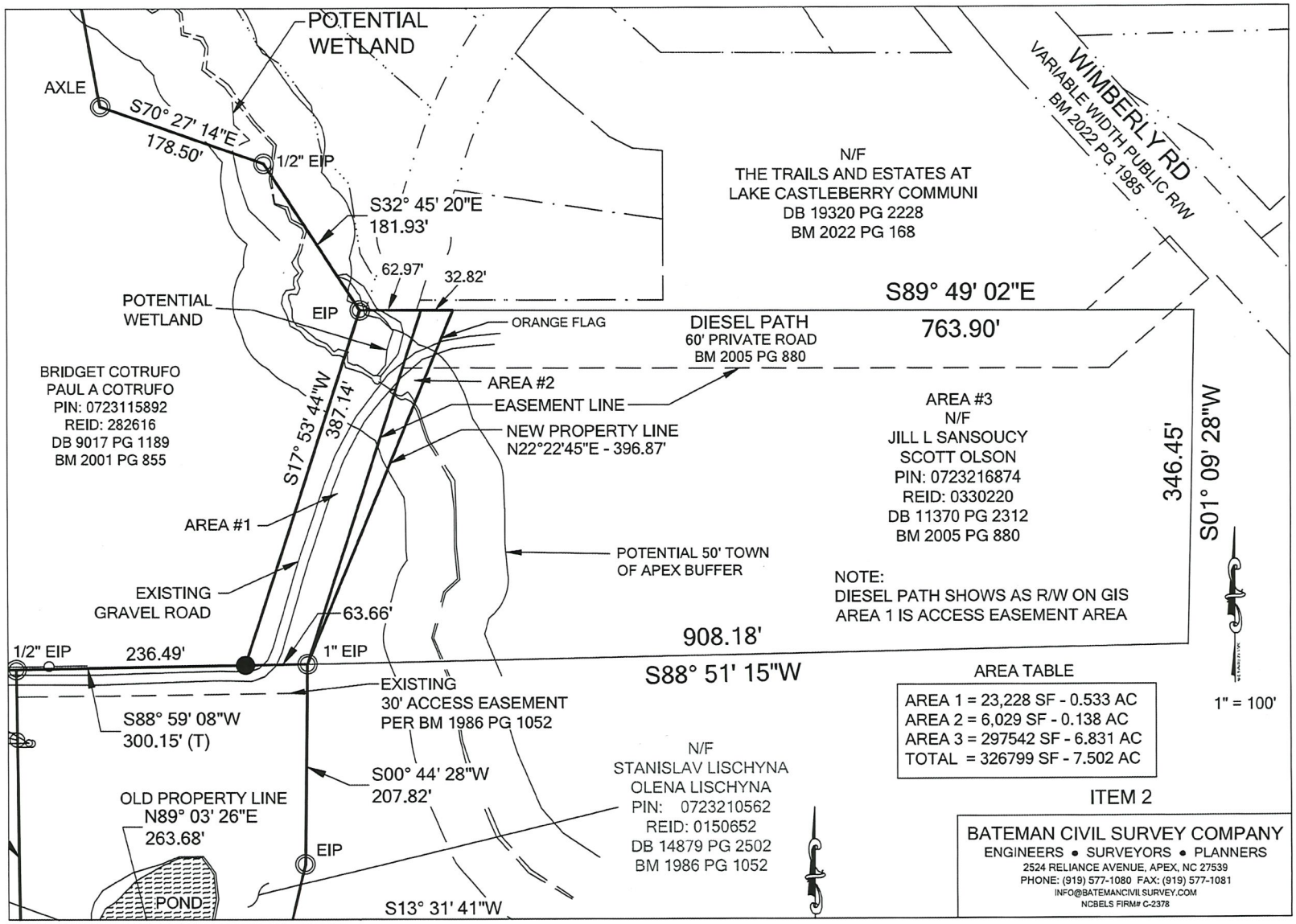
Scott Olson — Type or print name — 3.18.24 — Date

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.

Pursuant to Article 40 of Chapter 66 of the North Carolina General Statutes (the Uniform Electronic Transactions Act) this application and all documents related hereto containing an electronic or digitized signature are legally binding in the same manner as are hard copy documents executed by hand signature. The parties hereby consent to use electronic or digitized signatures in accordance with the Town's Electronic Signature Policy and intend to be bound by the application and any related documents. If electronic signatures are used the application shall be delivered in an electronic record capable of retention by the recipient at the time of receipt.

EXHIBIT A
to
Agent Authorization Form



Sellers Sig Sec

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerk's Office

Requested Motion

Motion to adopt a Resolution Directing the Town Clerk to Investigate Petition Received, to accept the Certificate of Sufficiency by the Town Clerk, and to adopt a Resolution Setting the Date of a Public Hearing for June 25, 2024, on the Question of Annexation - Apex Town Council's intent to annex 1.882 acres, located at 1717 Holt Road and 1713 Holt Road, Annexation No. 784 into the Town Corporate limits.

Approval Recommended?

Yes

Item Details

The Town Clerk certifies to the investigation of said annexation. Adoption of the Resolution authorizes the Town Clerk to advertise said public hearing by electronic means and on the Town of Apex's website.

Attachments

- CN7-A1: Resolution Directing the Town Clerk to Investigate Petition
  - Certificate of Sufficiency by the Town Clerk
  - Resolution Setting Date of Public Hearing
- CN7-A2: Legal Description – Annexation No. 784
- CN7-A3: Aerial Map – Annexation No. 784
- CN7-A4: Plat Map – Annexation No. 784
- CN7-A5: Annexation Petition – Annexation No. 784

RESOLUTION DIRECTING THE TOWN CLERK
TO INVESTIGATE PETITION RECEIVED UNDER G.S.§ 160A-31

Annexation Petition No. 784
1717 Holt Road and 1713 Holt Road – 1.882 acres

WHEREAS, G.S. §160A- 31 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Apex deems it advisable to proceed in response to this request for annexation;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, that the Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify to the Town Council the result of his investigation.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert
Mayor

ATTEST:

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

CERTIFICATE OF SUFFICIENCY BY THE TOWN CLERK

Annexation Petition No. 784
1717 Holt Road and 1713 Holt Road – 1.882 acres

To: The Town Council of the Town of Apex, North Carolina

I, Allen L. Coleman, Town Clerk, do hereby certify that I have investigated the annexation petition attached hereto, and have found, as a fact, that said petition is signed by all owners of real property lying in the area described therein, in accordance with G.S.§ 160A-31, as amended.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Town of Apex, North Carolina this 11th day of June, 2024.

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

(Seal)

RESOLUTION SETTING DATE OF PUBLIC HEARING
ON THE QUESTION OF ANNEXATION PURSUANT TO G.S.§ 160A-31 AS AMENDED

Annexation Petition No. 784
1717 Holt Road and 1713 Holt Road – 1.882 acres

WHEREAS, a petition requesting annexation of the area described herein has been received; and

WHEREAS, the Town Council of Apex, North Carolina has by Resolution directed the Town Clerk to investigate the sufficiency thereof; and

WHEREAS, Certification by the Town Clerk as to the sufficiency of said petition has been made;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, North Carolina that:

Section 1. A public hearing on the question of annexation of the area described herein will be held at the Apex Town Hall at 6 o'clock p.m. on the 25th day of June, 2024.

Section 2. The area proposed for annexation is described as attached.

Section 3. Notice of said public hearing shall be published on the Town of Apex Website, www.apexnc.org, Public Notice, at least ten (10) days prior to the date of said public hearing.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert, Mayor

ATTEST:

_____
Allen L. Coleman, Town Clerk

Attachment: Legal Description

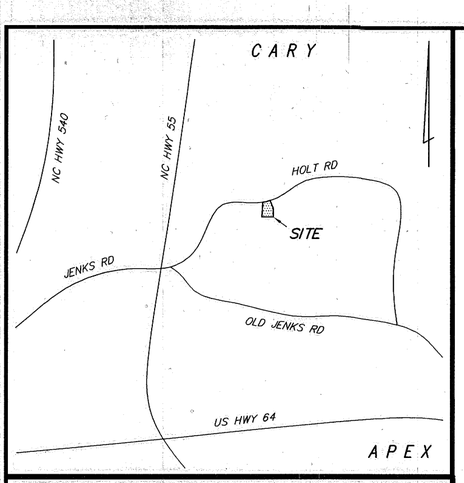
Smith & Smith Surveyors, P.A.
P.O. Box 457
Apex, N.C. 27502
(919) 362-7111
Firm License No. C-0155

Lying and being in Town of Apex ETJ, White Oak Township, Wake County, North Carolina, and described more fully as follows to wit:

BEGINNING at an existing iron pipe bearing NAD 83 (2011) coordinate values of North 733,440.13 feet, East 2,039,871.43 feet (B.M. 2023, Pg. 1598); thence South 02° 51' 14" East, 187.54 feet to a nail found at the base of disturbed existing iron pipe; thence North 89° 09' 02" West, 286.17 feet to an existing iron pipe; thence North 08° 22' 52" East, 328.74 feet to an existing iron pipe on the southern right of way of Holt Road ~ NCSR 1612; thence along and with the southern right of way of Holt Road a curve to the left North 86° 07' 50" East, 69.81 feet (chord), 1277.55 feet (radius) to a point on the southern right of way of Holt Road; thence along and with the southern right of way of Holt Road a curve to the left North 79° 05' 17" East, 76.11 feet (chord), 550.60 feet (radius) to a point on the southern right of way of Holt Road; thence South 89° 04' 46" East, 18.39 feet to a disturbed existing iron pipe; thence South 29° 48' 42" East, 92.48 feet to an existing iron pipe; thence South 14° 00' 10" East, 83.22 feet to the BEGINNING, containing 1.882 total acres more or less.

This description was prepared for the sole purpose of annexation of a municipal boundary and for no other use.


Annexation #784
Calebra Way
Daleshire Dr
Holt Rd
Sutton Glen Dr
Dumont Ct
Montclair
Holtridge Dr
Canonicus Ct
Templeton Gap Dr
Charleston Village
Sutton Place
Hill Hollow Way
Patapsco Dr
Wilde Bnd
200
400
Feet
February 2024 Aerial Photography
May 2024
Prepared by: Town of Apex Planning Department



VICINITY MAP (NOT TO SCALE)

I, STALEY C. SMITH, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION AS RECORDED IN:

DEED BOOK 13087, PAGE 2765
DEED BOOK 19433, PAGE 676
BOOK OF MAPS 1981, PAGE 578
BOOK OF MAPS 1986, PAGE 2037
BOOK OF MAPS 2023, PAGE 1598

THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS BROKEN LINES AND WERE PLOTTED FROM INFORMATION AS REFERENCED HEREON; THAT THE RATIO OF PRECISION AS CALCULATED WAS 1: 64,240 AND THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30(j) AS AMENDED.

WITNESS MY ORIGINAL SIGNATURE, LICENSE NUMBER, AND SEAL THIS 6TH DAY OF MAY, A.D., 2024.

NORTH CAROLINA PROFESSIONAL SEAL L-3766 LAND SURVEYOR STALEY C. SMITH

Staley C Smith
Professional Land Surveyor
L-3766
License Number

ANNEXATION # _____

I, ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK, Apex, North Carolina certify this is a true and exact map of annexation adopted the _____ day of _____, 2024. by the Town Council. I set my hand and seal of the Town of Apex, _____, 2024.

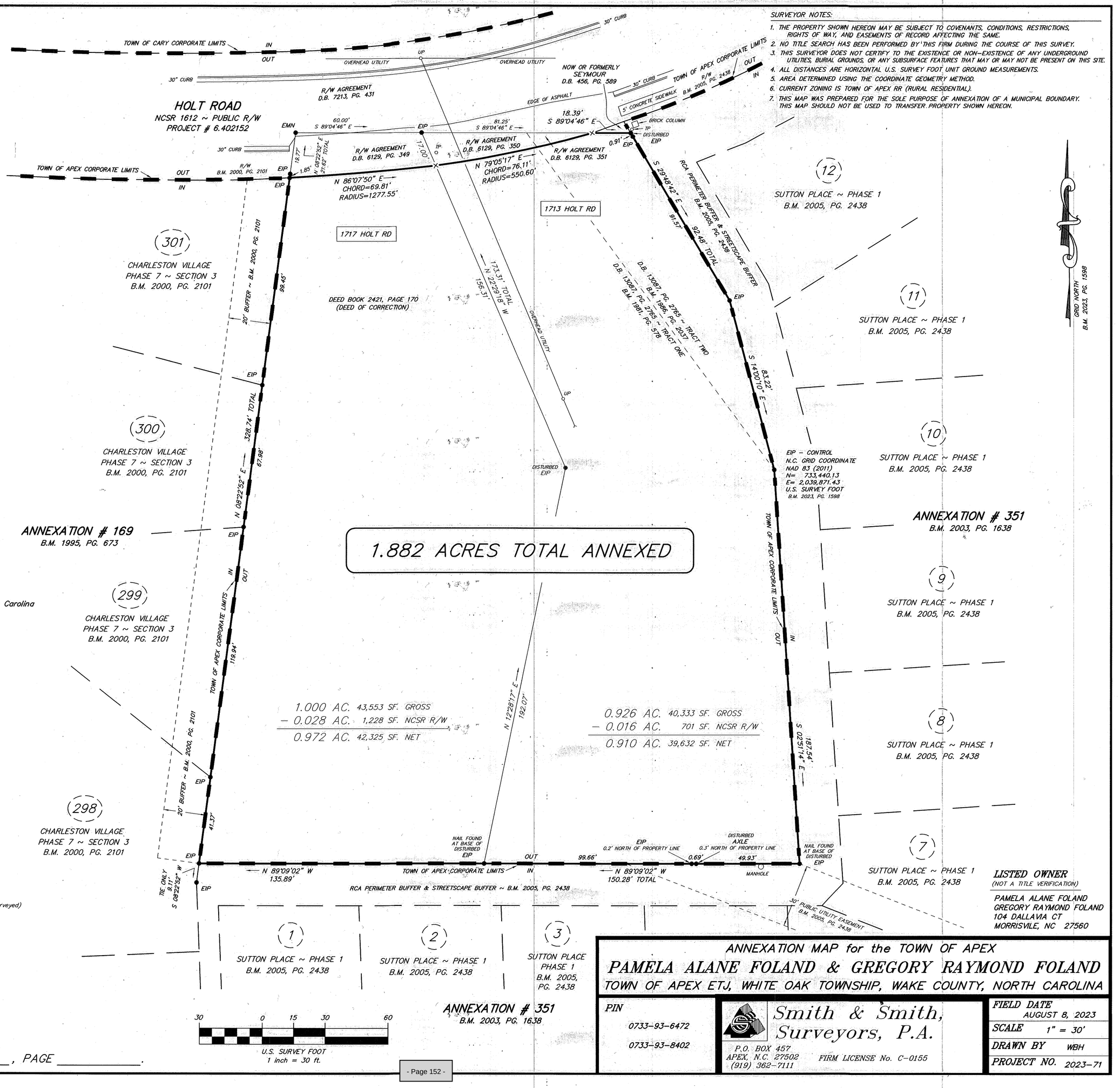
ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK

LEGEND

- EIP ● – Existing Iron Pipe
- EMN ○ – Existing Magnetic Nail
- × – Monument Not Found Or Set
- –< – Guy Anchor
- NCSR – North Carolina Secondary Road
- TP – Telephone Pedestal
- UP – Utility Pole
- RCA – Resource Conservation Easement
- R/W – Right Of Way (Approximate Location)
- NAD 83 (2011) – NORTH AMERICAN DATUM 1983 (2011)
- PIN – Parcel Identification Number
- XXX – Street Address (Typical)
- Surveyed Line
- Surveyed Line
- Line (not surveyed)
- Approximate Right Of Way Line (not surveyed)
- Easement (not surveyed)
- Existing Town of Apex Corporate Limits (not surveyed)

SURVEYOR NOTES:

1. THE PROPERTY SHOWN HEREON MAY BE SUBJECT TO COVENANTS, CONDITIONS, RESTRICTIONS, RIGHTS OF WAY, AND EASEMENTS OF RECORD AFFECTING THE SAME.
2. NO TITLE SEARCH HAS BEEN PERFORMED BY THIS FIRM DURING THE COURSE OF THIS SURVEY.
3. THIS SURVEYOR DOES NOT CERTIFY TO THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITIES, BURIAL GROUNDS, OR ANY SUBSURFACE FEATURES THAT MAY OR MAY NOT BE PRESENT ON THIS SITE.
4. ALL DISTANCES ARE HORIZONTAL U.S. SURVEY FOOT UNIT GROUND MEASUREMENTS.
5. AREA DETERMINED USING THE COORDINATE GEOMETRY METHOD.
6. CURRENT ZONING IS TOWN OF APEX RR (RURAL RESIDENTIAL).
7. THIS MAP WAS PREPARED FOR THE SOLE PURPOSE OF ANNEXATION OF A MUNICIPAL BOUNDARY. THIS MAP SHOULD NOT BE USED TO TRANSFER PROPERTY SHOWN HEREON.



LISTED OWNER
(NOT A TITLE VERIFICATION)

PAMELA ALANE FOLAND
GREGORY RAYMOND FOLAND
104 DALLAVIA CT
MORRISVILE, NC 27560

RECORDED IN BOOK OF MAPS 2024, PAGE _____.

ANNEXATION MAP for the TOWN OF APEX

PAMELA ALANE FOLAND & GREGORY RAYMOND FOLAND

TOWN OF APEX ETJ, WHITE OAK TOWNSHIP, WAKE COUNTY, NORTH CAROLINA

PIN
0733-93-6472
0733-93-8402

Smith & Smith, Surveyors, P.A.
P.O. BOX 457
APEX, N.C. 27502
(919) 362-7111
FIRM LICENSE No. C-0155

FIELD DATE	AUGUST 8, 2023
SCALE	1" = 30'
DRAWN BY	WBH
PROJECT NO.	2023-71

Petition for Voluntary Annexation

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.

Application #:	#784	Submittal Date:	4-26-2024
Fee Paid	$ 200.00	Check #	2186

To The Town Council Apex, North Carolina

1. We, the undersigned owners of real property, respectfully request that the area described in Part 4 below be annexed to the Town of Apex, ☒ Wake County, ☐ Chatham County, North Carolina.
2. The area to be annexed is ☒ contiguous, ☐ non-contiguous (satellite) to the Town of Apex, North Carolina and the boundaries are as contained in the metes and bounds description attached hereto.
3. If contiguous, this annexation will include all intervening rights-of-way for streets, railroads, and other areas as stated in G.S. 160A-31(f), unless otherwise stated in the annexation amendment.

Owner Information

PAMELA ALANE FOLAND GREGORY RAYMOND FOLAND Owner Name (Please Print)	0733-93-6472, 0733-93-8402 Property PIN or Deed Book & Page #
919-337-7525 Phone	GREG@FOLANDHOMES.COM E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address

Surveyor Information

Surveyor: SMITH+SMITH SURVEYORS, P.A.

Phone: 919-362-7111 Fax:

E-mail Address: BEN@SMITHANDSMITHSURVEYORS.NET

Annexation Summary Chart

Property Information		Reason(s) for annexation (select all that apply)	
Total Acreage to be annexed:	1.882 ~~1.881~~	Need water service due to well failure	☐
Population of acreage to be annexed:	2	Need sewer service due to septic system failure	☐
Existing # of housing units:	2	Water service (new construction)	☑
Proposed # of housing units:	2	Sewer service (new construction)	☑
Zoning District*:	RR	Receive Town Services	☐

*If the property to be annexed is not within the Town of Apex's Extraterritorial Jurisdiction, the applicant must also submit a rezoning application with the petition for voluntary annexation to establish an Apex zoning designation. Please contact the Planning Department with questions.

PETITION FOR VOLUNTARY ANNEXATION

Application #: #784 Submittal Date: 4-26-2024

COMPLETE IF SIGNED BY INDIVIDUALS:

All individual owners must sign. (If additional signatures are necessary, please attach an additional sheet.)

GREGORY RAYMOND FOLAND
Please Print

Signature

PAMELA ALANE FOLAND
Please Print

Signature

Please Print

Signature

Please Print

Signature

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Laura B Jacobs, a Notary Public for the above State and County, this the 26 day of, April, 2024.

SEAL

Laura B. Jacobs NOTARY PUBLIC Wake Co. My Comm. Exp. 11/20/2027

Notary Public

My Commission Expires: 11/20/2027

COMPLETE IF A CORPORATION:

In witness whereof, said corporation has caused this instrument to be executed by its President and attested by its Secretary by order of its Board of Directors, this the _____ day of _____, 20_____.

Corporate Name _____

SEAL

By: _____
President (Signature)

Attest:

_____
Secretary (Signature)

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____ day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

Petition for Voluntary Annexation

Application #: #784 Submittal Date: 4-26-2024

Complete If In A Limited Liability Company

In witness whereof, _____ a limited liability company, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the ____ day of _____, 20____.

Name of Limited Liability Company _____

By: _____
Signature of Member/Manager

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

Complete If In A Partnership

In witness whereof, _____, a partnership, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the _____ day of _____, 20_____.

Name of Partnership _____

By: _____
Signature of General Partner

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

VOLUNTARY ANNEXATION-PLAT CHECKLIST

FOR APPLICANT USE ONLY

PLEASE DO NOT INCLUDE THIS CHECKLIST WITH YOUR APPLICATION SUBMITTAL

COMMON ACRONYMS/DEFINITIONS			
GeoCivix (IDT)	Electronic Plan Review	UDO	Town's Unified Development Ordinance
TOA	Town of Apex	NCDEQ	North Carolina Dept. of Environmental Quality
RCA	Resource Conservation Area	DDM	Design & Development Manual

CONTACT INFORMATION			
Planning Department	(919) 249-3426	Water Resources (Utilities)	(919) 372-7478
Development Services	(919) 249-3394	Clerk's Office	(919) 249-1260

#	REQUIRED PLAT ITEMS
1	The exact boundary lines of the area to be annexed fully dimensioned by lengths and bearings, and the location of intersecting boundary lines of existing town limits, labeled and distinctly marked. Include full right-of-way if the area on both sides is or will be in the corporate limits.
2	Show and label any utility easements with metes and bounds.
3	Accurate locations and descriptions of all monuments, markers, and control points.
4	Ultimate right-of-way widths on all streets.
5	Entitle "ANNEXATION MAP for the TOWN OF APEX" or "SATELLITE ANNEXATION MAP for the TOWN OF APEX", as appropriate.
6	Name of property owner.
7	Name, seal, and registration of Professionally Licensed Surveyor (PLS).
8	Date of the survey and map preparation; a north arrow indicating whether the index is true magnetic North Carolina grid (NAD 83 of NAD 27) or deed; graphic scale; and declination.
9	Names of the township, county, and state.
10	A detailed vicinity map.
11	Include address of property if assigned.
12	Show all contiguous or non-contiguous town limits.
13	The following certification must be placed on the map near a border to allow the map to be sealed: Annexation # _____ I, Allen Coleman, CMC, NCCCC, Town Clerk, Apex, North Carolina certify this a true and exact map of annexation adopted the _____ day of _____, 20___, by the Town Council. I set my hand and seal of the Town of Apex, _____. Day/Month/Year _____ Allen Coleman, CMC, NCCCC, Town Clerk -Seal-
14	Leave 2 inch by 2 inch space for the Wake County or Chatham County Register of Deeds stamp on the plat. All final plats must be stamped and signed before they can be accepted by the Town.

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerk's Office

Requested Motion

Motion to adopt a Resolution Directing the Town Clerk to Investigate Petition Received, to accept the Certificate of Sufficiency by the Town Clerk, and to adopt a Resolution Setting the Date of a Public Hearing for June 25, 2024, on the Question of Annexation - Apex Town Council's intent to annex 3.34 acres, Tobacco Road Place (FKA: Beauregard Place), Annexation No. 786 into the Town Corporate limits.

Approval Recommended?

Yes

Item Details

The Town Clerk certifies to the investigation of said annexation. Adoption of the Resolution authorizes the Town Clerk to advertise said public hearing by electronic means and on the Town of Apex's website.

Attachments

- CN8-A1: Resolution Directing the Town Clerk to Investigate Petition
  - Certificate of Sufficiency by the Town Clerk
  - Resolution Setting Date of Public Hearing
- CN8-A2: Legal Description – Annexation No. 786
- CN8-A3: Aerial Map – Annexation No. 786
- CN8-A4: Plat Map – Annexation No. 786
- CN8-A5: Annexation Petition – Annexation No. 786

RESOLUTION DIRECTING THE TOWN CLERK
TO INVESTIGATE PETITION RECEIVED UNDER G.S.§ 160A-31

Annexation Petition No. 786
Tobacco Road Place (FKA: Beauregard Place) – 3.34 acres

WHEREAS, G.S. §160A- 31 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Apex deems it advisable to proceed in response to this request for annexation;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, that the Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify to the Town Council the result of his investigation.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert
Mayor

ATTEST:

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

CERTIFICATE OF SUFFICIENCY BY THE TOWN CLERK

Annexation Petition No. 786
Tobacco Road Place (FKA: Beauregard Place) – 3.34 acres

To: The Town Council of the Town of Apex, North Carolina

I, Allen L. Coleman, Town Clerk, do hereby certify that I have investigated the annexation petition attached hereto, and have found, as a fact, that said petition is signed by all owners of real property lying in the area described therein, in accordance with G.S.§ 160A-31, as amended.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Town of Apex, North Carolina this 11th day of June, 2024.

_____
Allen L. Coleman, CMC, NCCCC
Town Clerk

(Seal)

RESOLUTION SETTING DATE OF PUBLIC HEARING
ON THE QUESTION OF ANNEXATION PURSUANT TO G.S.§ 160A-31 AS AMENDED

Annexation Petition No. 786
Tobacco Road Place (FKA: Beauregard Place) – 3.34 acres

WHEREAS, a petition requesting annexation of the area described herein has been received; and

WHEREAS, the Town Council of Apex, North Carolina has by Resolution directed the Town Clerk to investigate the sufficiency thereof; and

WHEREAS, Certification by the Town Clerk as to the sufficiency of said petition has been made;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Apex, North Carolina that:

Section 1. A public hearing on the question of annexation of the area described herein will be held at the Apex Town Hall at 6 o'clock p.m. on the 25th day of June, 2024.

Section 2. The area proposed for annexation is described as attached.

Section 3. Notice of said public hearing shall be published on the Town of Apex Website, www.apexnc.org, Public Notice, at least ten (10) days prior to the date of said public hearing.

This the 11th day of June, 2024.

_____
Jacques K. Gilbert, Mayor

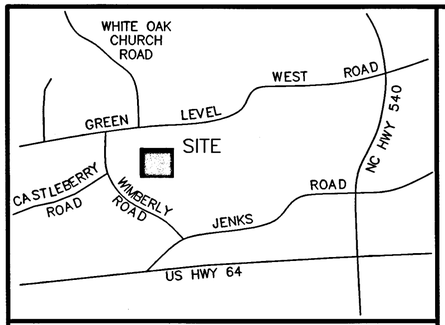
ATTEST:

_____
Allen L. Coleman, Town Clerk

Attachment: Legal Description

Beginning at an iron pipe found at a common corner with the “New Town of Apex BMP Maintenance Easement” shown in Book of Maps 2019 Page 1667. Thence from said corner N88°42'08"W a distance of 281.52’ to an iron pipe found on the western line of the American Tobacco Trail. Thence with the western line of the American Tobacco Trail N09°49'07"W a distance of 463.94’ to a computed pointed. Thence from said computed point S89°08'00"E a distance of 359.94’ to an iron pipe found. Thence S00°04'49"E a distance of 210.54’ to an iron pipe found in the north west corner of Beauregard Place, a 50’ public right of way shown in Book of Maps 2019 Page 1667. Thence S00°05'07"E a distance of 247.55' to the point and place of beginning having an area of 146507 square feet and 3.363 acres.


Annexation #786
Lauder Ln
The Point at Lake Castleberry
Burlap Dr
Castleberry Trails
American Tobacco Trail
Tobacco Road Place
Beauregard Pl
Weddington
Weddington Park Ln
Grantham House Way
0
200
400
Feet
May 2024
February 2024 Aerial Photography
Prepared by: Town of Apex Planning Department



VICINITY MAP (NOT TO SCALE)

PROPERTY SHOWN HEREON_____IS__XXXX__IS NOT LOCATED IN A FEMA DESIGNATED FLOOD ZONE.
FEMA FLOOD HAZARD PANEL NO. 3720072300k
EFFECTIVE DATE: 7/19/2022

5-23-24
DATE SURVEYOR

THIS SURVEY:

- ☐ A. CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND.
- ☐ B. IS LOCATED IN A PORTION OF A COUNTY OR MUNICIPALITY THAT IS UNREGULATED AS TO AN ORDINANCE THAT REGULATES PARCELS OF LAND.
- ■ C. **IS ONE OF THE FOLLOWING:**
  - **1) 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.**
  - 2) IS OF AN EXISTING FEATURE, SUCH AS A BUILDING OR OTHER STRUCTURE, OR NATURAL FEATURE, SUCH SUCH AS A WATERCOURSE.
  - 3) IS A CONTROL SURVEY
  - 4) IS OF A PROPOSED EASEMENT FOR A PUBLIC UTILITY AS DEFINED IN G.S. 62-3.
- ☐ D. IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXEMPTION OR EXCEPTION TO THE DEFINITION OF SUBDIVISION.
- ☐ E. THE INFORMATION AVAILABLE TO THE SURVEYOR IS SUCH THAT THE SURVEYOR IS UNABLE TO MAKE A DETERMINATION TO THE BEST OF THE SURVEYOR'S PROFESSIONAL ABILITY AS TO PROVISIONS CONTAINED IN (A) THROUGH (D) ABOVE.

5-23-24
DATE SURVEYOR

SURVEYOR'S DISCLAIMER: NO ATTEMPT WAS MADE TO LOCATE ANY CEMETERIES, WETLANDS, HAZARDOUS MATERIAL SITES, UNDERGROUND UTILITIES OR ANY OTHER FEATURES ABOVE OR BELOW GROUND OTHER THAN THOSE SHOWN.

5-23-24
DATE SURVEYOR

STATE OF NORTH CAROLINA, JOHNSTON COUNTY

I, CURK T. LANE, DO HEREBY CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK 17966, PAGE 1955, ETC.); THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND IN BOOK 17966, PAGE 1955; THAT THE RATIO OF PRECISION AS CALCULATED IS 1: 10,000+; THAT THE GLOBAL POSITIONING ACCURACY (GPS) OBSERVATIONS WERE PERFORMED TO THE GEOSPATIAL POSITIONING ACCURACY STANDARDS, PART 2: STANDARDS FOR GEODETIC NETWORKS AT 1 CENTIMETER ACCURACY CLASSIFICATION (95% CONFIDENCE) USING RTK NETWORK; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. THAT THIS PLAT MEETS THE REQUIREMENT OF G.S. 47-30 SECTION F-11 C-1. WITNESS MY ORIGINAL SIGNATURE AND SEAL THIS 23rd DAY OF MAY, A.D. 2024

NORTH CAROLINA PROFESSIONAL SEAL L-3990 LAND SURVEYOR CURK T. LANE

SURVEYOR

L - 3990
LICENSE NUMBER

LINE	BEARING	DISTANCE
L1	N88°34'37"W	10.19'
L2	S00°09'42"E	210.73'
L3	S89°41'13"E	9.88'

ANNEXATION LINE

NC GRID NORTH NAD 83/2011

N/F
CAPITAL PROPERTIES OF RALEIGH VIII LLC
DB 17157 PG 2078
REID 0183069
RR-CZ

N/F
WEDDINGTON OWNERS ASSOCIATION INC.
DB 17626 PG 2546
REID 0470657
PUD-CZ

N/F
THE TRAILS AND ESTATES AT LAKE CASTLEBERRY COMM.
DB 19320 PG 2228
REID 0277183
RR-CZ

N/F
NC DEPARTMENT OF TRANSPORTATION
DB 6660 PG 194
REID 0103289
CB

N/F
NAGARAJAN KUPPUSWAMI
DB 17954 PG 1629
REID 0470600
PUD-CZ

N/F
ASHWIN PALANI
DB 17956 PG 2160
REID 0470601
PUD-CZ

N/F
AMBER S. CRAIG
DB 18096 PG 1111
REID 0470602
PUD-CZ

N/F
WEDDINGTON OWNERS ASSOCIATION INC.
DB 17626 PG 2546
REID 0470658
PUD-CZ

N/F
WEDDINGTON OWNERS ASSOCIATION INC.
DB 17626 PG 2546
REID 0015191
PUD-CZ

DB 17966 PG 1955
REID 0159682
146508 SF
3.363 AC
RR-CZ

AREA OF ANNEXATION
146508 SF
3.363 AC

EXISTING APEX CORPORATE LIMITS
S89°08'00"E 359.94'
N88°42'08"W 281.52'
S00°04'49"E 210.54'
S00°05'07"E 247.55'
S25°38'11"E 246.87' TIE LINE ONLY
N09°49'07"W 463.94'

CONTROL CORNER N: 735218.3360 E: 2023203.0790 IPF
CONTROL CORNER N: 734760.7420 E: 2023203.7420 IPF
CONTROL CORNER N: 734766.6320 E: 2022922.2930 IPF
COMPUTED POINT
30" CMP
NOTE: L1-L2 ARE TIE LINES ONLY

50' RIPARIAN BUFFER
C/L CREEK
100' AMERICAN TOBACCO TRAIL
SEWER LINE SSMH
24" RCP
15" RCP
36" RCP
WV
HYD
5' CONC. WALK

WEDDINGTON PARK LANE 50' R/W (PUBLIC)
BEAUREGARD PLACE 50' R/W (PUBLIC)

REFERENCES:

DB 17966 PG 1955
DB 18096 PG 1111
DB 17956 PG 2160
DB 17954 PG 1629
DB 17626 PG 2546
DB 17157 PG 2078
DB 19320 PG 2228
DB 6660 PG 194
DB 17626 PG 2546
BOM 2019 PG 1667
BOM 1986 PG 1214

NOTES:

1) ALL DISTANCES SHOWN ARE HORIZONTAL GROUND DISTANCES
2) AREAS COMPUTED BY COORDINATE METHOD.
3) PROPERTY SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
4) NO. 5 REBAR IRON STAKES SET AT ALL LOT CORNERS UNLESS OTHERWISE NOTED
5) PARENT TRACT DEED: DB 17966 PG 1955
6) PARENT TRACT PIN: 0723249888
7) PARENT TRACT REID: 0159682
8) NO WETLANDS OR FLOOD HAZARD SOIL EVALUATIONS WERE DONE FOR THIS RECORDING

ANNEXATION LEGAL DESCRIPTION

BEGINNING AT AN IRON PIPE FOUND AT A COMMON CORNER WITH THE "NEW TOWN OF APEX BMP MAINTENANCE EASEMENT" SHOWN IN BOOK OF MAPS 2019 PAGE 1667. THENCE FROM SAID CORNER N88°42'08"W A DISTANCE OF 281.52' TO AN IRON PIPE FOUND ON THE WESTERN LINE OF THE AMERICAN TOBACCO TRAIL. THENCE WITH THE WESTERN LINE OF THE AMERICAN TOBACCO TRAIL N09°49'07"W A DISTANCE OF 463.94' TO A COMPUTED POINTED. THENCE FROM SAID COMPUTED POINT S89°08'00"E A DISTANCE OF 359.94' TO AN IRON PIPE FOUND. THENCE S00°04'49"E A DISTANCE OF 210.54' TO AN IRON PIPE FOUND IN THE NORTH WEST CORNER OF BEAUREGARD PLACE, A 50' PUBLIC RIGHT OF WAY SHOWN IN BOOK OF MAPS 2019 PAGE 1667. THENCE S00°05'07"E A DISTANCE OF 247.55' TO THE POINT AND PLACE OF BEGINNING HAVING AN AREA OF 146507 SQUARE FEET AND 3.363 ACRES.

0 60 120 180
SCALE: 1" = 60'

ANNEXATION #_____

I, ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK, APEX, NORTH CAROLINA CERTIFY THIS A TRUE AND EXACT MAP OF ANNEXATION

ADOPTED THE ____ DAY OF _____, 20___, BY THE TOWN COUNCIL. I SET MY HAND AND SEAL OF THE TOWN OF APEX, _____.
DAY/MONTH/YEAR

ALLEN COLEMAN, CMC, NCCCC, TOWN CLERK

-SEAL-

I, CURK T. LANE, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACUTUAL GPS SURVEY MADE UNDER MY SUPERVISION, FOR THE PURPOSE OF HORIZONTAL CONTROL IN ORDER TO TIE THIS SURVEY TO NC GRID; AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

CLASS OF SURVEY:	CLASS AA
POSITION ACCURACY:	0.033 FEET, ELLIPTICAL ERROR AXIS
TYPE OF GPS FIELD PROCEDURE:	VRS SESSION 2 CONTROL POINTS
DATES OF SURVEY:	07-28-20 & 07-30-20
DATUM/EPOCH:	NAD 83(2011)/EPICH 2010.000
PUBLISHED/FIXED-CONTROL USED:	NC GNSS CORS AND RTK
GEOID MODEL:	NAVD 88 USING GEOID 18
COMBINED GRID FACTOR:	0.99990941(AVG)
REPORTING UNITS:	US FEET

LEGEND

IPF	IRON PIPE FOUND
IPS	IRON PIPE SET
CMF	CONCRETE MONUMENT FOUND
PKNF	PARKER-KALON NAIL FOUND
PNKS	PARKER-KALON NAIL SET
RRS	RAILROAD SPIKE
CSF	COTTON SPIKE FOUND
CSS	COTTON SPIKE SET
CC	CONTROL CORNER
CP	COMPUTED POINT
P/P	POWER POLE
OPW	OVERHEAD POWER LINE
R/W	RIGHT OF WAY
S.F.	SQUARE FEET
AC	ACRE
DB	DEED BOOK
PB	PLAT BOOK
BOM	BOOK OF MAPS
PG	PAGE
LF	LINEAR FEET
15S	LOT HAS OFFSITE SEWER
15SL	OFFSITE SEWER LOT
15R	RECOMBINATION LOT
100	STREET ADDRESS
- - - -	LINES NOT SURVEYED

OWNER: AG WIMBERLY LLC
633 MERCER GRANT DR
CARY, N.C. 27519

SATELLITE ANNEXATION MAP FOR

THE TOWN OF APEX

WHITE OAK TOWNSHIP, WAKE COUNTY
NORTH CAROLINA
MAY 23, 2024

SURVEYED BY:	JACKSON
DRAWN BY:	DANNY
CHECKED BY:	CURK
DRAWING NAME:	BOUNDARY.DWG
SURVEY DATE:	6/6/22
JOB NO.	4597.001

TRUE LINE SURVEYING, P.C.

205 WEST MAIN STREET
CLAYTON, N.C. 27520
TELEPHONE: (919) 359-0427
FAX: (919) 359-0428
www.truelinesurveying.com

C-1859

PETITION FOR VOLUNTARY ANNEXATION
Town of Apex, North Carolina

ANNEXATION PETITION SUBMISSION: Applications are due by 12:00 pm on the first business day of each month. See the "Annexation Petition Schedule" on the website for details.

ANNEXATION FEE: $200.00

VOLUNTARY ANNEXATION: Upon receipt of a valid petition signed by all of the owners of real property in the area described therein, the Town may annex an area either contiguous or not contiguous to its primary corporate limits when the area meets the standards set out under North Carolina General Statutes 160A-31 and 160A-58.1. A petition submitted pursuant to North Carolina General Statute 160A-58.1 need not be signed by the owners of real property that is wholly exempt from property taxation under the Constitution and laws of North Carolina, nor by railroad companies, public utilities as defined in G.S. 62-3(23), or electric or telephone membership corporations.

HARD COPY SUBMITTAL REQUIREMENTS:

- Town of Apex Petition for Annexation with original wet ink signatures. No photocopies or scanned images.
- Petition Fee

ELECTRONIC SUBMITTAL REQUIREMENTS: GEOCIVIX (IDT Plans)

- Town of Apex Petition for Annexation
- Written Metes and Bounds Legal Description: Submit original PDF. Scanned documents will not be accepted.
- Electronic plat submittal (18" x 24")

REVIEW AND APPROVAL PROCESS:

- **SUBMITTAL:** Submit hard copy application with original wet signatures (no photo copies or scanned images) and fee to the Department of Planning and Community Development and upload an electronic copy of the application, legal description and Annexation Plat via GeoCivix.
- **REVIEW BY STAFF:** The Planning Department and Development Services Department review the annexation submission. Comments will be sent to the applicant via email.
- **DESIGNATION OF ANNEXATION NUMBER:** The application is assigned an annexation number once the annexation petition is received.
- **ANNEXATION PLAT SUBMISSION**: After the map and legal description are deemed sufficient by the Town of Apex, the applicant is required to submit three (3) 18"x24" Mylar annexation plats to the Planning Department by the due date on the attached Annexation Schedule.
- **1ST TOWN COUNCIL MEETING:** This Town Council Meeting is typically held the second Tuesday of each month. The Town Council will pass a resolution directing the Town Clerk to investigate the annexation petition. The Town Clerk will present to the Town Council a Certificate of Sufficiency indicating that the annexation petition is complete. A resolution setting the date of the public hearing is then approved.
- **LEGAL ADVERTISEMENT**: A legal advertisement will be published on the Town of Apex's website no more than 25 days and no less than 10 days prior to the date of the public hearing.
- **2ND TOWN COUNCIL MEETING/PUBLIC HEARING:** This Town Council Meeting is typically held the fourth Tuesday of each month. The Town Council will either adopt or deny an ordinance to extend the corporate limits of the Town of Apex.
- **RECORDATION:** If the annexation is approved by the Town Council, the Town Clerk will have the Annexation Plats recorded at the Wake County or Chatham County Register of Deeds, as appropriate. Wake County or Chatham County will keep one of the recorded plats, one copy will be returned to the Planning Department, and the surveying company is given the remaining recorded Annexation Plat.

FOR WELL AND/OR SEPTIC FAILURES:

If the purpose of the petition is to connect to public water and/or sewer, contact Water Resources Program Coordinator Jessica Sloan at 919-372-7478 or jessica.sloan@apexnc.org to confirm that public water and/or sewer is available to the property. In order to receive public water and/or sewer services from the Town of Apex, refer to the checklist of items below to assist with obtaining one or both of these services:

- Apply for a plumbing permit with the Building Inspections and Permitting Department.
- The plumbing permit and associated costs for water and/or sewer will be included with the permit.

Please refer to the Town of Apex Fee Schedule for the list of current fees.

PETITION FOR VOLUNTARY ANNEXATION

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.

Application #:		Submittal Date:	
Fee Paid	$	Check #	

TO THE TOWN COUNCIL APEX, NORTH CAROLINA

1. We, the undersigned owners of real property, respectfully request that the area described in Part 4 below be annexed to the Town of Apex, ☒ Wake County, ☐ Chatham County, North Carolina.
2. The area to be annexed is ☒ contiguous, ☐ non-contiguous (satellite) to the Town of Apex, North Carolina and the boundaries are as contained in the metes and bounds description attached hereto.
3. If contiguous, this annexation will include all intervening rights-of-way for streets, railroads, and other areas as stated in G.S. 160A-31(f), unless otherwise stated in the annexation amendment.

OWNER INFORMATION

AG Wimberly, LLC (Sudhakar Upadhyaya)	0723249888
Owner Name (Please Print)	Property PIN or Deed Book & Page #
(919) 924-2991	sudhakar.upadhyaya@gmail.com
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address
Owner Name (Please Print)	Property PIN or Deed Book & Page #
Phone	E-mail Address

SURVEYOR INFORMATION

Surveyor: True Line Surveying

Phone: 919-359-0427 Fax: 919-359-0428

E-mail Address: molly@truelinesurveying.com

ANNEXATION SUMMARY CHART

Property Information		Reason(s) for annexation (select all that apply)	
Total Acreage to be annexed:	3.34	Need water service due to well failure	☐
Population of acreage to be annexed:	0	Need sewer service due to septic system failure	☐
Existing # of housing units:	0	Water service (new construction)	☑
Proposed # of housing units:	2	Sewer service (new construction)	☑
Zoning District*:	RR	Receive Town Services	☑

*If the property to be annexed is not within the Town of Apex's Extraterritorial Jurisdiction, the applicant must also submit a rezoning application with the petition for voluntary annexation to establish an Apex zoning designation. Please contact the Planning Department with questions.

PETITION FOR VOLUNTARY ANNEXATION

Application #: _____ Submittal Date: _____

COMPLETE IF SIGNED BY INDIVIDUALS:

All individual owners must sign. (If additional signatures are necessary, please attach an additional sheet.)

_____ _____
Please Print Signature

_____ _____
Please Print Signature

_____ _____
Please Print Signature

_____ _____
Please Print Signature

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of, _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

COMPLETE IF A CORPORATION:

In witness whereof, said corporation has caused this instrument to be executed by its President and attested by its Secretary by order of its Board of Directors, this the _____ day of _____, 20_____.

Corporate Name _____

SEAL

By: _____
President (Signature)

Attest:

_____
Secretary (Signature)

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

PETITION FOR VOLUNTARY ANNEXATION

Application #: _____ Submittal Date: _____

COMPLETE IF IN A LIMITED LIABILITY COMPANY

In witness whereof, AG Wimberly a limited liability company, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the 8 day of May, 2024

Name of Limited Liability Company AG Wimberly LLC

By: _____
Signature of Member/Manager

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, Ram Poudel, a Notary Public for the above State and County, this the 8th day of May, 2024.

_____
Notary Public

SEAL

RAM POUDEL
Notary Public
Wake Co., North Carolina
My Commission Expires Nov. 30, 2027

My Commission Expires: Nov 30, 2027

COMPLETE IF IN A PARTNERSHIP

In witness whereof, _____, a partnership, caused this instrument to be executed in its name by a member/manager pursuant to authority duly given, this the _____ day of _____, 20_____.

Name of Partnership _____

By: _____
Signature of General Partner

STATE OF NORTH CAROLINA
COUNTY OF WAKE

Sworn and subscribed before me, _____, a Notary Public for the above State and County, this the _____day of _____, 20____.

_____
Notary Public

SEAL

My Commission Expires: _____

FOR APPLICANT USE ONLY

PLEASE DO NOT INCLUDE THIS CHECKLIST WITH YOUR APPLICATION SUBMITTAL

COMMON ACRONYMS/DEFINITIONS			
GeoCivix (IDT)	Electronic Plan Review	UDO	Town's Unified Development Ordinance
TOA	Town of Apex	NCDEQ	North Carolina Dept. of Environmental Quality
RCA	Resource Conservation Area	DDM	Design & Development Manual

CONTACT INFORMATION			
Planning Department	(919) 249-3426	Water Resources (Utilities)	(919) 372-7478
Development Services	(919) 249-3394	Clerk's Office	(919) 249-1260

#	REQUIRED PLAT ITEMS
1	The exact boundary lines of the area to be annexed fully dimensioned by lengths and bearings, and the location of intersecting boundary lines of existing town limits, labeled and distinctly marked. Include full right-of-way if the area on both sides is or will be in the corporate limits.
2	Show and label any utility easements with metes and bounds.
3	Accurate locations and descriptions of all monuments, markers, and control points.
4	Ultimate right-of-way widths on all streets.
5	Entitle "ANNEXATION MAP for the TOWN OF APEX" or "SATELLITE ANNEXATION MAP for the TOWN OF APEX", as appropriate.
6	Name of property owner.
7	Name, seal, and registration of Professionally Licensed Surveyor (PLS).
8	Date of the survey and map preparation; a north arrow indicating whether the index is true magnetic North Carolina grid (NAD 83 of NAD 27) or deed; graphic scale; and declination.
9	Names of the township, county, and state.
10	A detailed vicinity map.
11	Include address of property if assigned.
12	Show all contiguous or non-contiguous town limits.
13	The following certification must be placed on the map near a border to allow the map to be sealed: Annexation # _____ I, Allen Coleman, CMC, NCCCC, Town Clerk, Apex, North Carolina certify this a true and exact map of annexation adopted the _____ day of _____, 20___, by the Town Council. I set my hand and seal of the Town of Apex, _____. Day/Month/Year _____ Allen Coleman, CMC, NCCCC, Town Clerk -Seal-
14	Leave 2 inch by 2 inch space for the Wake County or Chatham County Register of Deeds stamp on the plat. All final plats must be stamped and signed before they can be accepted by the Town.

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Amanda Grogan, Director

Department(s): Budget & Performance Management

Requested Motion

Motion to approve Budget Ordinance Amendment No. 17 transferring budgeted Debt Service payments from the operating fund to respective Debt Service Funds, Affordable Housing Fund and allocating additional funding to Police Donations and Electric Utility Funds.

Approval Recommended?

Yes

Item Details

Ordinances establishing separate debt service were approved June 27, 2023. Budget Ordinance Amendment No. 17 reduces the tax revenue in the General Fund and transfers out expenses. Respective tax revenue lines are increased in both funds to account for the direct allocation of revenues to the Debt Service and Affordable Housing Fund

The Finance Department posts tax distributions directly to the related fund ensuring actual distributions and not original estimates are deposited. This change also assists with year over year distortion of the transfer line items.

Additional allocations are requested to offset Shop with a Cop program (Police Donations Fund) and purchases for resale (Electric Utility Fund)

Attachments

- CN9-A1: Budget Ordinance Amendment No. 17 – Debt Service Funds Payments, Police Donations, and Electric Purchase Resale

Town of Apex

Budget Ordinance Amendment No. 17

BE IT ORDAINED, by the Council of the Town of Apex that the following Budget Amendment for the Fiscal Year 2023-2024 Budget Ordinance be adopted:

General Fund.

Section 1. Revenues:

31010: Current Year	(9,804,200)
31015: Vehicle Taxes	(884,700)
31020: Prior Years	(4,000)
31040: Penalities & Interest	(3,100)
Total Revenues	**-$10,696,000**

Section 2. Expenditures:

49621: Transfer to Affordable Housing Fund	(1,233,000)
49720: Transfer to Debt Service Fund	(9,463,000)
Total Expenditures	**-$10,696,000**

General Government Debt Service Fund.

Section 3. Revenues:

31010: Current Year	8,674,100
31015: Vehicle Taxes	782,700
31020: Prior Years	3,500
31040: Penalities & Interest	2,700
Total Revenues	**$9,463,000**

Section 4. Expenditures:

General Government Debt Service Expenditures	9,463,000
Total Expenditures	**$9,463,000**

Affordable Housing Fund.

Section 5. Revenues:

31010: Current Year	1,130,100
31015: Vehicle Taxes	102,000
31020: Prior Years	500
31040: Penalities & Interest	400
Total Revenues	**$1,233,000**

Section 6. Expenditures:

General Government Debt Service Expenditures	1,233,000
Total Expenditures	**$1,233,000**

Police Donations

Section 7. Revenues:

36100: Interest Earned	1,300
37704: Police Contributions	450
39902: Fund Balance Appropriated	1,450
Total Revenues	**$3,200**

Section 8. Expenditures:

43300: Departmetnal Supplies	3,200
Total Expenditures	**$3,200**

Electric Utility Fund

Section 9. Revenues:

35111: Sales - Residential	520,000
35114: Sales - Commercial	987,600
35511: Underground Primary	520,000
45512: Underground Secondary	117,700
35513: Electric Meters	30,000
35131: Service Initation Fees	7,500
36100: Interest Earned	17,200
Total Revenues	**$2,200,000**

Section 10. Expenditures:

44800: Puchases for resale	2,200,000
Total Expenditures	**$2,200,000**

Section 11. Within five (5) days after adoption, copies of this Amendment shall be filed with the Finance Officer and Town Clerk.

Adopted this the 11th day of June, 2024.

Attest:

Jacques K. Gilbert, Mayor

Allen L. Coleman, CMC, NCCCC
Town Clerk

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerks Office

Requested Motion

Motion to approve, as submitted or amended, Meeting Minutes from the following meetings:

- April 23, 2024 – Town Council Meeting Minutes
- May 14, 2024 – Town Council Meeting Minutes

Approval Recommended?

The Town Clerk recommends the Town Council approve the meeting minutes as presented or amended.

Item Details

In accordance with 160A-72 of North Carolina General Statues (NCGS), the Governing Board has the legal duty to approve all minutes that are entered into the official journal of the Board's proceedings.

Attachments

- CN10-A1: **DRAFT** Minutes – April 23, 2024 – Town Council Meeting Minutes
- CN10-A2: **DRAFT** Minutes - May 14, 2024 – Town Council Meeting Minutes

TOWN OF APEX
REGULAR TOWN COUNCIL MEETING
TUESDAY, APRIL 23, 2024
6:00 PM

The Apex Town Council met for a Regular Town Council Meeting on Tuesday, April 23, 2024 at 6:00 PM in the Council Chambers at Apex Town Hall, located at 73 Hunter Street in Apex, North Carolina.

This meeting was open to the public. Members of the public were able to attend this meeting in-person or watch online via the livestream on the Town's YouTube Channel. The recording of this meeting can be viewed here: https://www.youtube.com/watch?v=8Simz0Dtyv4

[ATTENDANCE]

Elected Body
Mayor Jacques K. Gilbert (presiding)
Mayor Pro Tempore Ed Gray
Councilmember Audra Killingsworth
Councilmember Terry Mahaffey
Councilmember Arno Zegerman
Councilmember Brett Gantt

Town Staff
Town Manager Randy Vosburg
Deputy Town Manager Shawn Purvis
Assistant Town Manager Marty Stone
Town Attorney Laurie Hohe
Town Clerk Allen Coleman
Deputy Town Clerk Ashley Gentry
Planning Director Dianne Khin
All other staff members will be identified appropriately below

[COMMENCMENT]

Mayor Gilbert called the meeting to order and welcomed all who were in attendance and watching on stream. He then said the invocation would be delivered by Gudika Jenn from Radha Krishna Temple located in Apex, NC.

Gudika Jenn thanked Mayor Gilbert for the opportunity to speak. She gave a description of the Temple. She spoke about how it was founded and the teachings of Swami Mukundan Nanji, the founder. She said the object of the temple was to connect with divine and to develop and have faith and believe in God. Ms. Jenn said it was also for nurturing and nourishing young minds. Ms. Jenn said it gave information about how it was for middle schoolers and high schoolers and that there was leadership and communication to develop programs, and to prepare them for the future ahead. She said that the object was to come and show that and inspire others and encourage other people and children so that everyone can reach their best version of themselves. She said that the Temple offers a beautiful platform for everyone. She shared a message from the book "The Art and Science of Happiness" written by Swami Mukundi. She thanked everyone and said she appreciated the opportunity and looked forward to attending more of these forums so that she could take inspiration and could continue a journey of becoming a better person.

Mayor Gilbert then led those in attendance in the Pledge of Allegiance.

[CONSENT AGENDA]

A **motion** was made by **Councilmember Zegerman** to approve the Consent Agenda with the continuation of Consent Item 10 be moved to Old Business 1.

VOTE: UNANIMOUS (5-0)

Mayor Gilbert requested that this item be heard before moving to presentations.

CN1 Agreement - University of North Carolina at Chapel Hill School of Government Services (SOG Services) - Benchmarking Project – April 23, 2024 through December 31, 2026 (REF: CONT-2024-100)

Council voted to approve an agreement between School of Government Services (SOG Services) and the Town of Apex, for participation in the NC Benchmarking Project, effective April 23, 2024 through December 31, 2026, and to authorize the Town Manager to execute on behalf of the Town.

CN2 Agreement Amendment - Wake County, Town of Cary, and Town of Apex - Co-Locating Communication Equipment - Western Wake Regional Water Reclamation Facility (REF: CONT-2024-101)

Council voted to approve an agreement for First Amendment of Ground Lease between the Town of Cary and Town of Apex and Wake County, for co-locating communication equipment on an existing radio tower at the Western Wake Regional Reclamation Facility, and to authorize the Mayor to execute on behalf of the Town.

CN3 Annual Operating Budget FY2024-2025 – 2nd Public Hearing – Tuesday, May 14, 2024 – Set Public Hearing

Council voted to schedule a second budget public hearing for May 14, 2024 on the Annual Operating Budget including expenditures for Economic Development (pursuant to NCGS 158-7.1) for fiscal year 2024-2025.

CN4 Budget Ordinance Amendment No. 15 - Electric System Expansion (REF: ORD-2024-029)

Council voted to approve Budget Ordinance Amendment 15 allocating additional funds for the expansion of Apex's electric utility distribution system.

CN5 Capital Project Ordinance No. 2024-14 - Active Capital Project Allocations (REF: ORD-2024-030)

Council voted to approve Capital Project Ordinance Amendment No. 2024-14 appropriating funds already in capital project funds to active projects.

CN6 Capital Project Ordinance Amendment 2024-15 and 2024-16 - ARPA Project Funding Allocations (REF: ORD-2024-031 and ORD-2024-032)

Council voted to adopt Capital Project Ordinance Amendment(s) No. 2024-15 and 2024-16 to allocate ARPA funds for identified projects.

CN7 Capital Project Ordinance Amendment No. 2024-17 - Beaver Creek Greenway Project (REF: ORD-2024-033)

Council voted to approve Capital Project Ordinance Amendment 2024-17 appropriating an additional $3,632,629 in federal grant funds and interest earnings for the Beaver Creek Greenway Project.

CN8 Fee-in-Lieu (FIL) of Land Dedication - The Preserve on Holt

Council voted to approve a Fee-in-lieu (FIL) of land dedication, a public greenway easement, being offered by the applicant for a southern portion of the site to allow further design of the greenway alignment to tie into the existing greenway easement on the adjacent property provided by the Courtyard on Holt.

CN9 Rezoning Case No. 24CZ01 – Veridea Expansion 2 – Statement and Ordinance (REF: ORD-2024-034)

Council voted to approve the Statement of the Town Council and Ordinance for Rezoning Application No. 24CZ01, Todd Rechler, RXR Realty, petitioner, for the property located at 0 E Williams Street (PIN 0740992164).

~~**CN10 Rezoning Case No. 22CZ27 – Center City Townhomes – Statement of Denial**~~

This item was pulled from the Consent Agenda, per Council vote.

[OLD BUSINESS]

OB1 Rezoning Case No. 22CZ27 – Center City Townhomes – Statement of Denial

Councilmember Zegerman said he would like to give the applicant an extension to consider their feedback on this item from the last public hearing and incorporate it into their zoning. He said he would like to give a 60-day extension, make a motion to reconsider, and set the Public Hearing for the June 25th meeting.

A **motion** was made by **Councilmember Zegerman,** seconded by **Councilmember Killingsworth,** to reconsider Council's vote on Rezoning No. 22CZ27 – Center City Townhomes, made at the April 9th, 2024 Regular Town Council Meeting.

VOTE: UNANIMOUS (5-0)

A **motion** was made by **Councilmember Zegerman,** seconded by **Councilmember Killingsworth,** to set the Public Hearing for this item for the June 25th, 2024 Regular Town Council Meeting.

VOTE: UNANIMOUS (5-0)

[PRESENTATIONS]

PR1 Proclamation - Civilian Law Enforcement Professionals Week 2024 - April 21 through April 27, 2024 (REF: PRO-2024-010)

Mayor Gilbert, along with the rest of Town Council, read the Civilian Law Enforcement Professionals Week 2024 proclamation. He thanked Chief Armstrong and his Department for all their hard work. He invited Chief Armstrong and the members from the Apex Police Department to receive the Proclamation and to take a picture.

Chief Armstrong, along with other members of the Apex Police Department accepted the proclamation. He thanked the Mayor and Councilmembers for supporting the effort and recognizing the amazing work that Apex Police Department does. Apex is the only Police Department that he is aware of in the Country that recognizes the professional staff with a Proclamation such as this. He said that this was added a couple of years ago because they saw a void where they weren't paying the honor and the respect to the organization for the work that their professional staff do. He said he was grateful and thanked the Council.

PR2 Proclamation - Small Business Week 2024 - April 28 through May 4, 2024 (REF: PRO-2024-011)

Mayor Gilbert along with the rest of Town Council read the Small Business Week 2024. He invited Colleen Merays and Apex Small Business Owners in attendance to receive the Proclamation, to be recognized and take a picture.

PR3 Proclamation - Think Apex Day 2024 - Saturday, April 27, 2024 (REF: PRO-2024-012)

Mayor Gilbert along with the rest of the Town Council read Think Apex Day 2024. Mayor Gilbert invited Think Apex members or volunteers to receive the Proclamation and for a picture. He recognized Barbara Belicic, Small Business Specialist for all the work she has done with the Think Apex Awards.

PR4 Town of Apex Language Access Plan (LAP) (REF: PLCY-2024-003)

Mayor Gilbert introduced Linda Jones, Director of the Diversity, Equity, and Inclusion Department, and Celeste Sherer, Coordinator, Diversity, Equity, and Inclusion Department.

Director Jones presented a packet to the Councilmembers of the Language Access Collaborative Process and Scope of Work Plan and the findings and implementation action items. She also recognized other staff members. She asked that the Council consider approving the language of the access plan. She also asked to provide an update at the 2025 Council retreat.

Celeste Sherer, Diversity Equity and Inclusion Coordinator presented the proposed Language Access Plan. She outlined the proposed implementation and proposed action items for Councilmembers.

[LAP – SLIDE 1]

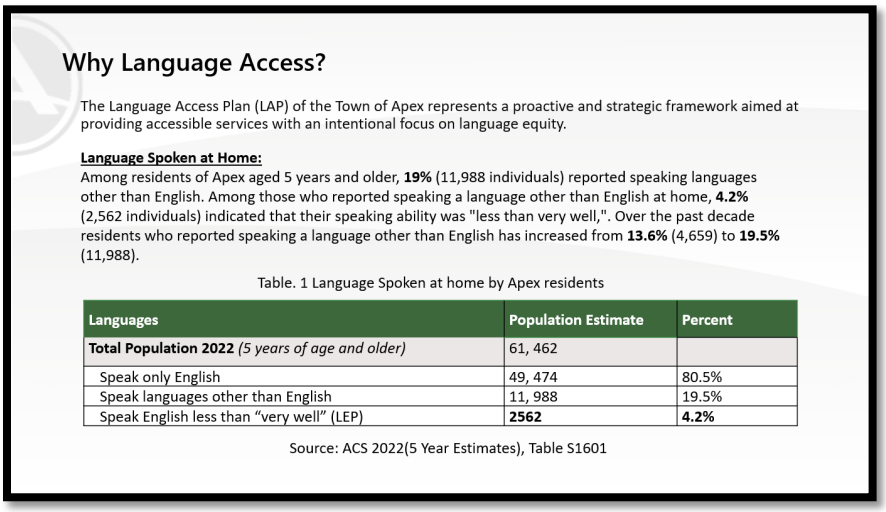
[LAP – SLIDE 2]

[LAP – SLIDE 3]

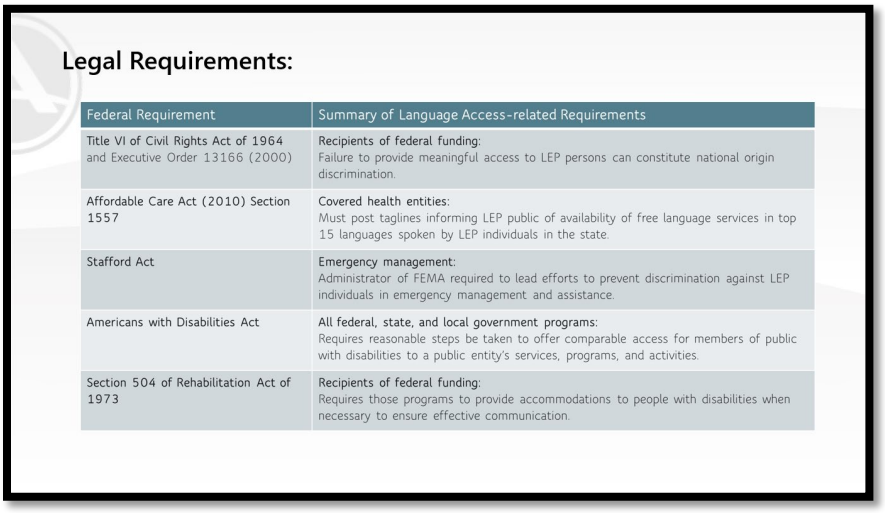
[LAP – SLIDE 4]

[LAP – SLIDE 5]

[LAP – SLIDE 6]



[LAP – SLIDE 7]



[LAP – SLIDE 8]

Language Data

Language and English-Speaking Ability	Population Estimate	Percent
Spanish	5445	9.99%
Speaks English "very well"	3786	6.95%
(LEP) Speaks English less than "very well"	**1659**	**3.04%**
Chinese (including Mandarin)	3215	5.90%
Speaks English "very well"	2039	3.74%
(LEP) Speaks English less that "very well"	**1176**	**2.15%**
Telugu	2869	5.27%
Speaks English "very well"	2477	4.49%
(LEP) Speak English less than "very well	**392**	**.72%**
Russian	1027	1.88%
Speaks English "very well"	735	1.34%
(LEP) Speaks English less than "very well"	**292**	.53%
Hindi	1998	3.66%
Speaks English "very well"	1736	3.19%
(LEP) Speaks English less than "very well	**262**	.48%
*The highlighted sections indicate the Limited English Proficiency (LEP) languages that necessitate a review of Safe Harbor parameters.		

[LAP – SLIDE 9]

Factors and Assessment

Factors	Town of Apex
# or proportion of LEP Individuals in the community	**19%** (11,988) or residents speak a languages other than English **4.2 %** (2,562) of residents are LEP
Frequency of Contact with LEP Community	Department Frequency
Nature of Importance of Services	The Town provides essential services which include public safety services
Resources Available	To evaluate the Town conducted research to identify the elements necessary for the delivery of proficient and accurate language assistance
Identified Strategic Languages	The Town of Apex has employed the Department of Justice's safe harbor threshold, which is defined as 5% or 1,000 individuals, whichever is less, to determine the requirement for translation services . Upon reviewing the data , the Town of Apex is committed to translating essential documents into both Spanish and Chinese. Further assessment is required to determine whether documents should undergo translation into Traditional Chinese or Simplified Chinese

[LAP – SLIDE 10]

Needs Assessment: Survey Findings

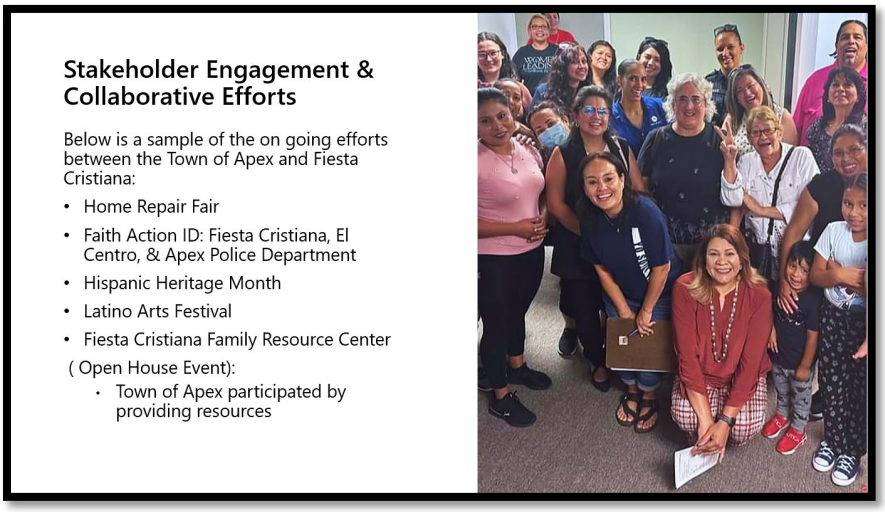
Internal Language Capacity Assessment:

- Eight departments reported "often" interactions with LEP residents who have the preferred languages of: **Spanish, Hindi, Chinese and Russian**
- Seventeen departments reported "occasional" interactions with the previously identified preferred languages in addition to Vietnamese
- Seven departments mentioned using bilingual employees to translate and interpret materials which is not required by their job responsibility and they are currently not compensated for this added responsibility
- Multiple departments receive funds dedicated towards language assistance: utilize telephonic translation services
- Notable challenges reported in regards to accuracy of digital translations along with potential technological barriers

The Language Assistance line of the Police Department was also examined, revealing the following insights:

- Over the past decade, Spanish dominated language requests, accounting for 82.6% of all calls seeking Language Assistance.

[LAP – SLIDE 11]



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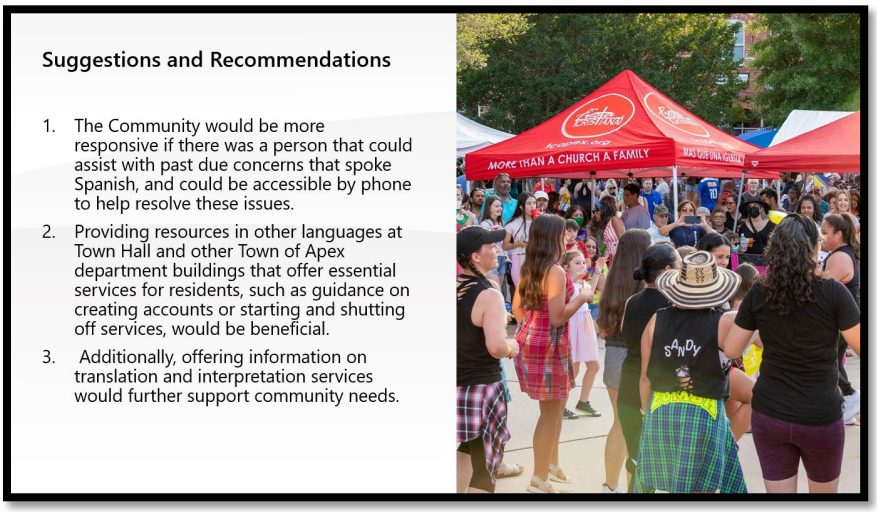

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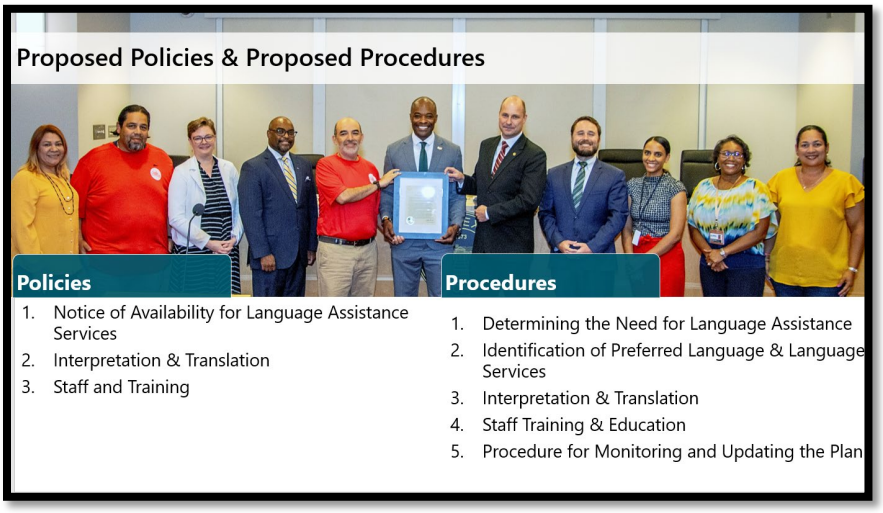

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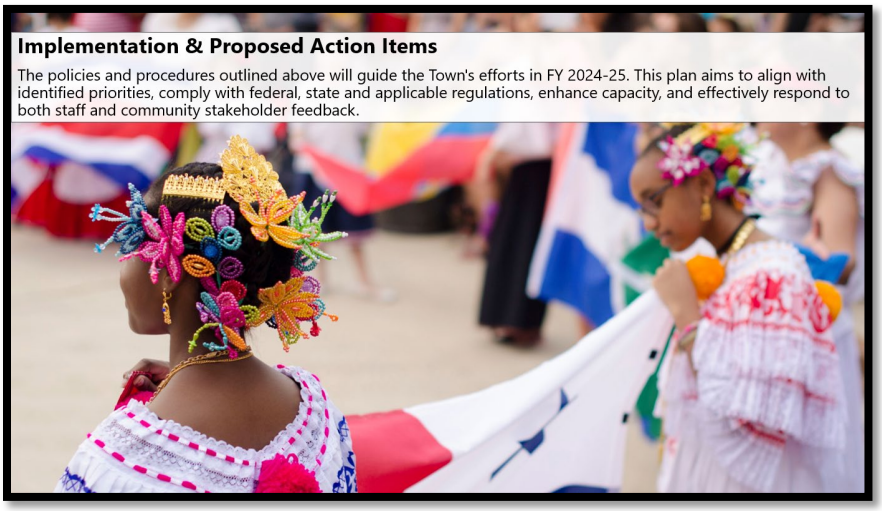

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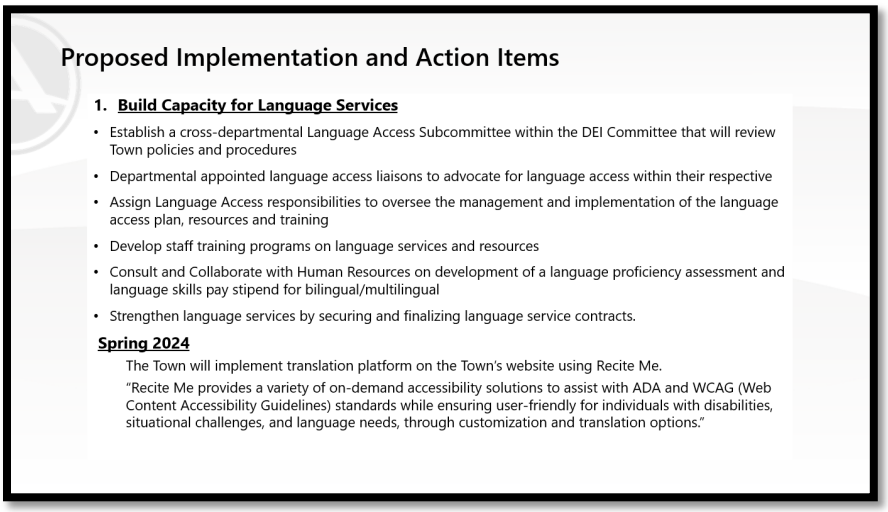

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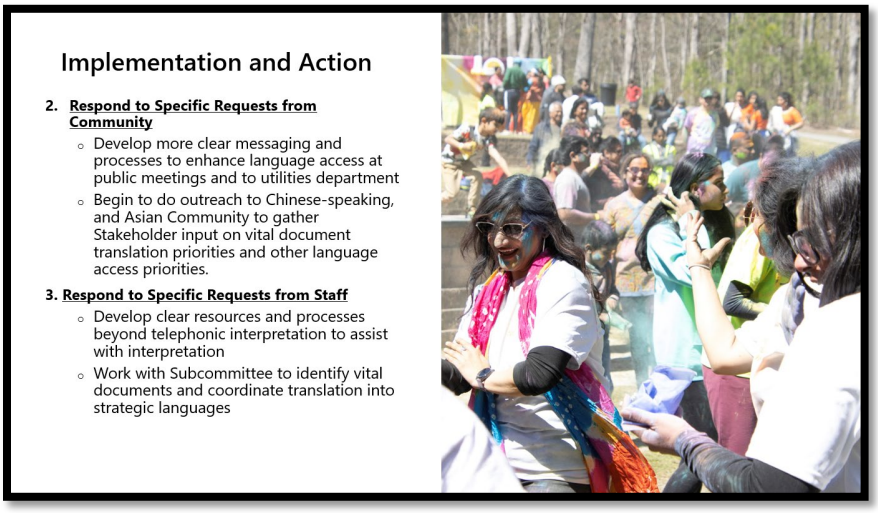

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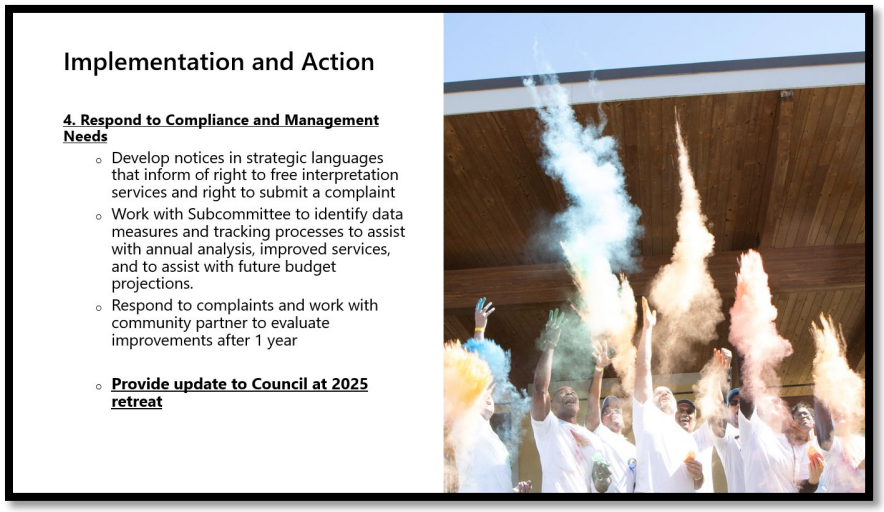


[LAP – SLIDE 18]

Mayor Gilbert thanked Ms. Sherer.

Mayor Pro Tempore Gray said this is a great effort and a good step forward. He said this will allow for better access to the services that are provided, and that it is absolutely necessary. He thanked the DEI Staff, and said he is proud to have them here.

Councilmember Zegerman said it was a great thing that the town was very diverse. He thanked the DEI Staff for getting them to this point and said he was looking forward to seeing implementation plan.

Councilmember Mahaffey asked about plans for language access for Town Council meetings and making them more accessible with translation services.

Director Jones said that part of the implementation process is to identify those particular gaps and the type of equipment that is needed and would be working the Allen Coleman, the Town Clerk to streamline that process.

Councilmember Mahaffey also asked how sign language would be integrated into the plan.

Susan Clifford, Building Integrated Communities Staff Member, said that they were recommending and encouraging language access and coordination. Also, she talked about resources that would be incorporated under the language access services with compliance being taken into consideration.

Mayor Gilbert thanked them for all of the work they did.

A **motion** was made by **Councilmember Zegerman,** seconded by **Mayor Pro-Tempore Gray** approve the Town of Apex Language Access Plan.

VOTE: UNANIMOUS (5-0)

[REGULAR MEETING AGENDA]

A **motion** was made by **Councilmember Gantt,** seconded by **Councilmember Killingsworth,** to approve the Regular Meeting Agenda with an added Closed Session Item pursuant to NCGS § 143-318.11(a)(3).

VOTE: UNANIMOUS (5-0)

[PUBLIC FORUM]

First to speak was **Elizabeth Stitt** of 3113 Friendship Road:

"Mayor, Town Council, good evening. On behalf of the Friendship Community. I would like to extend a warm welcome to the new Town Manager, Mr. Vosburg, welcome, we look forward to getting to know you. We also want to thank Shawn Purvis for his time, we tried not to wear him down too much while he was serving as Interim Manager, but we do want to say thank you as well. Segway into other thank you's, as I was very excited Friday when the budget was posted online. You know what I was looking for, I did see the funding for the improvements to Friendship Road intersection, it does go a long way to helping the congestion in our area, but we have a little more work to do. Because even with the turn lanes that you put in; it is not going to flow properly without the signal, and I understand right now that currently we don't have funding for the signal portion, so I'm trying to figure out how much money that is and then I'm going to start campaigning to go find that money, as you guys well know. I plan to hit Holly Springs up, and plan to hit D.O.T., but if there's some other non-traditional sources that you need my community and I to go campaign for some money, let me know. I'm glad to have the opportunity to do that. In the short term, however, if we could have a traffic officer. We have looked at how we have reduced the time that we would need someone, and we have 2 one-hour windows from 7:00 a.m. to 8:00 a.m. in the morning and then from 5:00 p.m. to 6:00 p.m. in the evenings, it would go a long way because what's happening today is

obviously there's a lot of people playing the game of chicken, darting into the traffic. We're having more accidents. We did talk to D.O.T, and they are going to get us the latest figures for the last 12 to 18 months because there have been many more of those. We're having some road rage, we're having people getting frustrated, they're honking their horns a lot more. They're doing some crazy cut throughs, it's just getting to a point where we need something to bring the temperature down. Every time we have an accident, we do see that a police officer stays or checks at the next couple of days and it's a whole lot better and that's why we're asking for a traffic officer for one hour in the morning and one hour in the afternoon and that's it for tonight. Thank you very much, appreciate it."

Mayor Gilbert thanked Ms. Stitt

Next to speak was **Dawn Cozzalino** of 3632 Bosco Road:

"Good evening everyone, as you heard from Elizabeth I'm also very excited about the funding for this intersection of Friendship and old US One for the turning lanes and it's a big step, it's not all the way, but it's a big step to improving the traffic. Folks listening, watching tonight, you may know this intersection, it's a stop sign onto a two-way traffic, east and west, and it just backs up and causes a lot of stress, causes a lot of dangerous driving, it's almost like you have to be, you know, SpaceX to kind of jump out onto the highway. Shouldn't be that way, right, we can do better with that intersection, and there has been an uptick in accidents as well. And the D.O.T has been a great partner. I worked with them for a traffic study actually, or safety study I should call it, for Bosco Road that is also a very dangerous, like there is not visibility, it's on a hill, and with their partnership getting this safety information and partnering and collaborating with them, we were able to get those orange intersection warning signs, because people I don't even think were aware that was a road and folks live out on that road, so there's a lot that we've been doing you know ourselves, but you know just asking that you guys work as well with some of the solutions, recommendations for a traffic cop. There was also something I thought might be interesting, it's a little techy but at the Chatham Vinfast Site, if you're familiar, they've been building out there. It's on a very curvy road. They had these freestanding traffic lights, and they were metering without a person at all, they were metering with red and green lights, the traffic on a closed lane which I thought was pretty impressive. I don't how the tech worked, I'm not going to pretend to know how the tech worked, but it's just another thought or an idea about until we get to that point where we have the traffic light, we have the metering, we have the extra lanes and we can, you know, allow people to drive and understand the rules of the road and not feel stressed, not feel compelled to be frustrated and angry and so I ask that we just look into different solutions and we're going to keep working with D.O.T. and on our end and supporting this effort. It's very important for people's welfare and for everybody's peace in these times, so thank you very much and God bless."

Mayor Gilbert thanked Ms. Cozzalino

Next to speak was **Danya Dahbour** of 410 James Street:

"My name is Danya, I'm a Palestinian American born and raised in North Carolina. I stand before you today expelled from stolen land on stolen land. Because there is a strip of land smaller than Raleigh, it is densely populated by 2.1 million native Palestinians, 50% children living under years of oppression, occupation, and siege. This land in the last 37 days has been turned into a demolition site by USA-backed Israel. It's become an assortment of body parts of the dead, innocent. Palestinian men, women, and children, a 99.5% civilian death toll. Dead doctors, dead journalists, dead staff members, dead NICU infants, remnants of native people's homes, hospitals, churches, schools, any and everything turned to rubble. A melting pot, the American dream. We have stood idly by as Israel publishes lies blindly endorsed by the President of the United States, the same United States that was built on the backs of indigenous people, nurtured by the Africans that were brought here in slavery. The same President who is sending 14.3 billion of my Palestinian-American tax dollars to fund the extermination of my lineage in Palestine. Is your pedestal obstructing your view of these atrocities because your children don't look like these children? Are you just pretending that you're not watching a genocide happen on your phone? I see myself in these children, I see my parents, I see my siblings, my nephews, my cousins, I see my family. I don't have the privilege of disassociating from the Palestinians who are being wiped off the earth. We could have spared the lives of more than 5,000 children if our leaders listened to the millions of people across the globe urging for a ceasefire. I gave this speech on November 23rd of 2023. I'm here today, almost 7 months later, and today marks 200 days of genocide and Gaza has become more than a demolition site, in the last 200 days it has become a haunting place made up of your worst nightmares. It is overtaken by famine, anguish for lost loved ones, stories of unspeakable atrocities and desperation to end genocide, the 14,000 children dead today could have been spared by a ceasefire 7 months ago and now the President has sent 26 billion of my Palestinian-American tax dollars to fund Israel's crimes. It is unbelievable that I have been forced to find creative ways to say genocide is bad. I grew up on James Street, I will pass by my house today after I leave here and reminisce on my childhood and when the people of Gaza pass their childhood homes, there is nothing there except dust and their dead family members, please pass a ceasefire."

Mayor Gilbert thanked Ms. Dahbour

Next to speak was Ms. **Alexis Kennedy** of 106 Buckhaven Court:

"Good evening Councilmembers. I have a few things that I would like to address which involved the incident during mine and Lama's speech last meeting. Lama, a young, intelligent Palestinian woman was speaking about the atrocities that were being committed against her family and her people. It took great courage for her to speak about her personal trauma, personal trauma that is being spread via Instagram, TikTok and Twitter on live stream for the

whole world to witness. It took courage for Lama to come up here to speak for her people and her family. Her speech was a mere 4 and ½ minutes. The Zionist that was sitting directly behind her could not even handle that, and had to shuffle his papers and toss them around, throw up graphs and pictures to distract her and intimidate her, but Lama kept her voice clear and held her poise. What we witnessed is just a tiny glimpse of what Palestinians have to go through on a daily basis, in Gaza and West Bank. With Zionists that even in peaceful protests, they have to aggressively attack. Afterwards, it was the Zionist's time to speak, and we all respected it and listened with no interruptions. At the end of the meeting, it was not enough for the Zionist, he had to come across the way and try to hand us paperwork and we respectfully declined, and he couldn't take no for an answer. Trying to intimidate our group and we were very lucky that we had the Police Department and our Police Chief to protect us and de-escalate the situation, because he was taking no for an answer, and I would like to take a moment and acknowledge both Police Officers that assisted us here in Apex. We are extremely lucky to have a community that protects us, but who is protecting Palestine. I do have to say the Zionist did have a valid point and called out that neither one our speeches called for peace, and I agree, we didn't call for peace. Because peace doesn't mean justice, peace doesn't mean Liberation; you can have peace and injustice at the same time, you can have oppression and peace at the same time. True peace cannot be achieved until oppression is stopped, until the genocide has stopped, until the apartheid has stopped in Palestine. And while we don't have peace at this moment, there is a bountiful amount of love and value of life from the people that are asking for a bare minimum ceasefire. There's a picture in front of you, that is our future, and I would like to take a moment and have the people that are in that picture stand up, so that you know that these are Apex residents that went to Washington, DC to support humanity. If you are wondering what our message means, this picture sums it all up for you. This is who is asking for a ceasefire, this is who is asking for a free Palestine, the people in the picture are looking at their fellow humans and recognize them as an individual, as a community and a culture to be protected. My last speech I spoke of the world being a complex puzzle, and after seeing this picture in Washington DC, I realized it was more than that, we are far more beautiful than a puzzle, we are a collective that are more like a kaleidoscope, when you look at the individual pieces, they're different, beautiful, uniquely shaped, but when you put them together, you make a kaleidoscope, and you look into the light and the beauty is unexplainable, making beautiful patterns with every turn and that is what diversity and humanity looks like to me and to us who are asking for a ceasefire. We are a collective of unique pieces, different backgrounds, different ethnicities, different religions who look to the light and we are all united on the idea of never again means never again, for everyone. Free Palestine. Thank you."

Mayor Gilbert thanked Ms. Kennedy.

Next to speak was **Jeff Hastings** with PeakFest:

"Thank you, Mayor, Town Council, welcome Town Manager. I just wanted to say that next Saturday is PeakFest. I've seen some of you volunteer to help out at 5:30 in the morning, Jacques, Mayor please. I just want to take an opportunity to thank the town for all that y'all have done to help PeakFest. We will have 110 arts and crafts vendors, we have 26 nonprofits, we have 21 sponsors, we have the town well represented. We have another 19 food trucks that'll be here, and so I didn't want to say thank you after the fact, I want to say thank you before the fact, for all that the town does to help us to pull this off and we couldn't do it without everybody at the table, and just thank you very much, so we will see you on May 4th and hope for sunny weather. Thank you."

Mayor Gilbert thanked everyone that came out to speak.

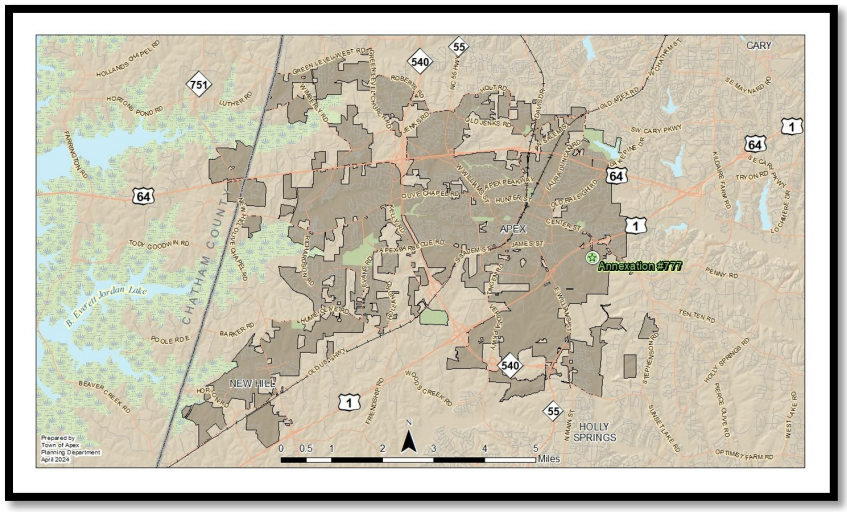
[PUBLIC HEARINGS]

PH1 Annexation No. 777 – 2014 Lufkin Road – 2.208 acres (REF: ORD-2024-035)

Dianne Khin, Director of Planning Department, gave the following presentation regarding 2014 Lufkin Road Annexation No. 777.

[SLIDE 1]

[SLIDE 2]



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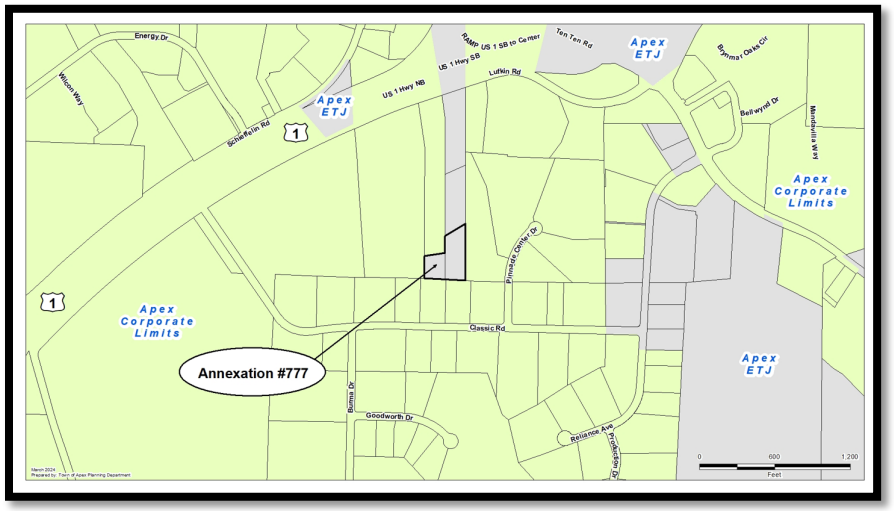

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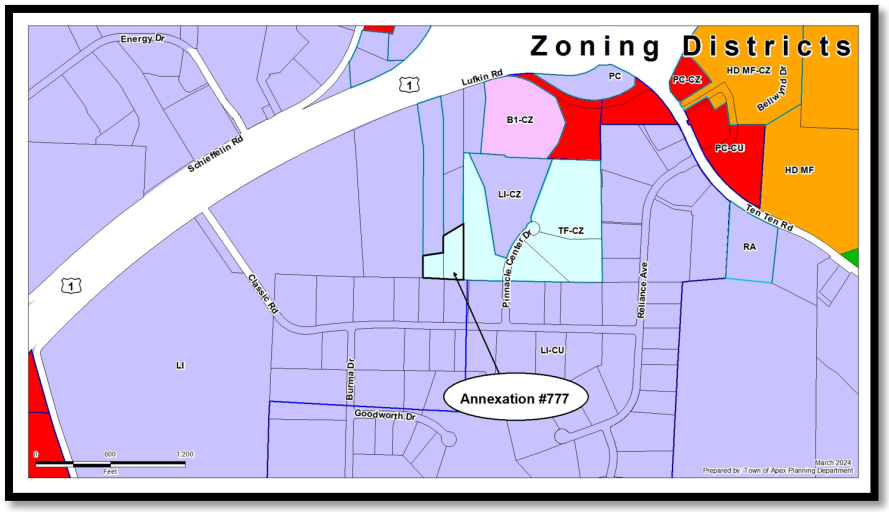


Mayor Gilbert opened Public Hearing for this item. With no one signed up, he closed Public Hearing and moved discussion back to Council.

A **motion** was made by **Councilmember Killingsworth,** seconded by **Councilmember Mahaffey,** to approve Annexation No. 777 – 2014 Lufkin Road

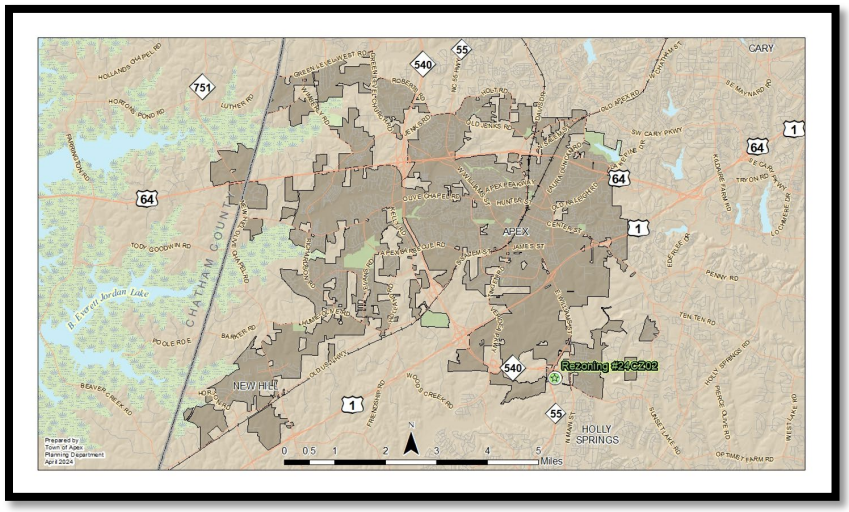
VOTE: UNANIMOUS (5-0)

PH2 Rezoning Case No. 24CZ02 – 5836 Old Smithfield Road

Shelly Mayo, Planner II, Planning Department, gave the following presentation regarding 5836 Old Smithfield Road.

[SLIDE 6]

[SLIDE 7]



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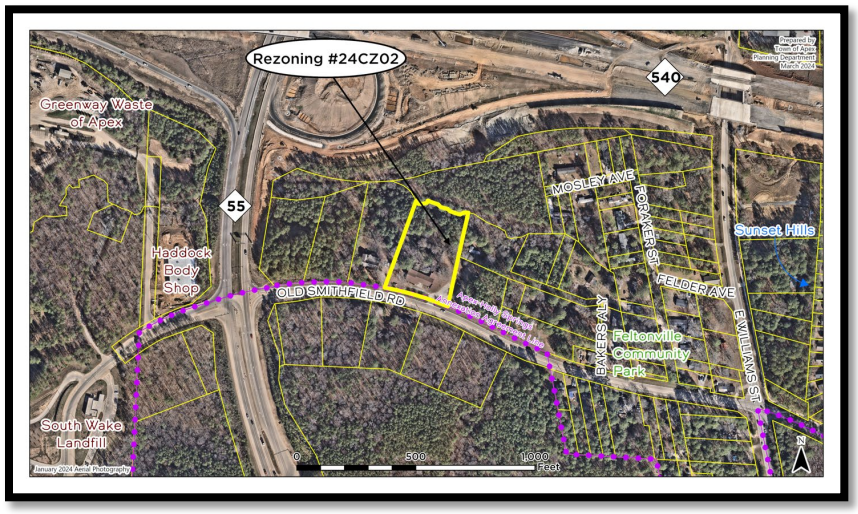

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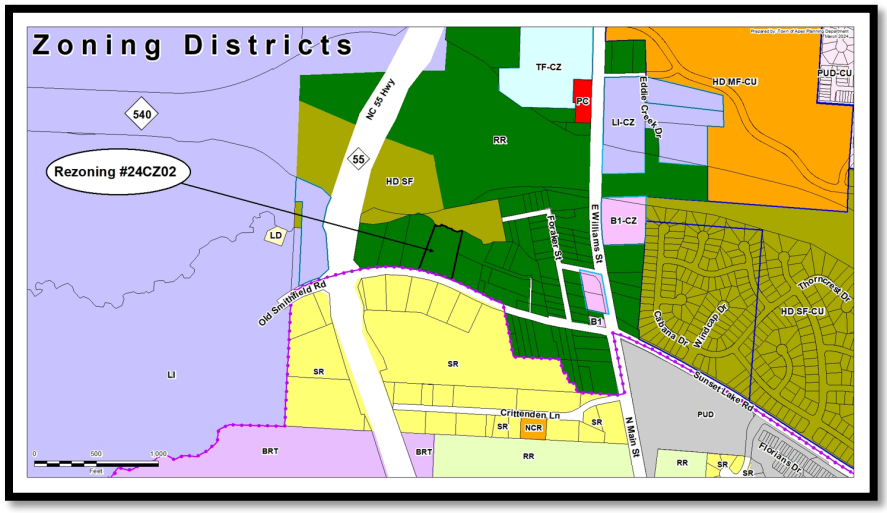

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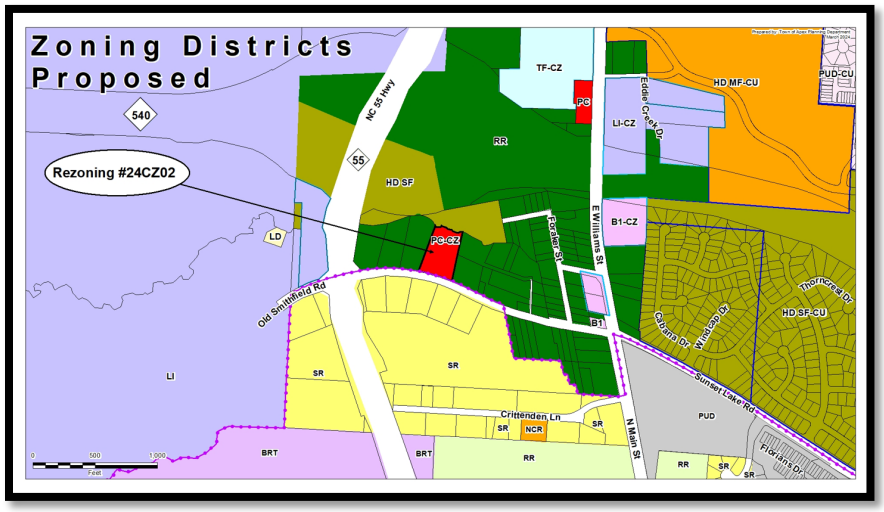

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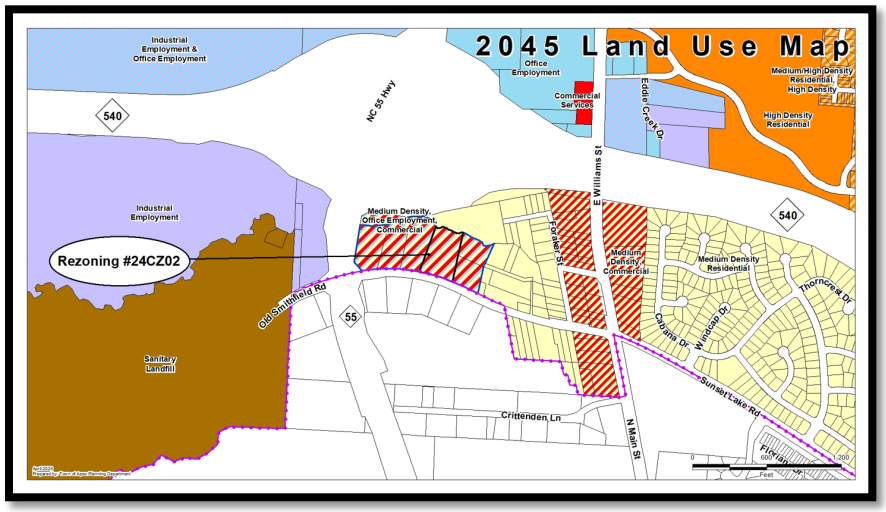

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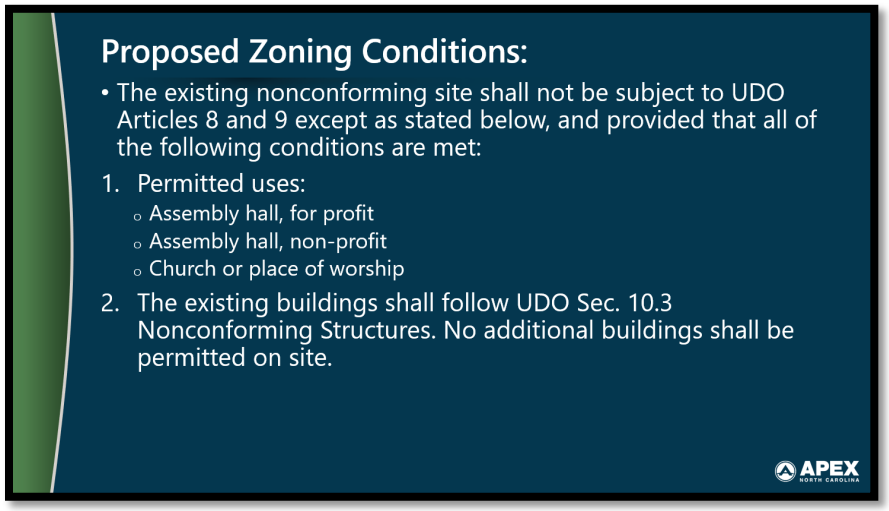

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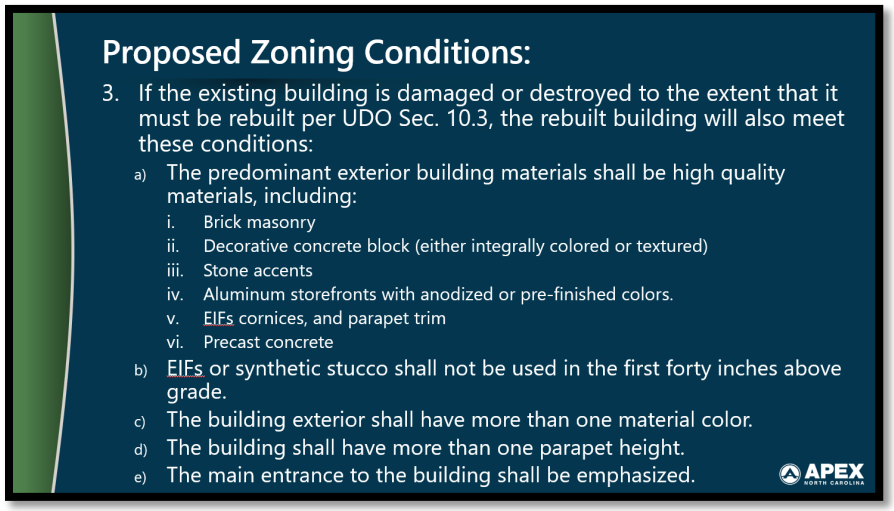

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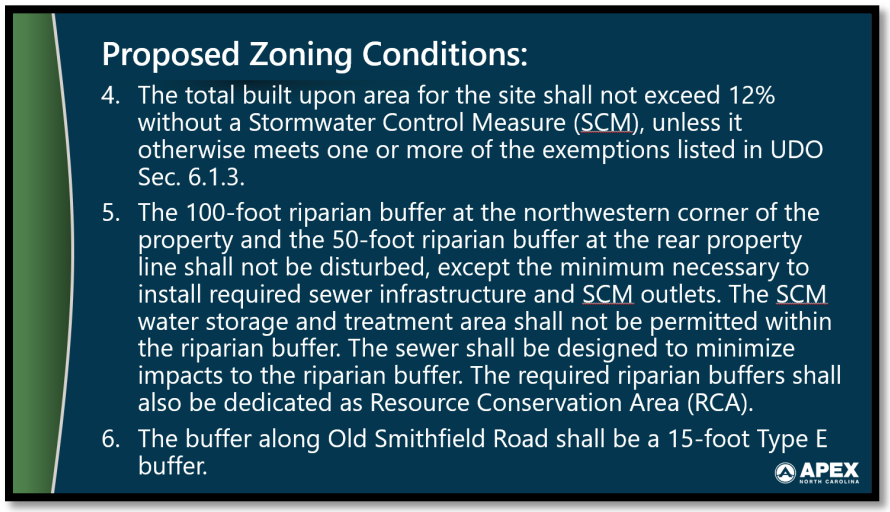

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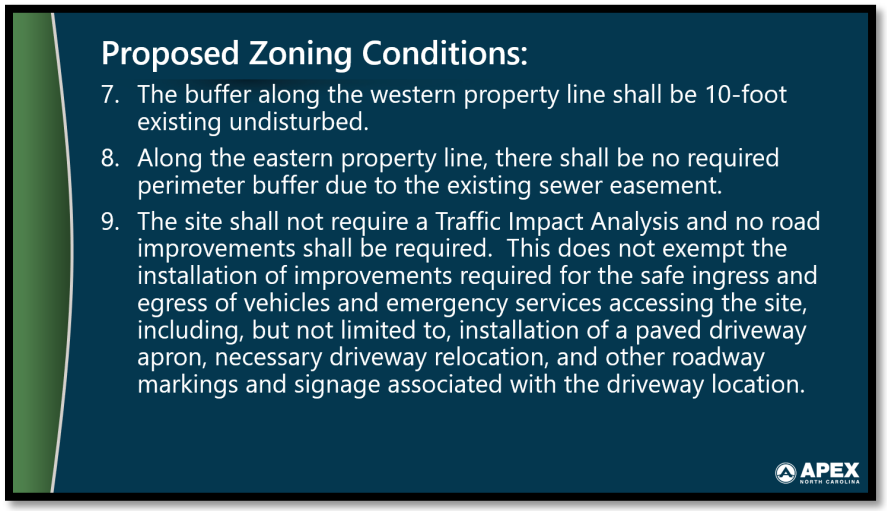

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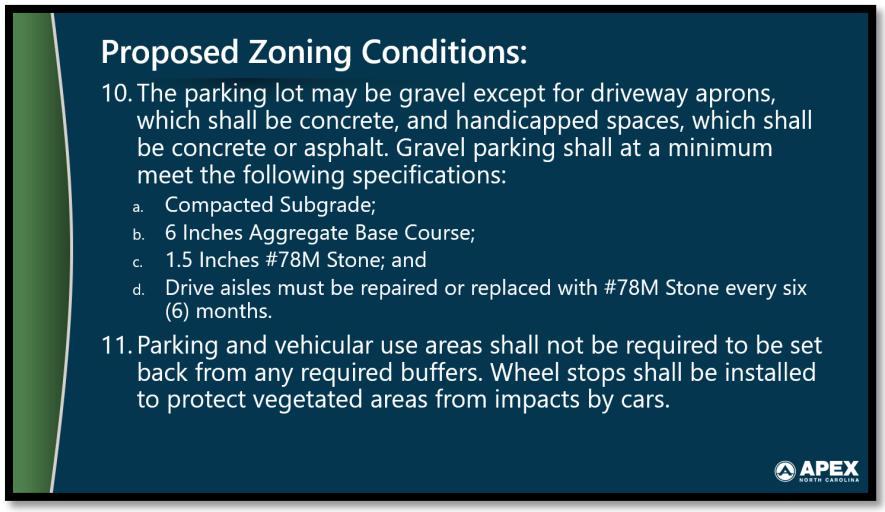

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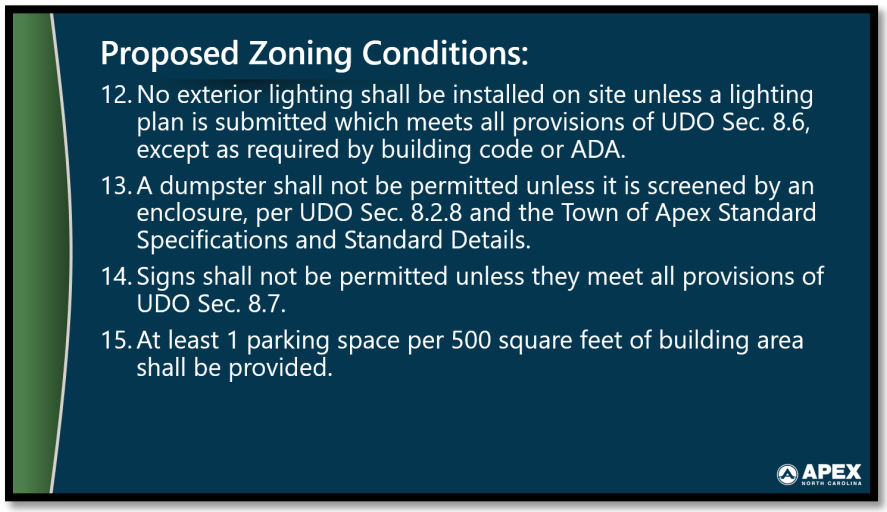

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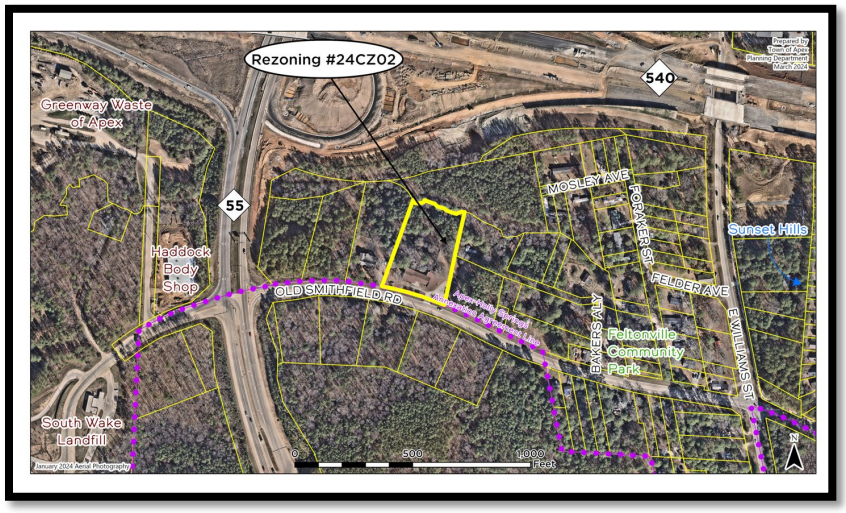


Councilmember Gantt asked if staff were concerned about the dust from the gravel becoming a nuisance for the nearby residents.

Ms. Mayo said it had been graveled for a very long time, there had not been any complaints from the neighbors, and the owners live right next door and are tightly wound in their community.

Mayor Gilbert thanked Ms. Mayo for working with the applicants. He said it was an iconic building and there were lots of good memories associated with it.

Mayor Gilbert opened Public Hearing for this item. With no one signed up, he closed Public Hearing and moved discussion back to Council.

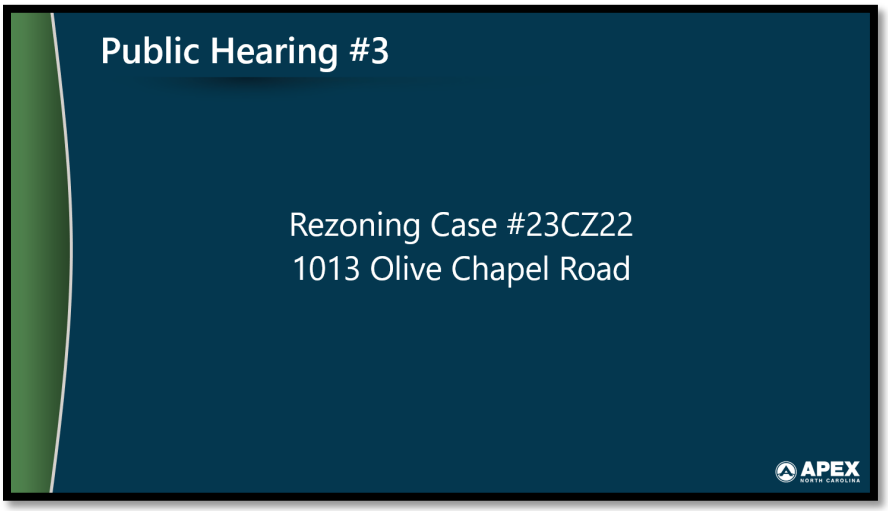
A **motion** was made by **Councilmember Mahaffey,** seconded by **Councilmember Zegerman,** to approve Rezoning No. 24CZ02 – 5836 Old Smithfield Road.

VOTE: UNANIMOUS (5-0)

PH3 Rezoning Case No. 23CZ22 – 1013 Olive Chapel Road (REF: OTHER-2024-059)

Joshua Killian, Planner I, Planning Department gave the following presentation regarding 1013 Olive Chapel Road.

[SLIDE 19]



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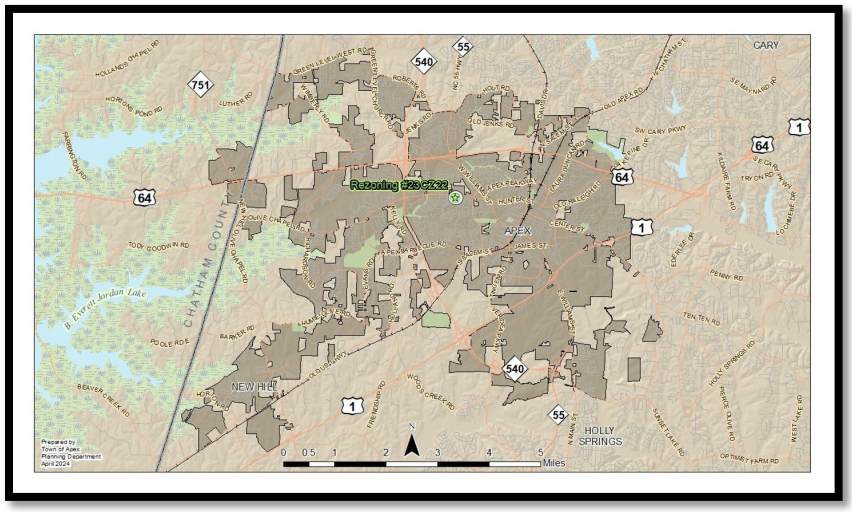

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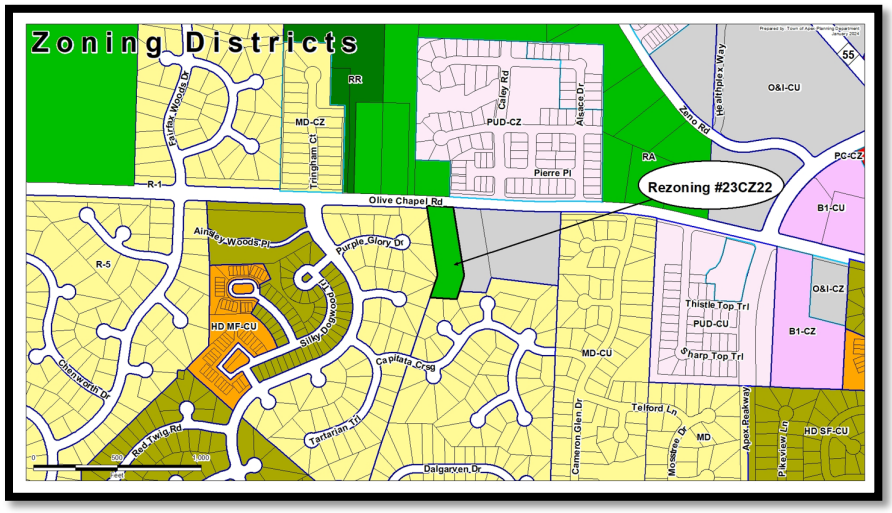

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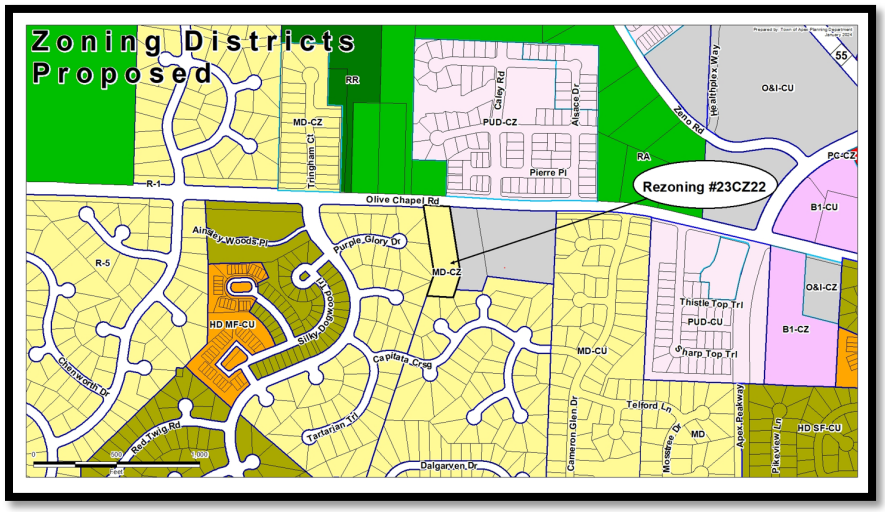

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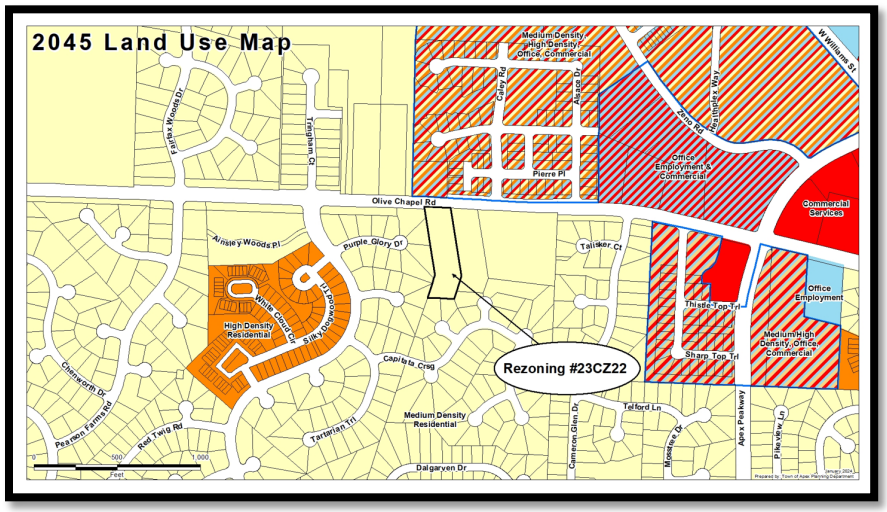


[SLIDE 25]

Councilmember Gantt asked how many houses by-right could be put on this site if the site was not rezoned.

Director Khin said it would be one unit per 5 acres.

Councilmember Gantt asked about the land use map showing this area as medium density but the zoning for the parcels to the east are office and institutional. He asked about the history and why there was no office institutional on the land use map for the sites.

Director Khin said that she wasn't sure why it was rezoned to office institutional, but when it was adopted, no one put office institutional. She said the land use map indicates that if the property comes in for rezoning now that would be its classification. She added that they have the legal ability to zone as Office and Institutional on this property if they would like.

Councilmember Gantt asked was there ever a discussion from staff or anyone else to try to move the driveway off of Olive Chapel Road?

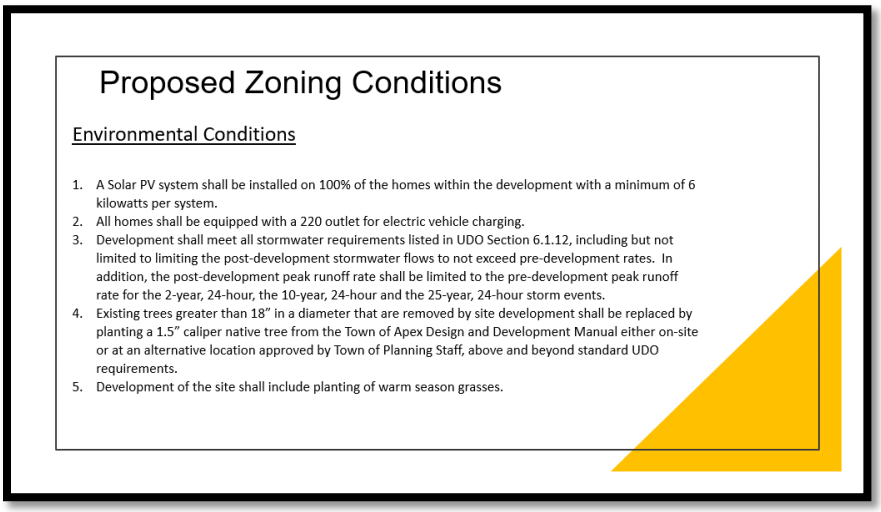
Mr. **Killian** said that was not a desire from staff or Capital Area Preservation.

Leticia Shapiro, Attorney of the Morning Star Law group gave the following presentation on behalf of the owners.

[APPLICANT PRESENTATION - SLIDE 1]

[APPLICANT PRESENTATION - SLIDE 2]

[APPLICANT PRESENTATION - SLIDE 3]



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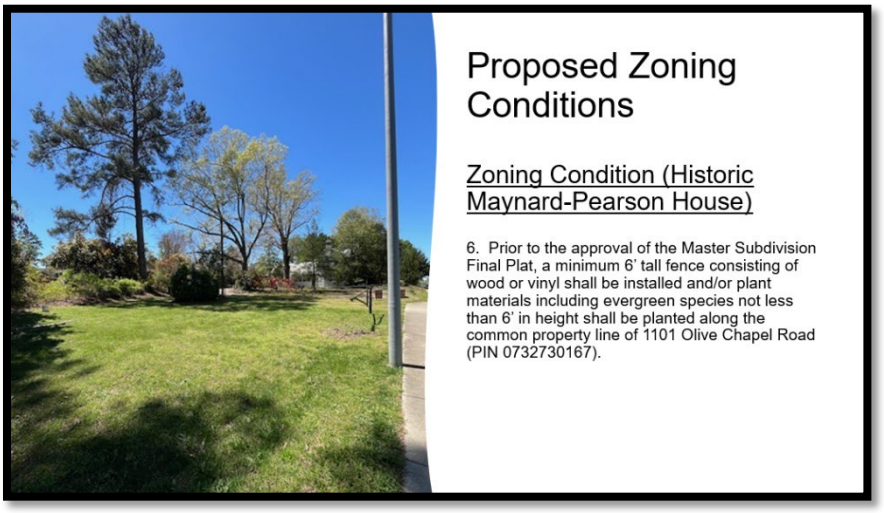
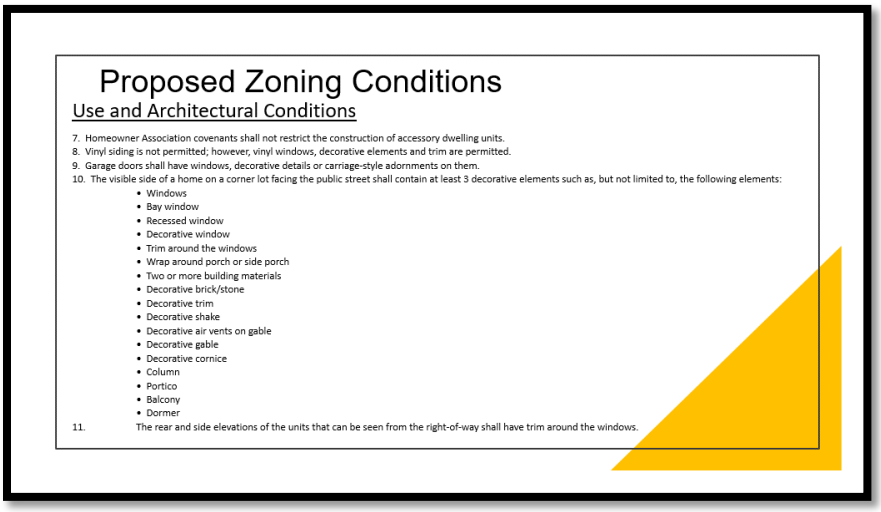


[APPLICANT PRESENTATION - SLIDE 5]



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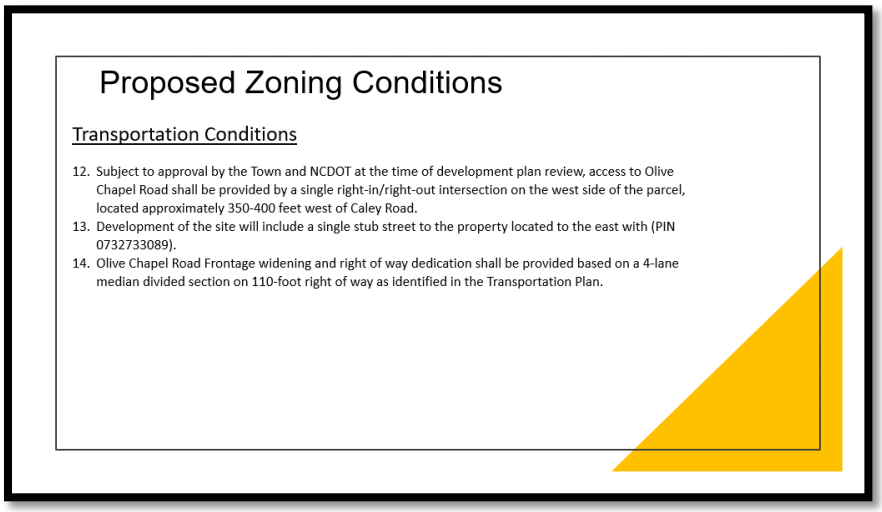
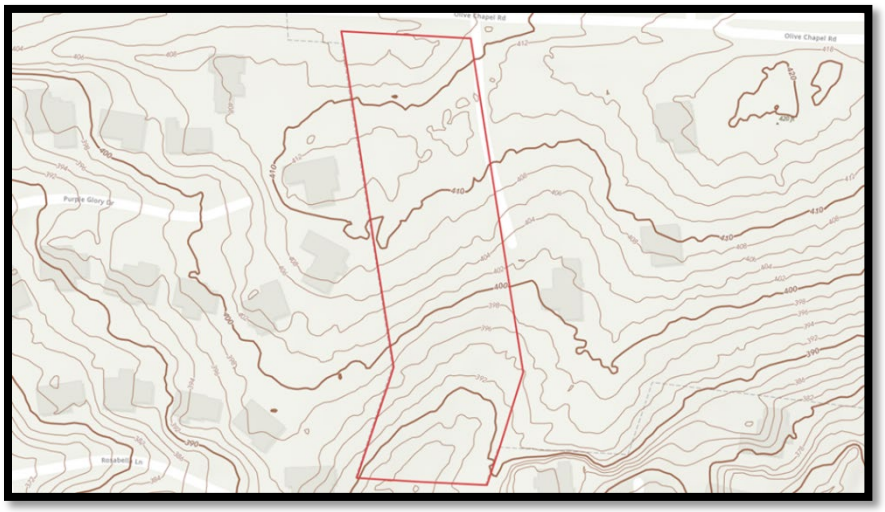


[APPLICANT PRESENTATION - SLIDE 7]

[APPLICANT PRESENTATION - SLIDE 8]



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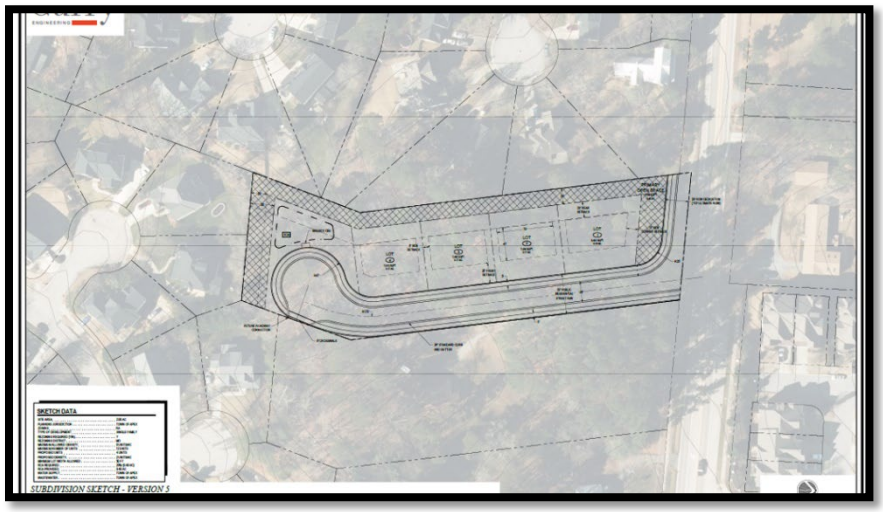

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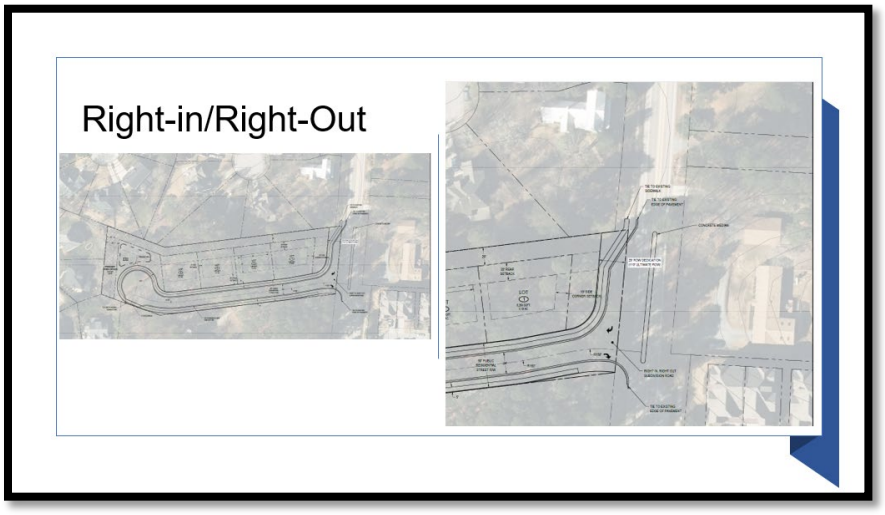

Councilmember Gantt said he had a hard time seeing how the parcel to the east is going connect with the street stub. He said he thinks the obvious thing would be to have the road to go right between these two on the property line and split it to allow for a more cohesive development in his opinion.

Don Curry, Curry Engineering, said the plan is work with staff to provide access to the parcel to the east the south end. Mr. Curry said they do not have access to the adjacent property.

Councilmember Gantt asked if homes were developed in the future and the stub is at the very southern end, how it would connect.

Mr. **Curry** said it was stubbed at the southern end of the property, but it is stubbed to the east as per staff's request so if a development occurred on that property, they would have the ability to connect to it as a public road. Mr. Curry said that their layout would need to conform to that stub location which is pretty typical of the first property in an area to develop. He said they would work with staff to set those street locations and then when future development occurs on vacant parcels then they connect to that stub.

Councilmember Gantt said this would imply that there would be a large cul-de-sac because there would probably not be another right in, right out 100 feet away on Olive Chapel Road.

Councilmember Zegerman asked if this would be a fully developed street with curb and gutter.

Mr. **Curry** said yes, it is a public street.

Councilmember Zegerman said he could see homes being developed on the other side of the road.

Councilmember Gantt said the Planning Board had said it would be on the other side of the road.

Councilmember Zegerman said he thought that condition was removed by Planning Board.

Mr. **Curry** said that condition was edited at the Planning Board. He said that he believed the staff's recommendation remained with the original language. He said in either case, they would need to stub to the east and more than likely that requirement would still remain at the staff level which is pretty typical when developing a piece of property.

Councilmember Gantt asked if the stub was on the east side instead of the west would there be driveways that would be able to access it from the parcel to the east. He said it seems from the sketch there would be a buffer and then there wouldn't be driveways on it.

Mr. **Curry** said that if it mirrors the layout that the applicant currently has, the road would be on the west side and then the cul-de-sac would be south of the homes, so the stub would be from that cul-de-sac to the east after passing the homes so there wouldn't be any conflict with the new homes or their yards.

Councilmember Gantt said that then there would presumably be two right in right outs on the western edge of the property, and then on the eastern edge of the adjacent

property, and it would have a big loop. He asked if that is how it could potentially be arranged.

Mr. **Curry** said he did not know how a future connection would work on Olive Chapel Road, it would depend on their layout. He said he could foresee another connection, another right and right out, to Olive Chapel Road, or possibly a full access if it lines assuming the current home is removed with future development.

Councilmember Gantt said he just wanted the very best use of that land with all three parcels cohesively interacting with each other, if possible.

Mr. **Curry** said they were doing the best they could to accomplish that by putting a public road on the property and stubbing to the east, since they were only working with one parcel.

Councilmember Zegerman said he did not see any buffer conditions and asked if the road would go right up to the property line.

Mr. **Curry** said there was a buffer on the west side along the historic property line, but said he did not believe there was a buffer on the east side.

Councilmember Zegerman said that he did not see any buffer on the plans so conceivably there would be driveway access from that property to the east.

Councilmember Gantt asked if driveway access would access Olive Chapel Road from the east.

Mr. **Killian** said based on the current zoning condition that is in the staff report the road would be located on the west and then a stub would go to the east for public street access.

Russell Dalton, Traffic Engineering Manager, showed a schematic explaining why they chose to put the stub on the western end of the property. He explained that having the connection on the west side of the parcel would allow drivers more time to move over into the turn lane if they wanted to make the left-hand turn across the street.

Councilmember Gantt asked if it was expected to have full movement at Kaylee in the ultimate construction.

Mr. Dalton said yes, that's correct.

Councilmember Mahaffey asked to clarify what the condition being presented today.

Mr. Dalton said that the condition, subject to Town and NCDOT approval, is that the access would be located approximately 350 to 400 ft west of Kaylee Road which is toward the western side of the property.

Councilmember Mahaffey asked to clarify what the sketch was showing

Mr. Dalton said, this sketch illustrates what they'd shown previously, and it illustrates why putting it on the east side is so problematic.

Councilmember Mahaffey said that implies the road would then be on the western edge of the property.

Mr. Dalton said yes, as far west as practical.

Councilmember Mahaffey questioned if it would be the road and then the buffer and then the existing homes next to it being on the west side. He clarified that the condition

today is the original staff recommended condition of restricting it to the west and not the Planning Board recommendation of removing that and letting it have more flexibility.

Mr. Dalton said that is correct.

Councilmember Gannt asked if staff was assuming that in the case that the U-turn is going to happen in the street and not at the light.

Mr. Dalton said that's correct. It is natural driver behavior that they are going to take the first possible U-turn opportunity and in a lot of ways it's easier to make a U-turn at a location like this which is lower volume than a traffic light may be.

Councilmember Zegerman asked if the property is moved and the road did come through, where would the storm water retention go.

Mr. **Curry** explained how the property drained and said they would need to do some field surveying and get some topography on the property to try to get the storm water work.

Councilmember Zegerman asked if the 25-year storm condition would still stand.

Mr. **Curry** said yes, there was no change in that condition.

Councilmember Zegerman asked if the applicant has accepted the conditions outlined by staff.

Ms. **Shapiro** said ideally the applicants would like to have the flexibility to not have the strict language after agreeing to the right in right out turn. She said the applicant is willing to do it either way and see how it goes. She added that they would like to work with staff and do the best possible thing for this site.

Mr. **Killian** made one final note, that the zoning condition does also state that it is subject to the approval of NCDOT and the Town of Apex, so the condition may not come into play if the engineering doesn't work out.

Mayor Gilbert opened up the Public Hearing for comment.

First to speak was **Ken Alridge**, 1004 Alma Trail.

"Thank you, Mr. Mayor and Council Members. First of all, we would like to welcome new residents. We're glad, we've lived here 15 years, and we think anyone that can enjoy this town the we have, we're happy to see them come in. Our concern is we're at the very southwest corner of this property and there is a drain in the back of our yard that essentially catches storm water runoff from all these parcels, anytime it rains more than an inch, the water runs from that parcel into that drain for about a week, okay, so it gets pretty backed up. At one time we were very concerned about that, contacted the engineers for Apex that came out looked at it and said it's a problem with a low water table back in that property. We see in the plans that there is a plan for a sand filter as a solution and according to the North Carolina Storm Water design manual and email from Jessica Bolin, who is the Manager of the Engineers, basically that addresses the quality of the water, not the quantity. We've been told that there's a 25 and a 40-year flood plan that's been looked at. My concern is that I don't know how they can assess that when they're assessing it on property that is full of mature trees and undergrowth and now we're going to have paved services and roofs, you know and

roads. Obviously, the water run-off is going to much greater, so our only concern is that we would like to see a current study of what that runoff would be and how that would impact our property and if they come up with a good plan, then we'll be happy with that. We just want to make sure that we're not going to be getting flooded since all that land does run, as stated earlier, to the southwest corner, that's the low point. The other concern we have is that there's a couple of very mature champion trees on the property towards the south end in excess of 40 inches around and we would like to know if there's a way we can preserve those trees. I know that currently there's a plan that if you have a tree that's so big, you have to replace it with another tree of 1 ½ or 2 ½ inches, but it could be planted anywhere that's needed in the town, hate to see the champion trees to be torn down, but we do understand."

Mayor Gilbert thanked him.

Next speaker is **Bill Keys** of 1014 Olive Chapel Road.

"I've been living there for almost 50 years and it used to be easy to get out on Olive Chapel Road, it's not so easy now and if I'm looking forward to the prospect of median and right in and right out, that's going to be great, we probably take 90% of every turn out our driveway, we go east to Church, grocery store, whatever. To have to go right, that means we it's a turnaround, it's finding somewhere to make a U-turn, it's to me that's just adds to the problem of traffic, so that is the problem for us. I know it's a traffic concern when you have that many cars coming out of which will effectively be a driveway with four house and not an intersection or like really a street, but that's what my concern is, also the fact if you look at the property when they widen Olive Chapel Road, I'm probably going to lose 20 to 30 feet of my front yard because that would be the extension of the outside lane on the north side, would go right through there so, that was my complaint, my piece of the pie here. We want to see it done in a way that it doesn't impact us, I mean everybody wants it that way but I just wanted you to be aware that if it does go right in right out, it doesn't just affect them it affects other people. Thank you."

Next speaker is **Jeff Hastings** with Apex Historical Society of 1110 Olive Chapel Road:

"I would ask that you eliminate the right in, right out and the reason being is if anybody that's coming west of that property, the first turnaround is the Maynard Pearson House. The Maynard Pearson house has no driveway that is paved, it is all grass and mulch right now and so every FedEx, UPS, Amazon, Chewy, visitor, anybody that's coming from Apex that turns around, is going to turn around into the Maynard Pearson house, and it's enough of an issue right now to maintain our yard and it'll be decimated going forward. We will be forced to put up a gate, which is counteractive to what we want to do for the Town of Apex. So if you look here, if they're looking at that, you know, the right in and right out, here on the west end side, the next driveway is us and if you look at the right, there where I'm shading, it's all gravel, and it's all mulch and so it's a big issue for us with the Maynard

Pearson house of how with, without somebody living there, how do we maintain that property and how do we maintain that driveway. The second thing is when it came, when I first saw it and the driveway was on the east, then I look at the condition number 12, and the driveway moves to the west. The driveway to the west, they're asking for a wood or vinyl fence or a 6-foot buffer of vegetation. I'd like it to be a fence, wood, vinyl fence on the west hand side to preserve the Maynard Pearson house from new development. So those are my two asks and I'm not against development, we've seen this coming, we welcome the neighbors, we welcome somebody else along with Rob, who is our neighbor, to overlook the property to make sure that no mischief is happening, we'd love to see it developed in a right way, four houses sounds like a fine idea, but it's just how do we preserve our property without it being at the expense of having the right in, right out dedicated. So, thank you very much."

Mayor Gilbert thanked him.

Next speaker is **Rob Wellman** on behalf of Purple Glory Court:

"My name is Rob Wellman, and I am here on behalf of all of Purple Glory Court, I actually talked to Mr. King here earlier today so I would like to address some of the things before I start on what I have, because of things that you guys brought up, I wanted to talk about Mr. King's property here first. He has zero intentions of turning that thing into a residential property, he has it zoned, the way he got it I don't know, it happened 25, 30 years ago, how people got the zoning that they get, you know what? But he has it as commercial conditional improved and he has hopes of putting a wedding venue or some sort of Community Center, event, that could house you know, weddings, baby showers or Church gatherings, all sorts of things he mentioned VFW, American Legion, all those things, so that's his intentions for this property, keep hearing about how you know, just automatically assume that it's going to become houses, but that's not what he's looking to do. So again, my name is Rob Wellman, I live at 1100 Purple Glory, I live next to the Maynard Pearson house there and I'd like to start by asking the whole room a question and that is you know is this process supposed to be fair, transparent and honest for everybody, including the applicants the Town, the neighbors, you know. Does anybody disagree with the statement? No. Great. This rezoning process has been anything but, and I'd like to start with the history of the property On March 10th, 2021, 1013 Olive Chapel went on the market for sale of $385,000, two days later on March 12th, 2021 it went under contract, apparently there was an experienced builder that bought the property and they came to the Town of Apex and were looking to get approval for six homes on that lot, whatever answer they got, did not satisfy the builder. He gave up all his deposit money, walked away. On May 5th of 2021, the applicants took the property under contract and purchased the property for $350,000, it's $35,000 off asking price, good job. Why did the property sale for $35,000 less when every builder in the Greater Triangle area had a swipe at it? It's because they all knew that between the drainage, the road and everything else, that this property was really just meant for one or two homes. So, the new owners take over and they wait one year and 3 months, on November 22nd they put it on

the market for $800,000, so $450,000 more in a real short time period. I'm a real estate agent, I've seen a lot of whoppers, as far as it goes and price jumps over the last several years but that one takes the cake. In addition to this it was the property was purchased using a $245,000 note, that's kind of important when I get to what I'm going to talk about later. After nobody bites on the property in February 2023, they drop it to $690k, still no takers on the property and it expires in the MLS on May 2023. Magically in July of 2023 the property appears before the Rezoning Board or I'm sorry, TRC, the first records of the property coming to be rezoned happened one month after the property expired. I don't understand why they're trying to sell this family plot of land that they're talking about, I mean they didn't put a sign up, it was internet only, nobody lives there, why not put a sign in the yard advertising that it was for sale. You get more money, get more attention. In the MLS listing, and this is for both of them, the one when they purchased it and when they posted it, it said forested land, zoned rural agriculture and beautiful set on 2-acre lot waiting for your custom-built dream home, nestled in highly sought-after prime Apex location, Beaver Creek Shopping Center, it was the same language for each one. Here is exactly what happened in my opinion, I think in 2019 individuals got together and they've started property investing, that's good, you know, we use property investors, they have multiple town homes and single family homes all over the Triangle, they're leveraged on majority of those properties, they've taken money out like ATMs until the end of 2022 when the rates went up so much that it was no longer feasible. They are very smart individuals, don't question me, I'm not questioning any of that, they're very, very smart, I can appreciate what they were doing, but this is all just an investor's game, there's not true intent to actually develop the property. I know everybody despises the recent phenomenon of the corporate investor taking homes from hardworking families, just trying to achieve a piece of the pie. This is the same thing, a lot of their properties are brand new town homes, do you like driving through all the new town home subdivisions developments and seeing a For Rent sign in the yard before they're even done building the other four town homes in that building? Because I mean if that's the phenomenon you like, that's what you're approving. The applicants also own a property at 0 New Hill, Olive Chapel Road, it is 4 acres, it is a beautiful property, primed for Home Building. You probably lose an acre of building because a buffer would be needed because out there it's by the water, foul impoundment, but it's still 3 acres of flat land, used to be farmland, it looks like, and it'd be protected for eternity. They have a lot of room to build out there, like I said it's flat and there's a proposed school going in right there. I lived in Scotts Mill when you guys put in the Scotts Ridge Elementary School, pretty darn good for property value when you guys put in a school there. Another point on the property at 0 New Hill Olive Chapel Road, they have eight different individuals on the deed, why, because they're expanding investment operations. From a group that is always looking for a discount on the real estate, it seems like a no-brainer, why would you build behind our houses, deal with the traffic, the drainage, the right in, the right out headaches, why would you not pick the land that would come out with positive equity, otherwise, you're just looking at lighting 2 million dollars on fire if you 're looking to view if you're looking to build on this property. They can explain some of the transactions. In the notes that the Attorney had, she said participant asked if any of the owners would be looking

to live in the properties, yes all of the owners will live in the houses. The participant asked if the owner had ever built a home, no we've never built, we bought the parcels to build our own homes. Participant asked the owner if they had ever built in the subdivision before, no, but we know some contractors do that, we're talking with builders who would do that for us. Participant asked was the price point, they don't know. Participant asked what's the setbacks, then they go on to say we have not yet talked to contractors, these are her notes, not my notes, even though in the previous one, it says they're already talking with builders. Then the participant, which I believe is me, asked for the plan was to live there, why did they try and sell it for 6 months over the last year? For those 6 months last year, we were looking to sell because we bought new homes but now do not like our homes and want to move into our own homes that we can build. Well on January 18th, one of the applicants bought a house in Trinity Park for 4,000… it was 4,000 square ft, they bought it for $780,000, again another steal, because it was listed at $820,000, it was a brand-new spec home. The neighborhood's beautiful, has a huge pool, I just want to get this straight, they're buying new construction homes that are 4,000 square ft in the same year that they've going to breaking ground and digging in and starting new homes, that just make any sense to me. So we all get together on January 23rd, five days after the applicant closes on his brand new home telling us they're going to build brand new houses behind us, they just built one, I mean I cherish my time with my family, I know my neighbors cherish their time with their family, we don't appreciate being called into these rezoning meetings on a Wednesday night only to be served a buffet of cowpie because they just built a home, yet they're telling us they're going to be building homes behind us, I'm a little confused. Another thing is for the project itself, it's a pure financial loser, they're not building enough addresses to make up for the infrastructure. I'm running short on time, I see that, so I'll hurry up here. But, basically, they're hot to trot, they're getting ready to build and start according to them they're going to be tearing down trees here later this summer, they didn't submit a site plan, in addition to their rezoning plan, I don't understand why they would not do that."

Mayor Gilbert thanked Mr. Wellburn.

With no further sign ups, **Mayor Gilbert** closed public comment and opened back up for Council discussion.

Councilmember Killingsworth wanted more information about the right in, right out. She said that there had been emails and comments about not having the right in, right out as part of a zoning condition.

Mr. Dalton explained the minimum standards for full movement intersections with NCDOT, that full movement did not work here from a safety perspective. He said it is great for connectivity to have full movement access, but it would not work here. He said there are other design options that could address it, but there may be some other problems with those. He said the specifics will be worked out in the design process with NCDOT.

Councilmember Zegerman asked if at some point in the future this would be a divided thoroughfare.

Mr. Dalton said that was correct. He said it may be a long time, but there would be a divider in the middle and everything would be right in and right out.

Councilmember Gantt said he was not going to support this. He said it would be a better development if it incorporated the property to the east.

Councilmember Mahaffey agreed with Councilmember Gantt.

Councilmember Zegerman clarified the motion to approve the rezoning with the conditions stated in the staff report as recommended by staff.

Councilmember Killingsworth said to clarify the options of having a fence and not vegetation as a buffer or both, whichever would be best suited for the separation regarding the right in, right out.

Ms. **Shapiro** clarified that condition number 6 provides flexibility for either a fence or both or just vegetation. She said they have had great conversations with neighbors and want to be as accommodating as possible, and that she understood the concerns. She said the families want to plant roots here, and there are 8 people on a deed because it consists of 4 married couples.

Councilmember Zegerman said it would be a better plan to have all 3 properties come up together, but that is not the case. He said the rezoning request is consistent with the 2045 land use map. He said he would vote in favor of the motion.

Councilmember Killingsworth asked if they would they be willing to take out the vegetation piece of the condition.

Councilmember Zegerman asked if at least a fence be included at minimum and vegetation could be included along with the fence.

Ms. **Shapiro** said yes.

Councilmember Killingsworth said that given the amount of traffic, that she would support the staff's recommendation for the right in, right out.

A **motion** was made by **Mayor Pro Tempore Gray,** seconded by **Councilmember Killingsworth,** to approve Rezoning No. 23CZ22 - 1013 Olive Chapel Road with the modification of the conditions to require a fence to be installed.

Councilmember Gantt gave a scenario of a wedding venue and the possibility of this making it harder for future development.

Councilmember Killingsworth said that Council can't predict the future of the development.

Councilmember Zegerman said it may never happen because of the infrastructure costs. He said is there to approve this zoning condition.

VOTE: 3-2, with Councilmember Gantt and Councilmember Mahaffey dissenting

(*NOTE*: To view the additional zoning conditions documents, please see **OTHER-2024-059)**

Mayor Gilbert called for a recess at 8:15pm, and Council returned at 8:25pm.

PH4 Unified Development Ordinance (UDO) Amendments – April 2024 (REF: ORD-2024-036)

Robert Patterson, P.E., Senior Stormwater Engineer, Water Resources Department gave the following presentation regarding the Unified Development Ordinance (UDO) Amendments – April 2024.

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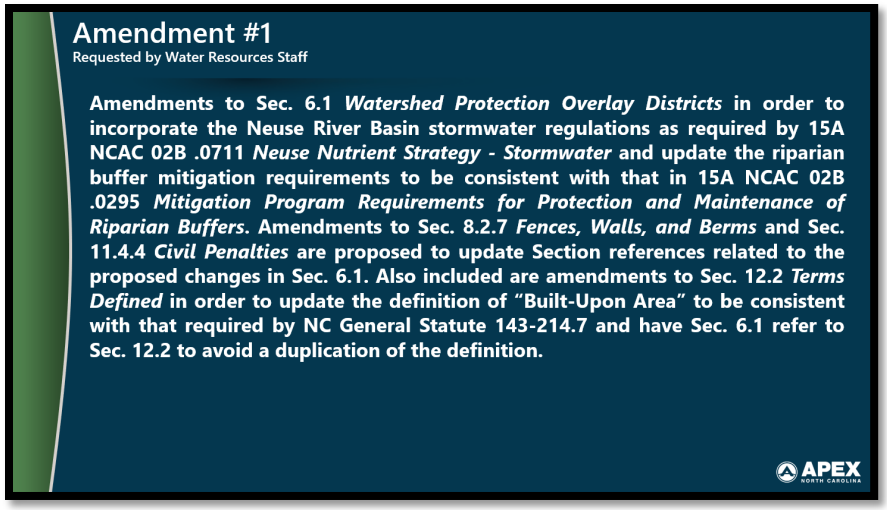

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Proposed Changes

- Section 6.1 – *Watershed Protection Overlay Districts*
  - Add Neuse River Basin Nutrient Management
  - Update Riparian Buffer Mitigation
- Section 12.2 – *Terms Defined*
  - Update Built-Upon Area (BUA) definition

UDO	Revision	State Regulation
6.1	Neuse Rules	15A NCAC 02B .0711
6.1	Buffer Mitigation	15A NCAC 02B .0295
12.2	BUA Definition	NCGS 143-214.7

APEX NORTH CAROLINA

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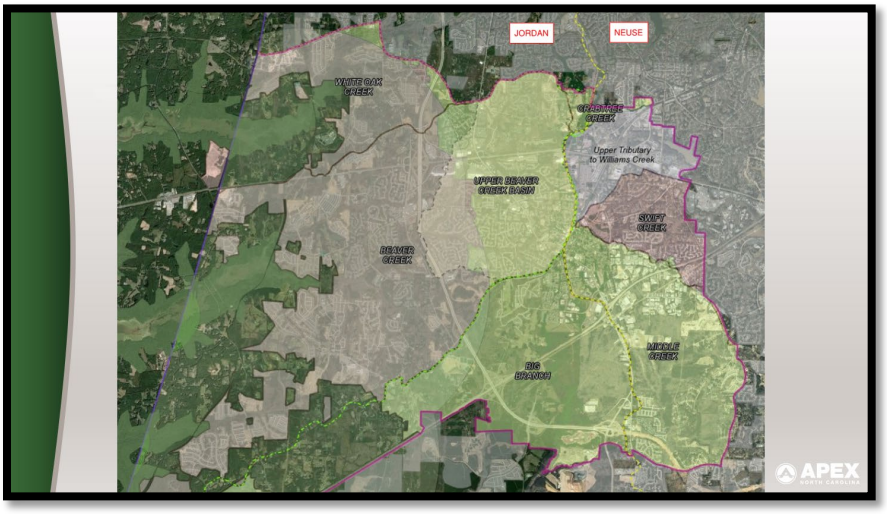

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Neuse Nutrient Management for Developments

- Nitrogen stormwater loading rate limit: ≤3.6 lbs/ac/yr*
- Land disturbance thresholds for stormwater requirements:

	Current	Min. Required per Regulation		Proposed	
Development Type	Town-wide	Neuse	Jordan/Cape Fear	Neuse	Jordan/Cape Fear
Single Family / Duplex	1 ac.	1 ac.	1 ac.	1 ac.	1 ac.
Commercial, Multifamily, etc.	1 ac.	0.5 ac.	1 ac.	0.5 ac.	0.5 ac.

*Currently no nutrient requirements within the Jordan/Cape Fear basin

APEX NORTH CAROLINA

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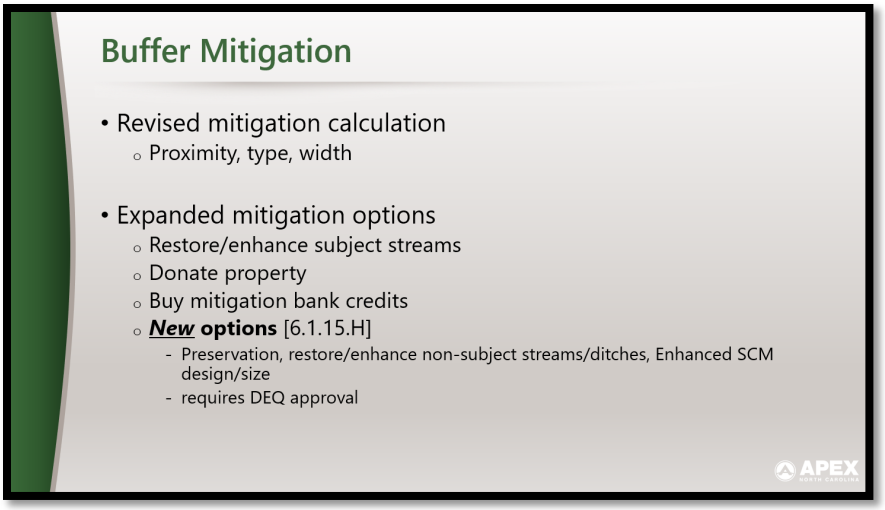

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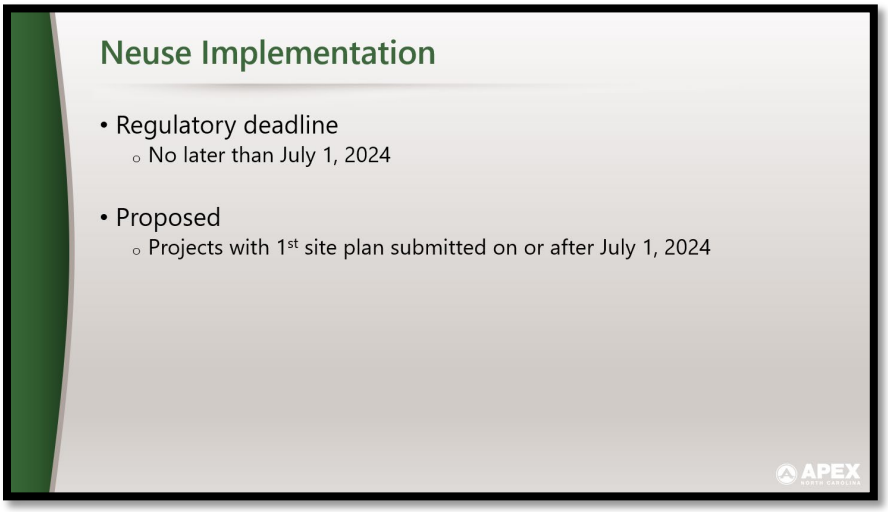

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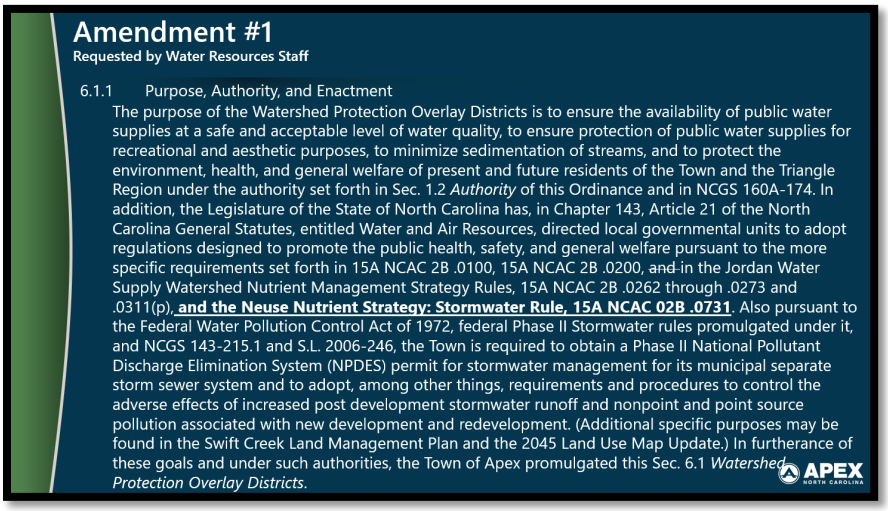

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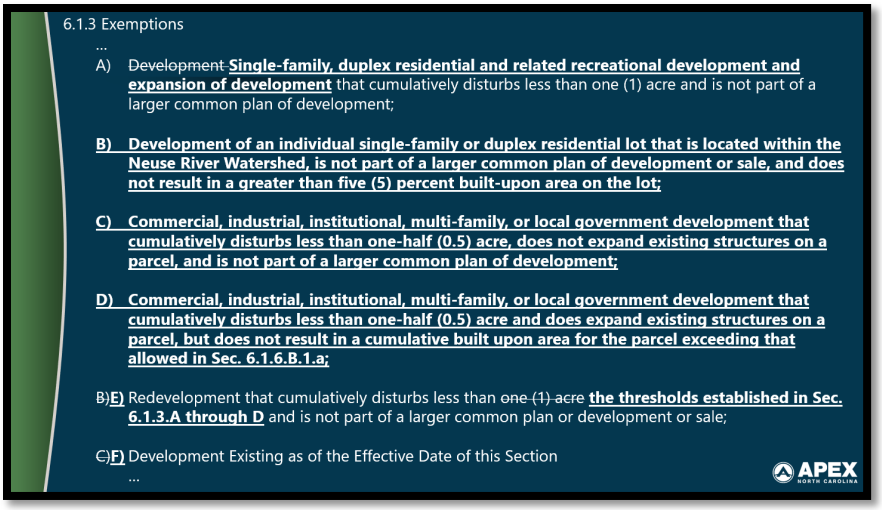

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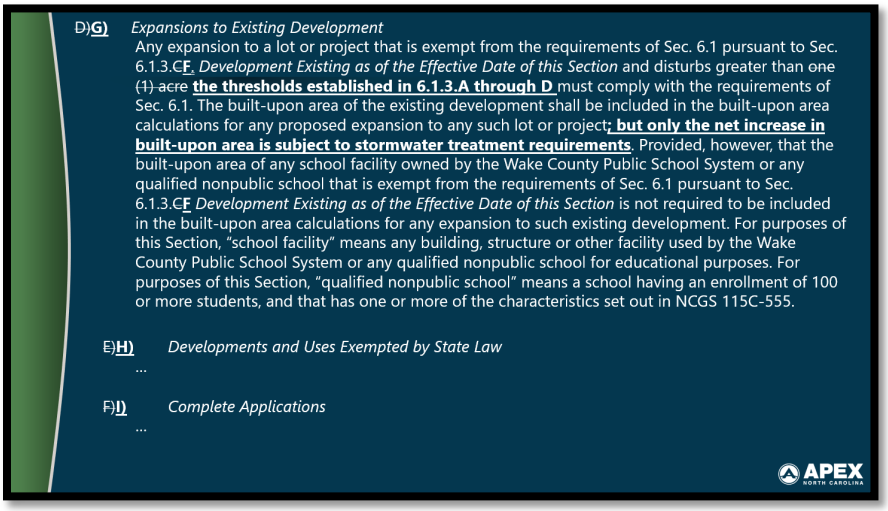

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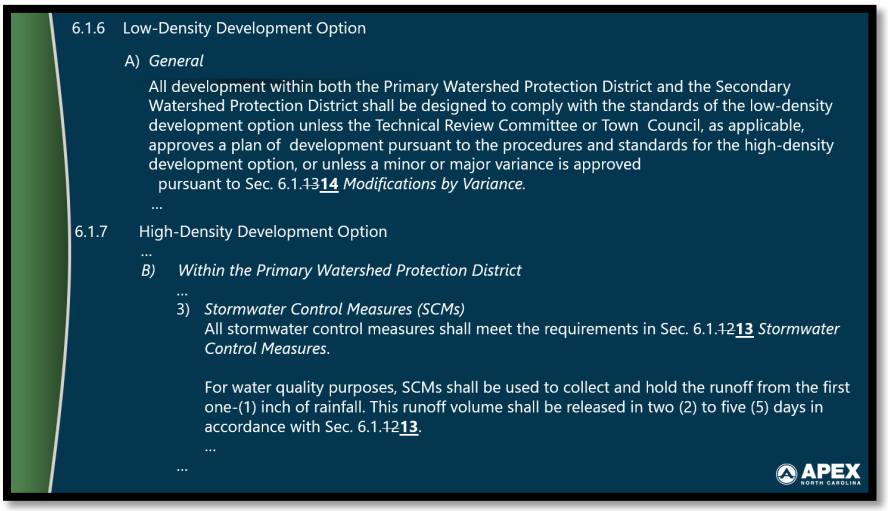

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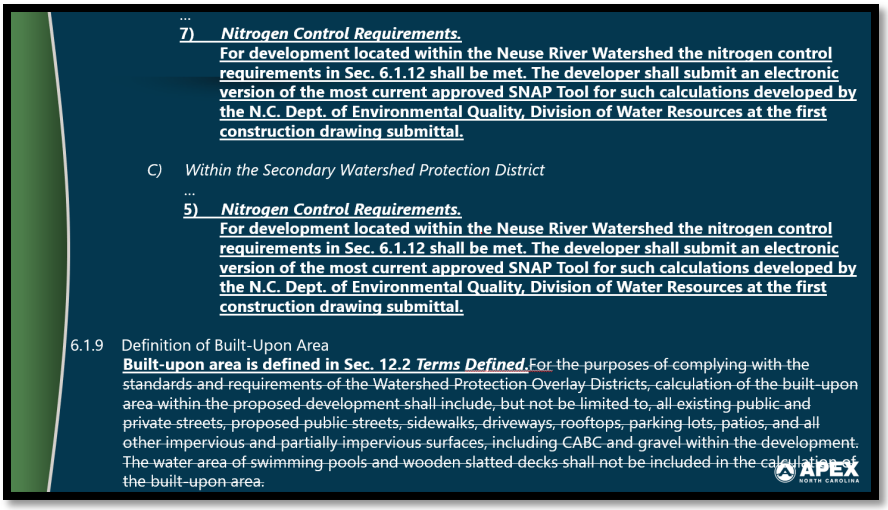

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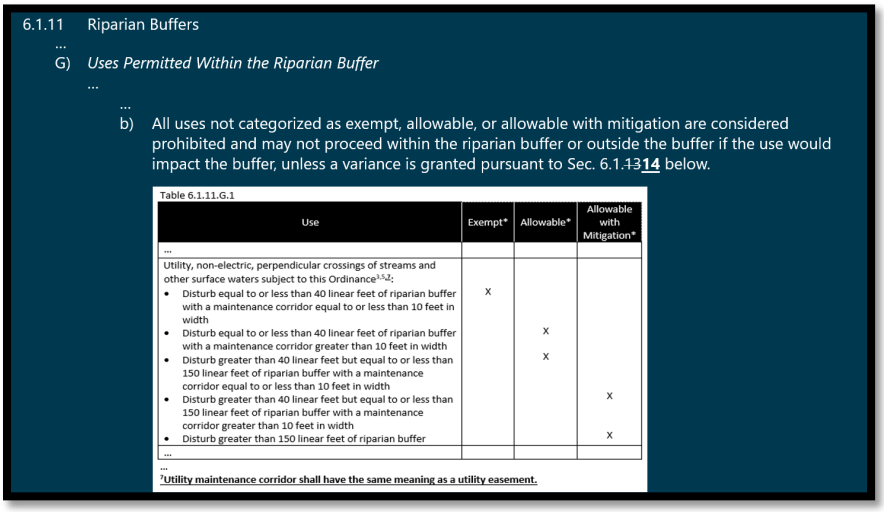

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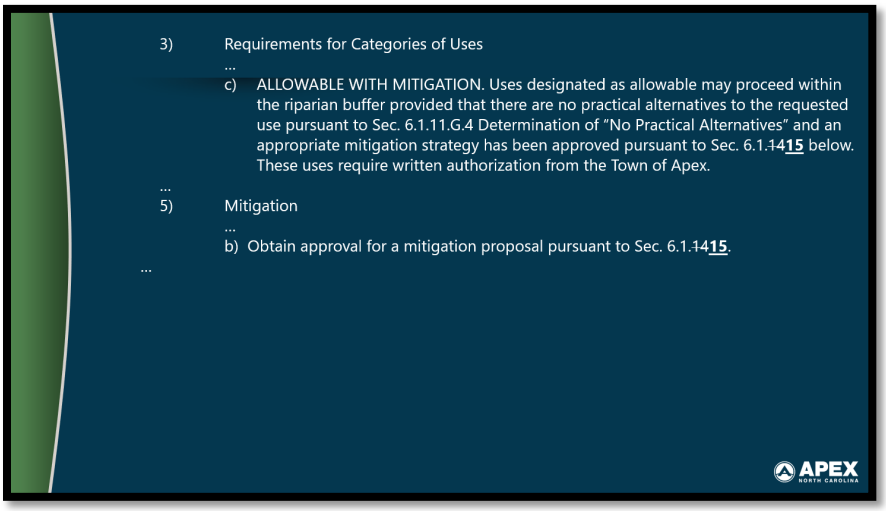

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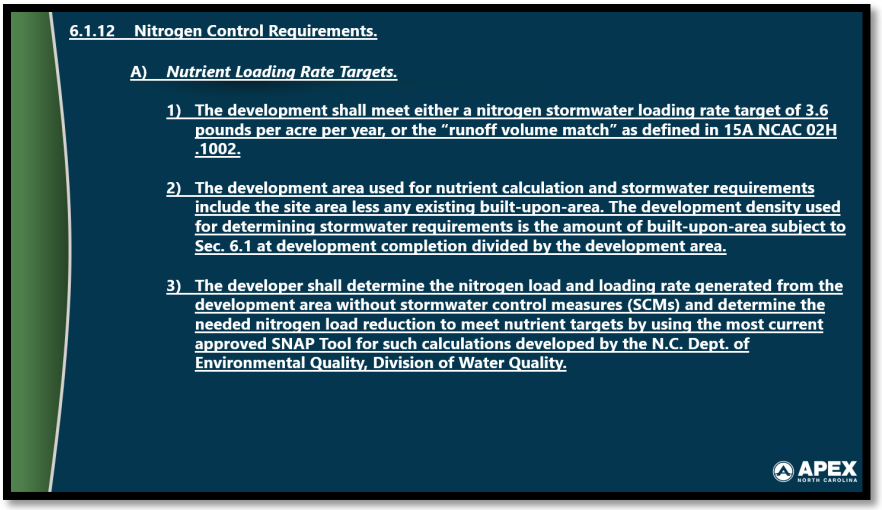

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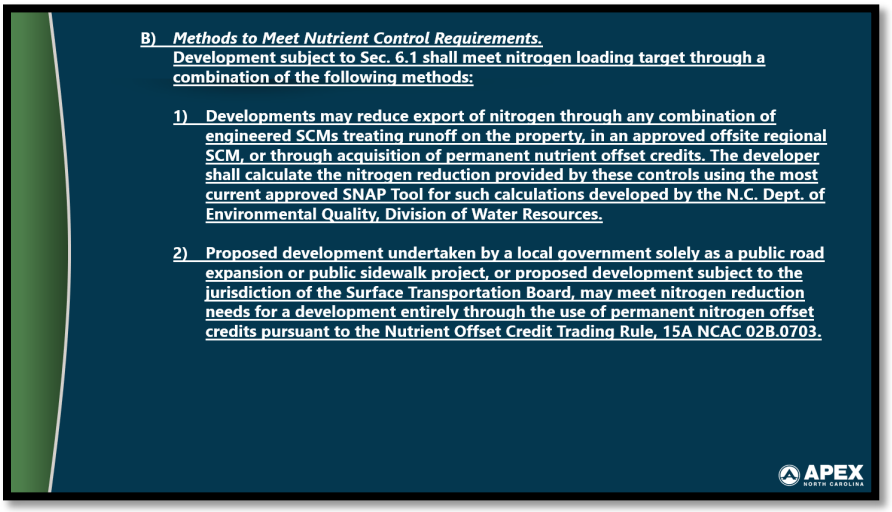

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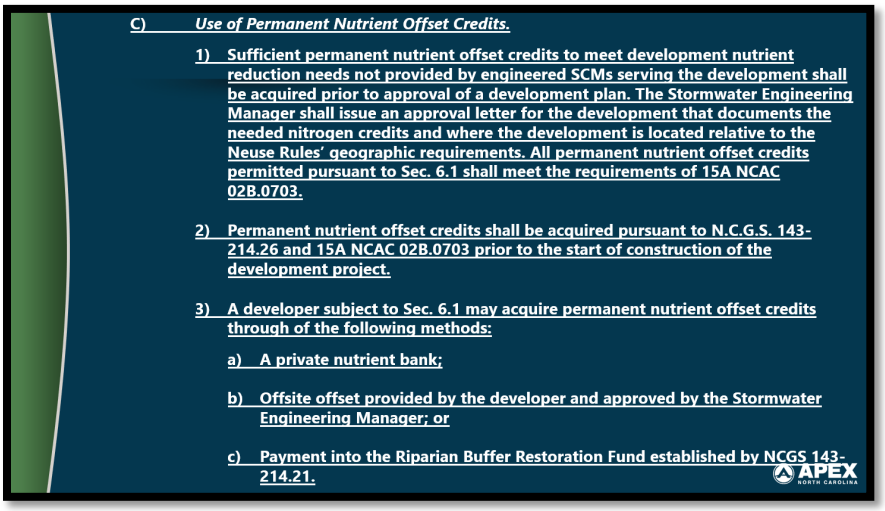

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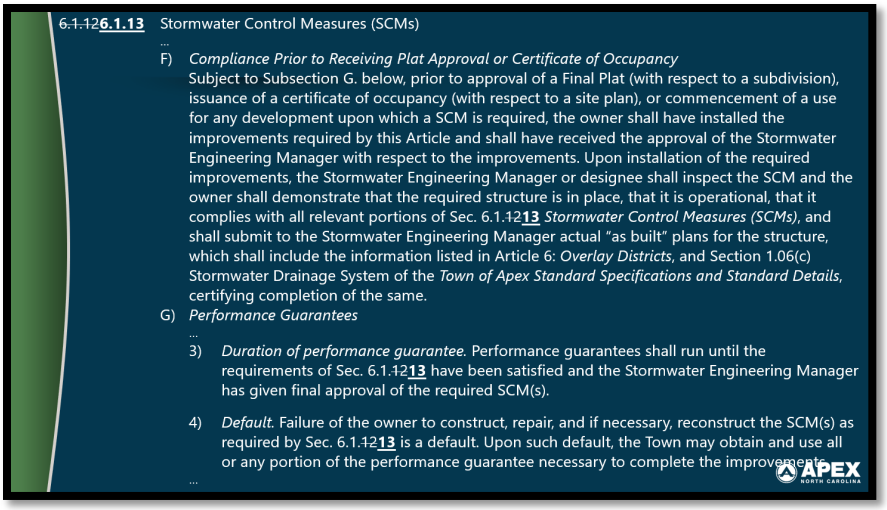

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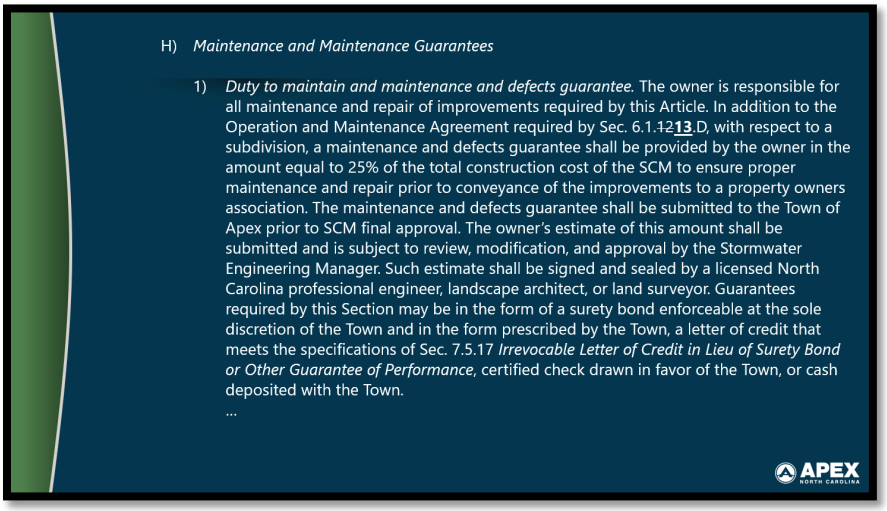

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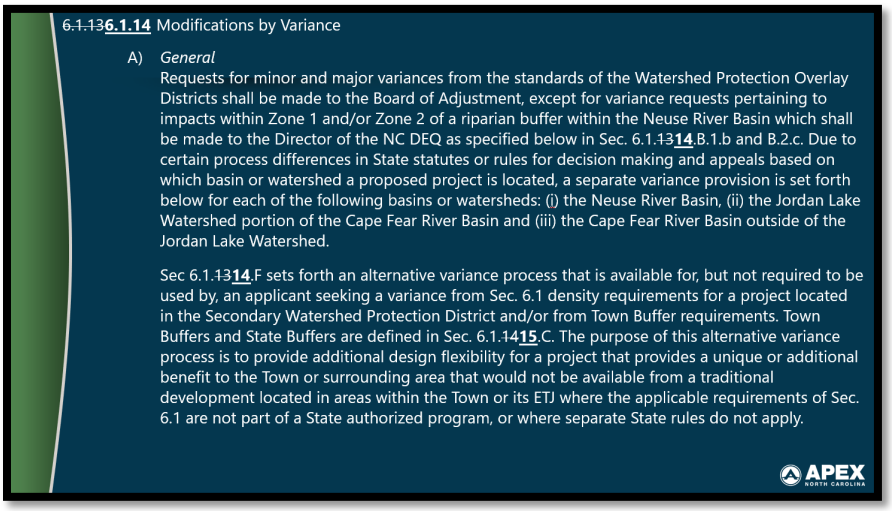

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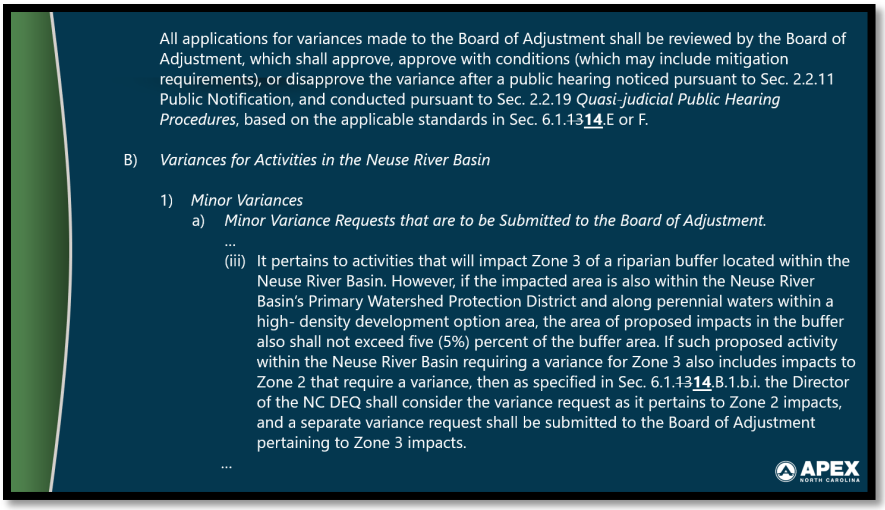

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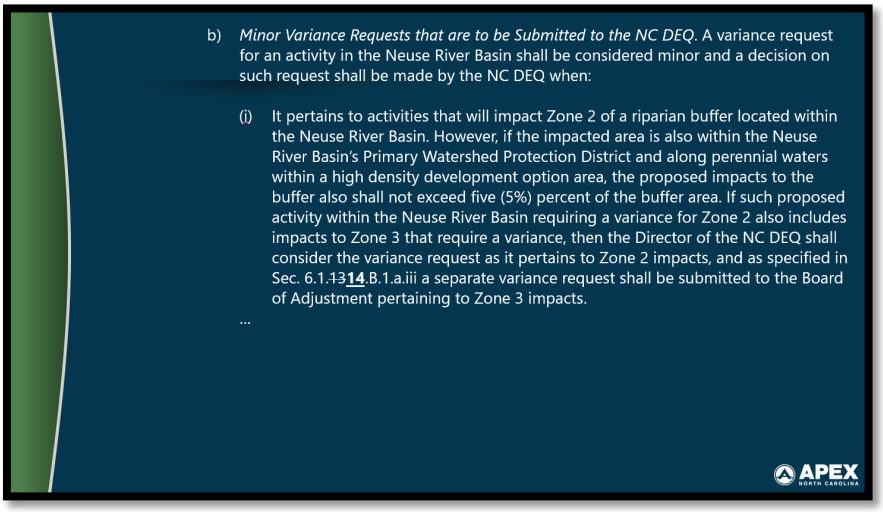

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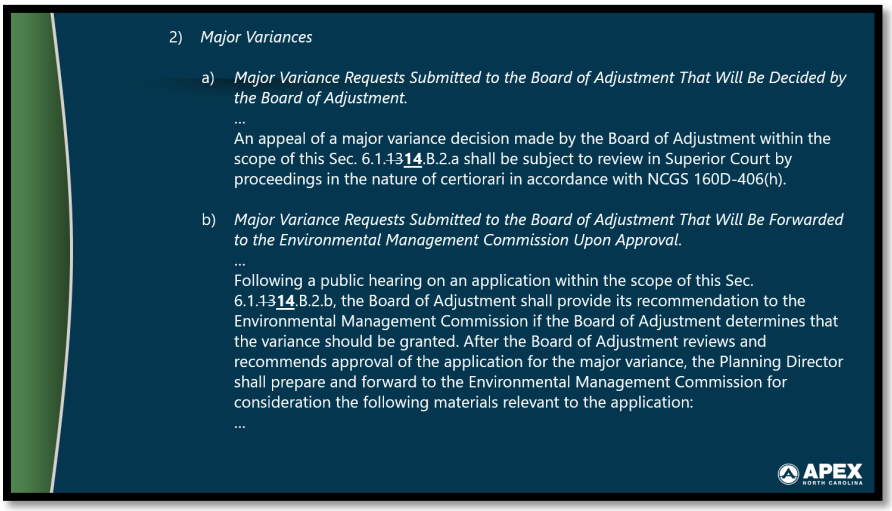

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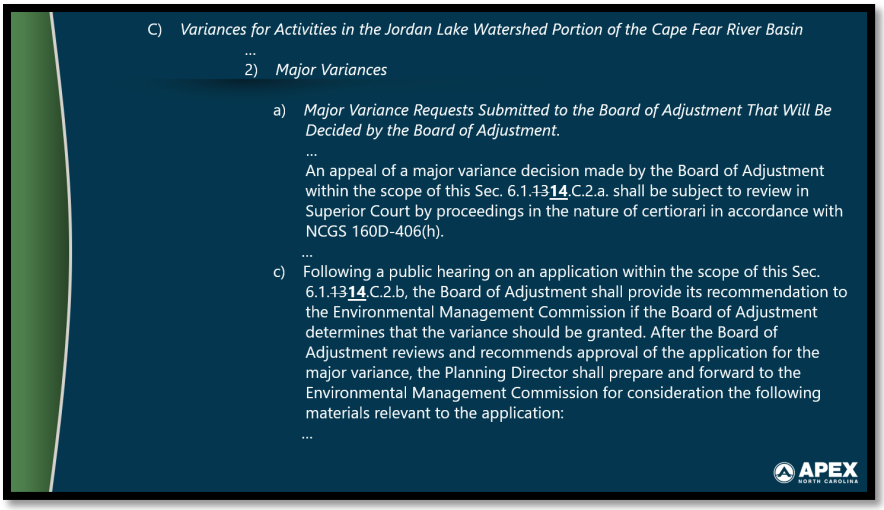

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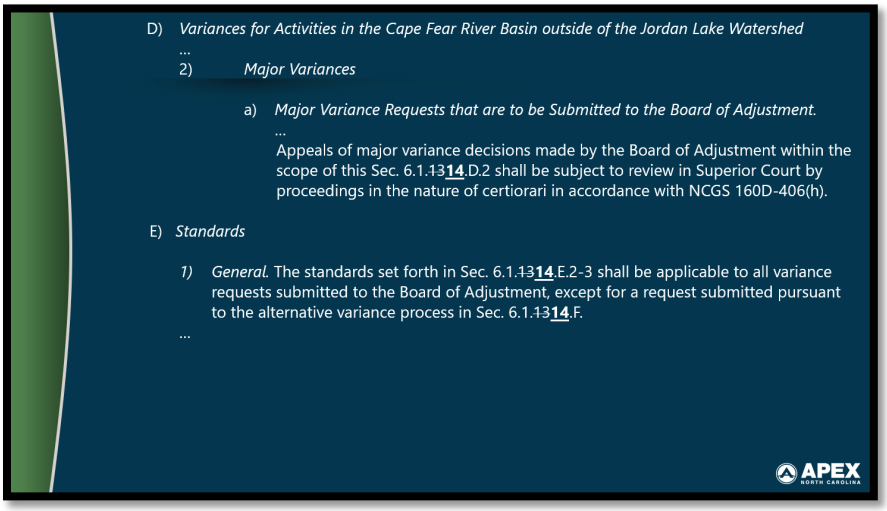

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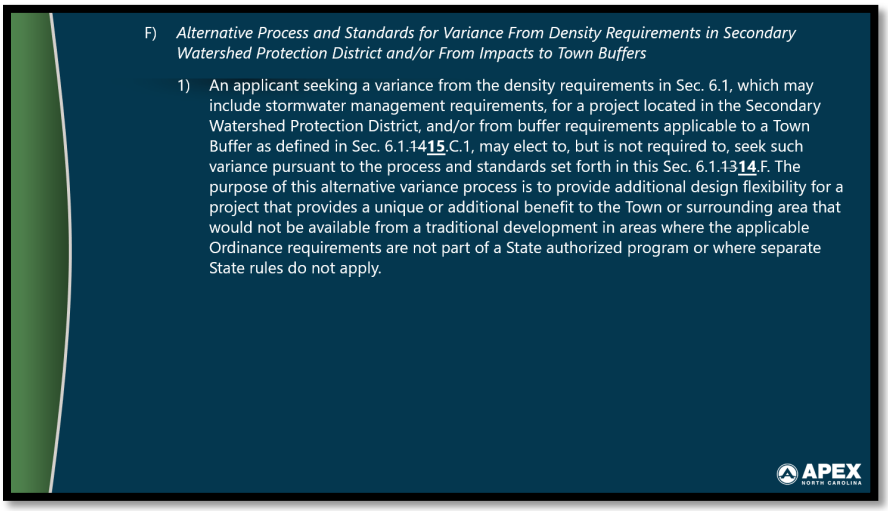

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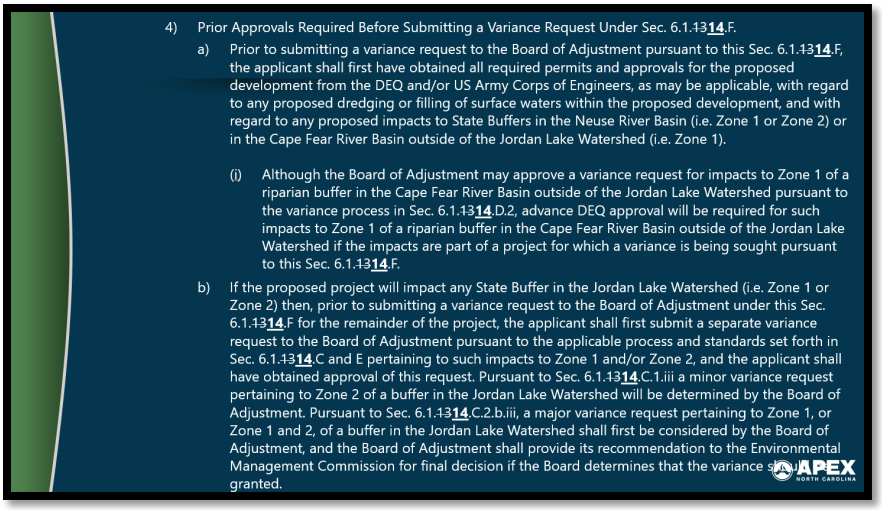

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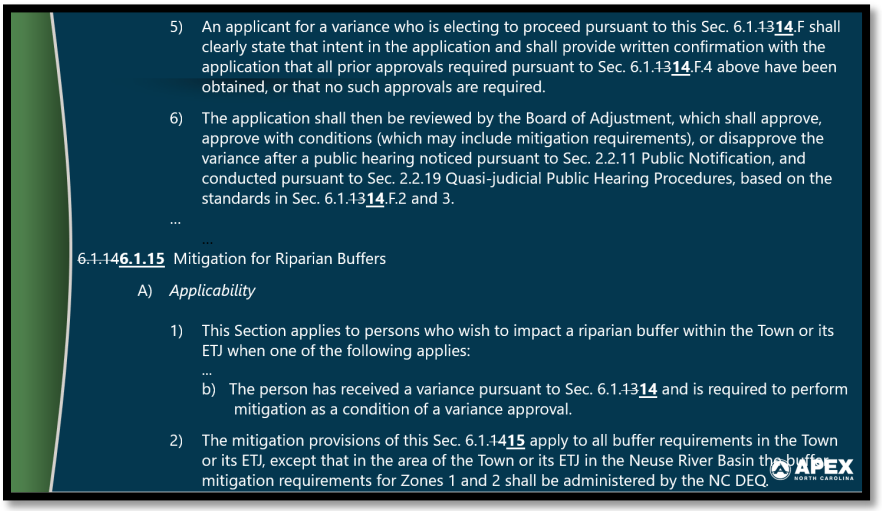

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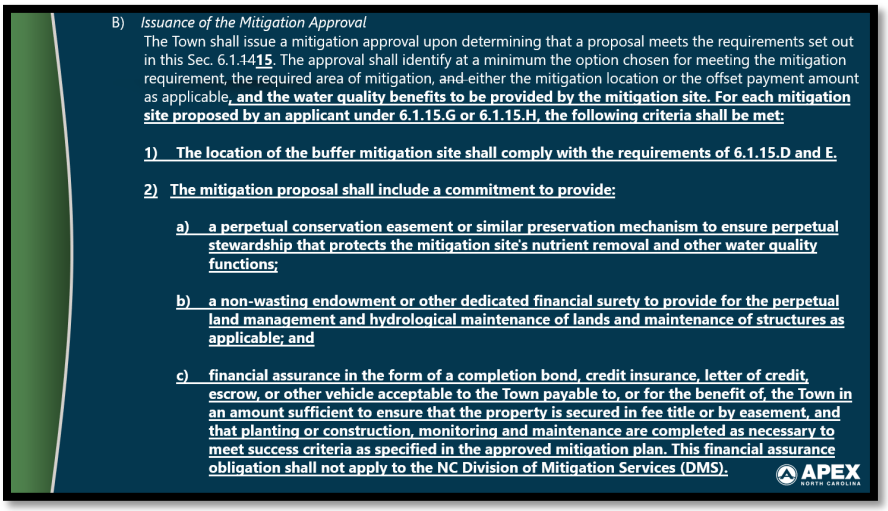

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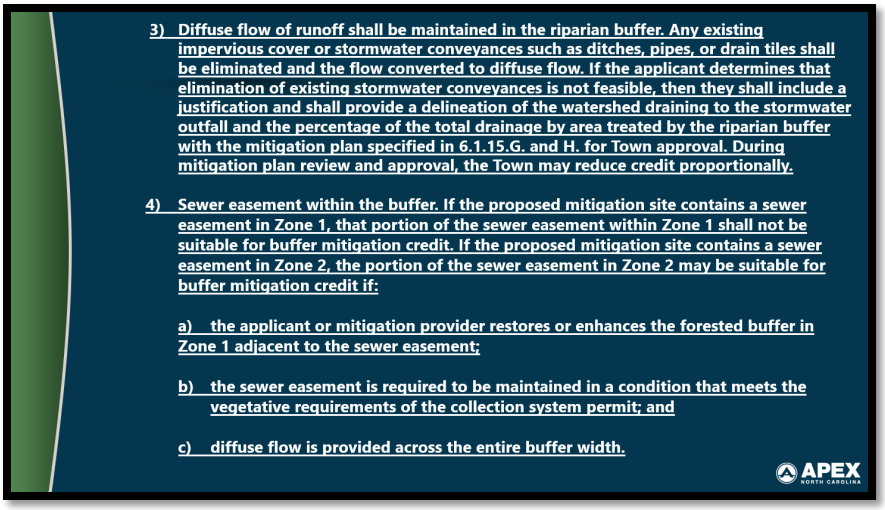

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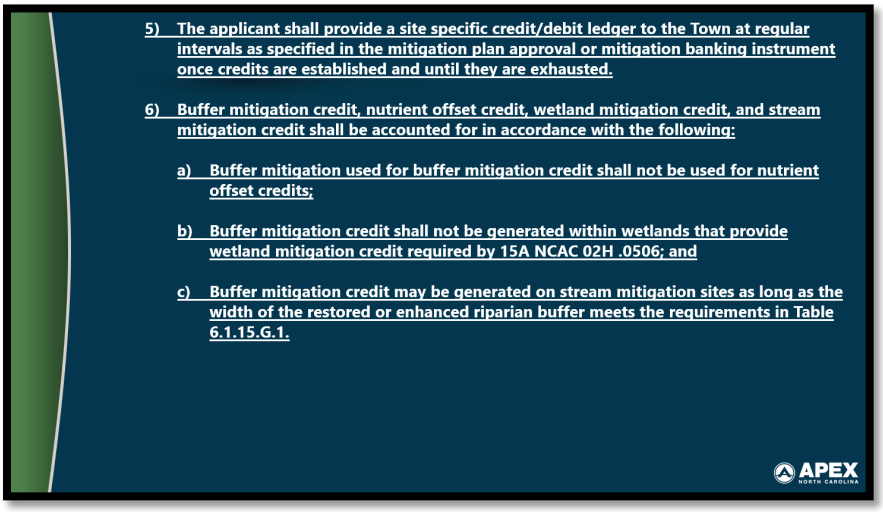

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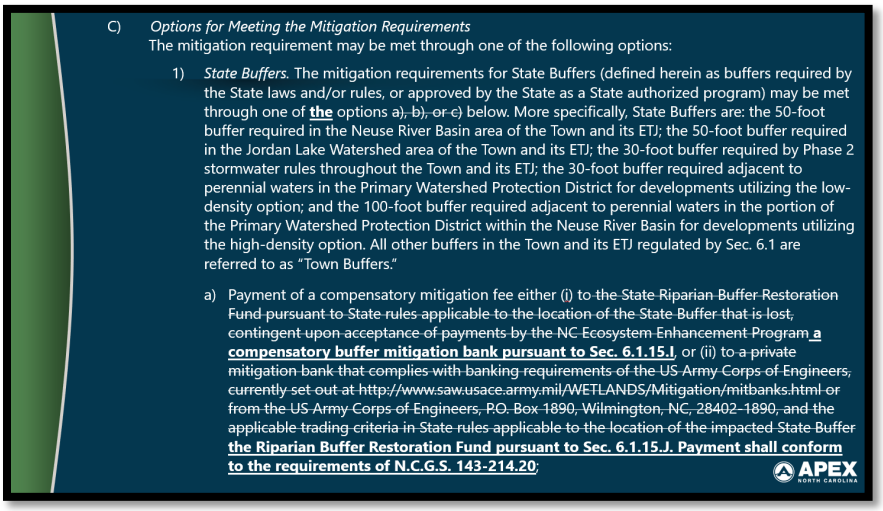

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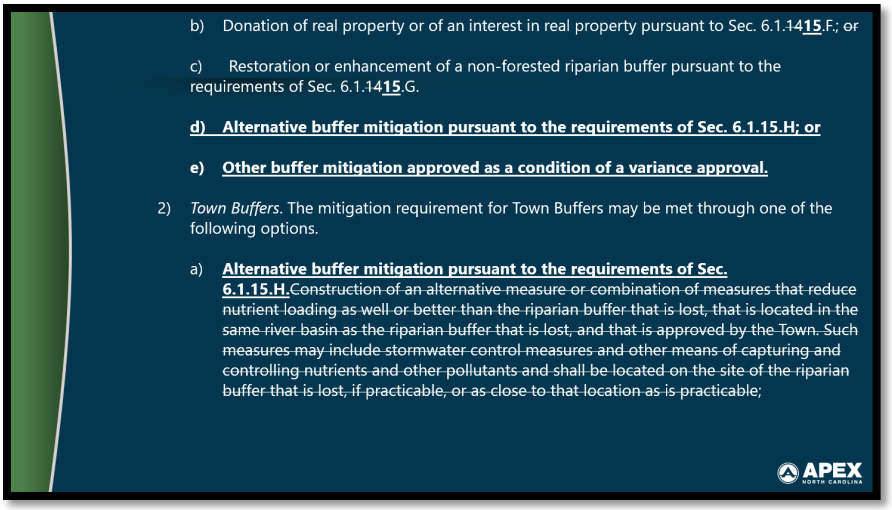

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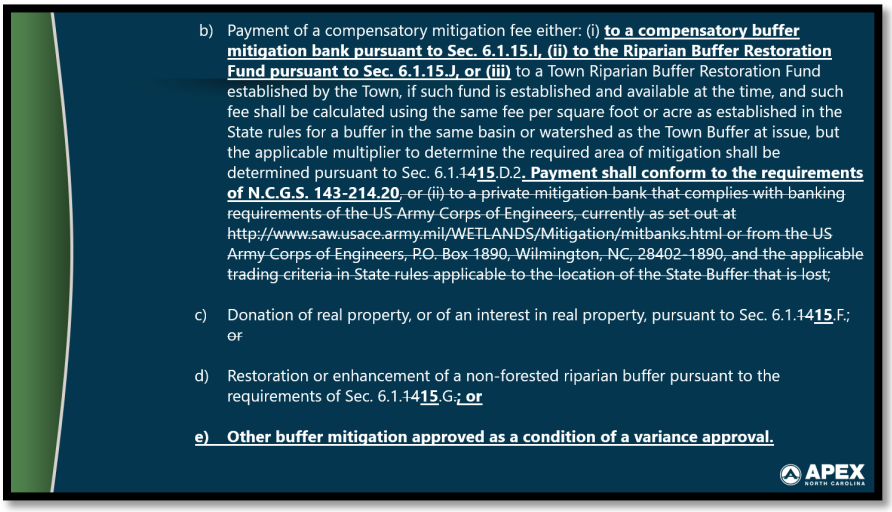

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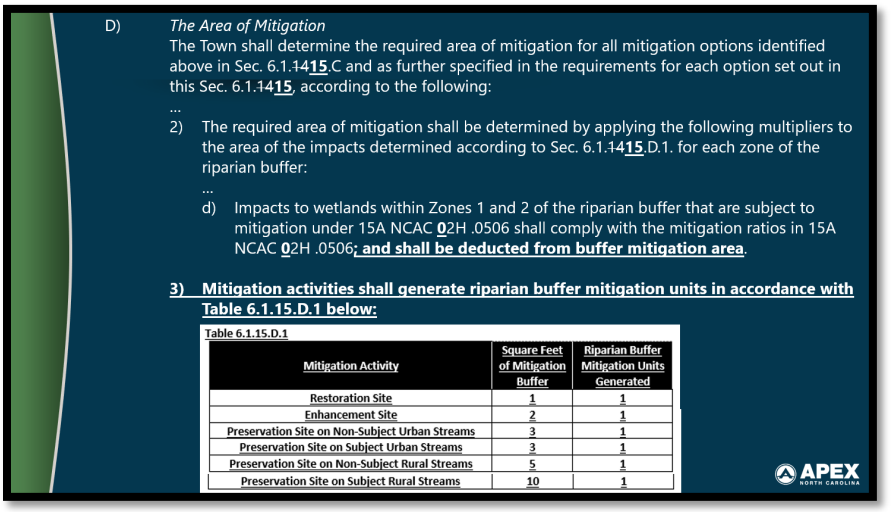

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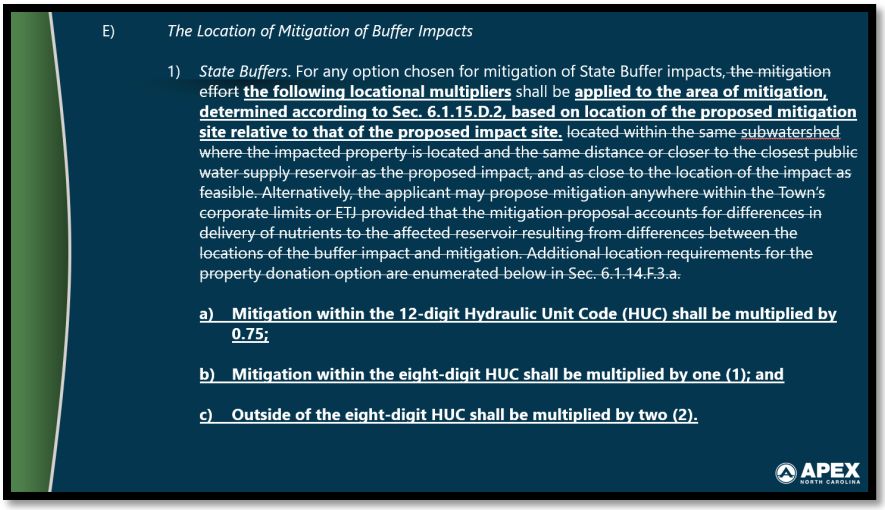

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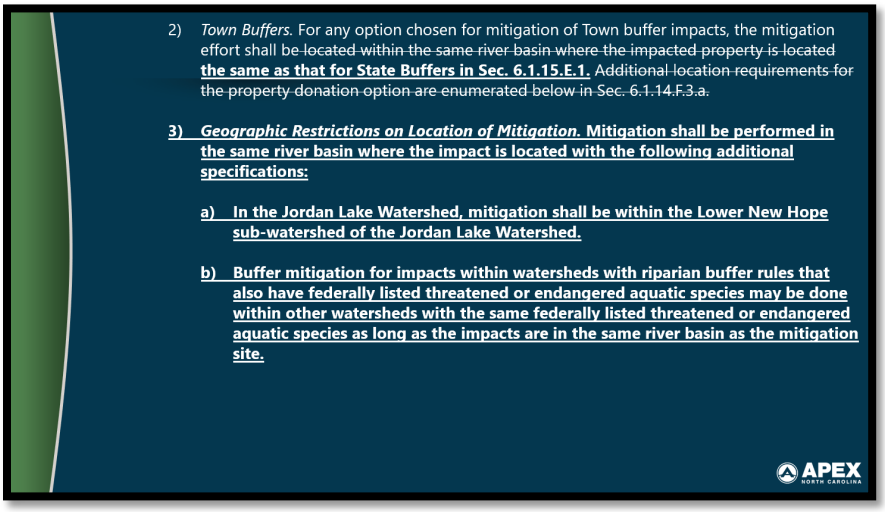

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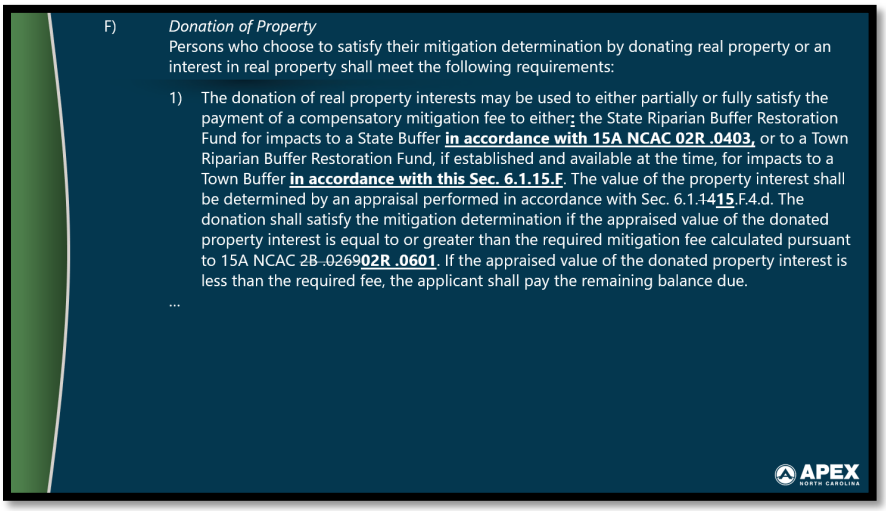

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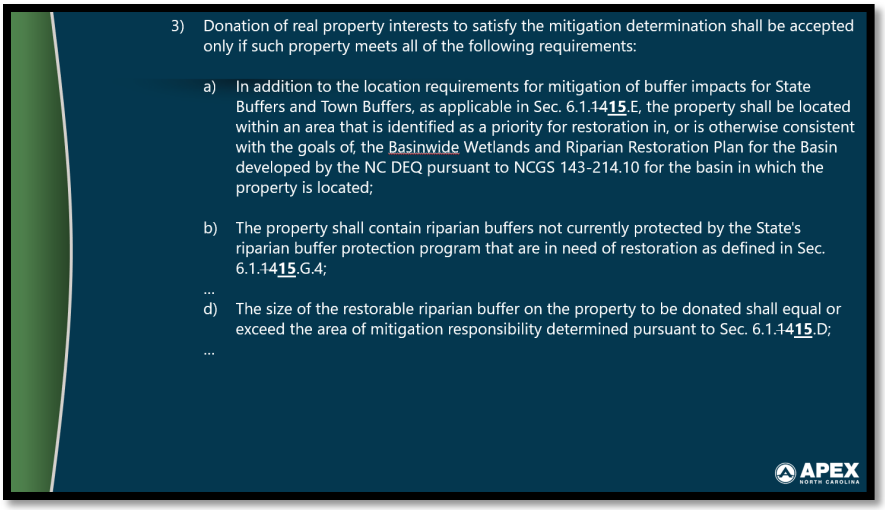

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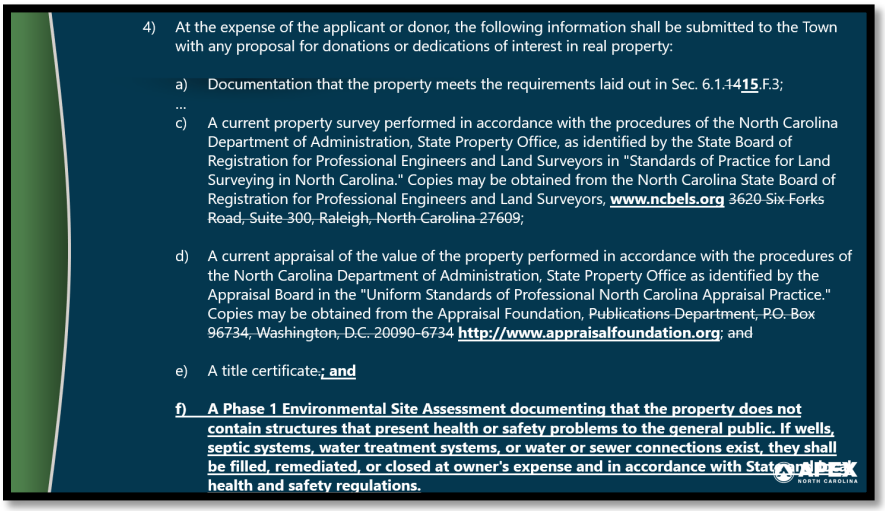

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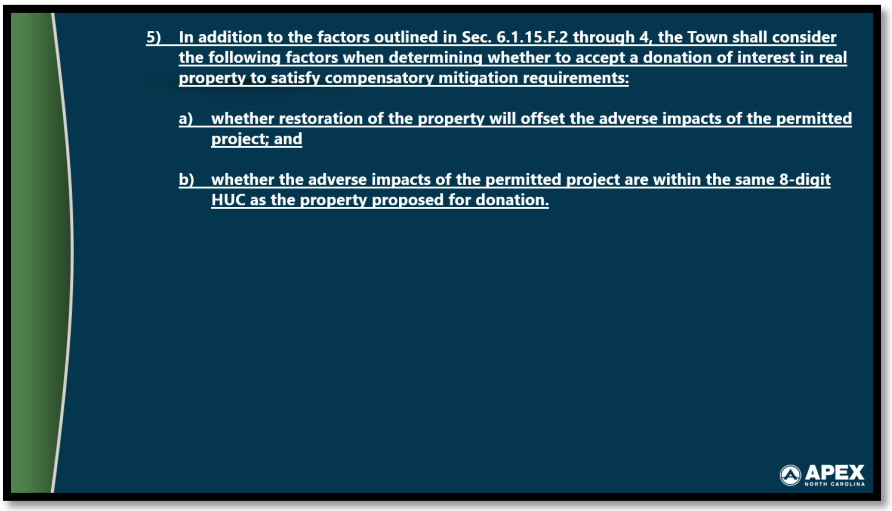

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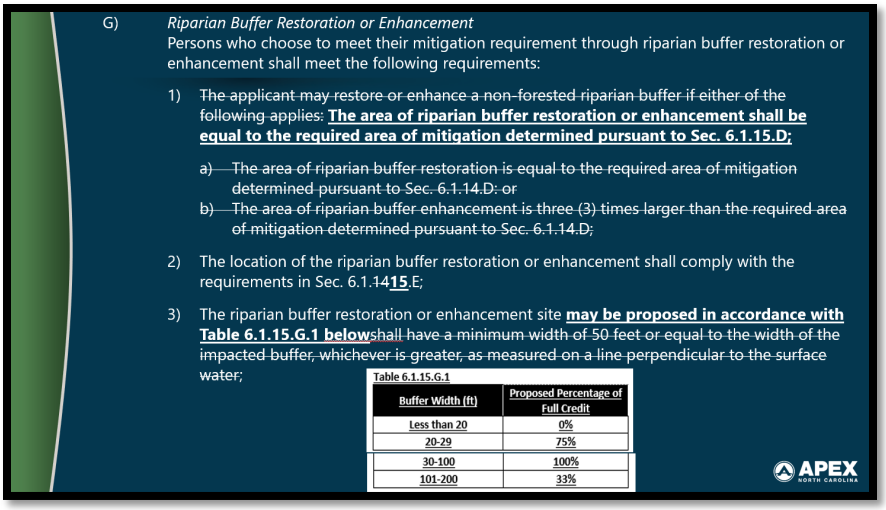

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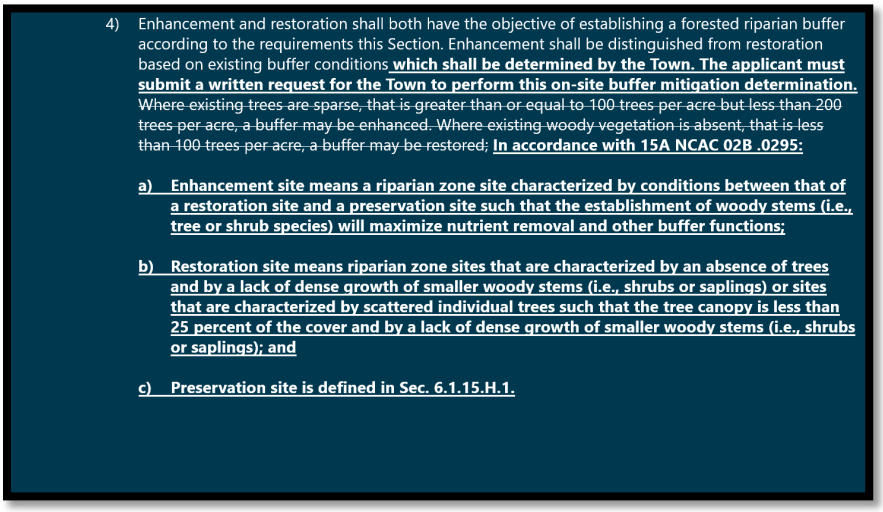

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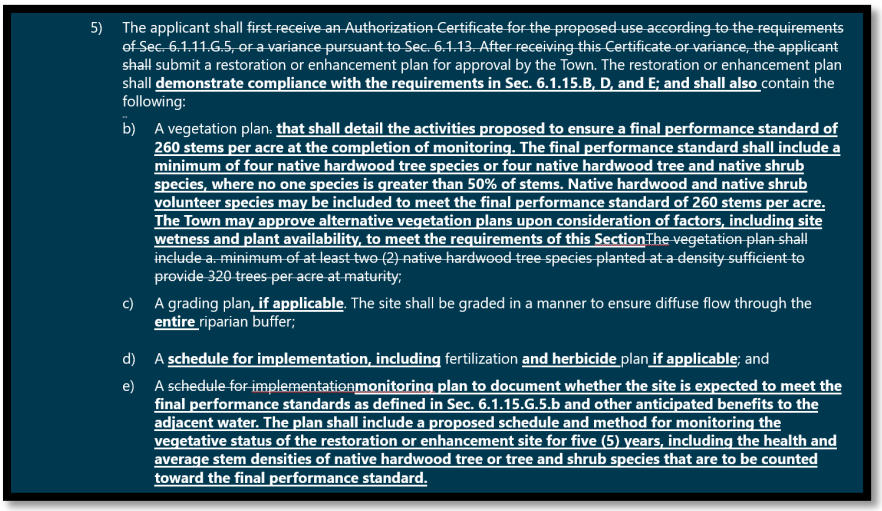

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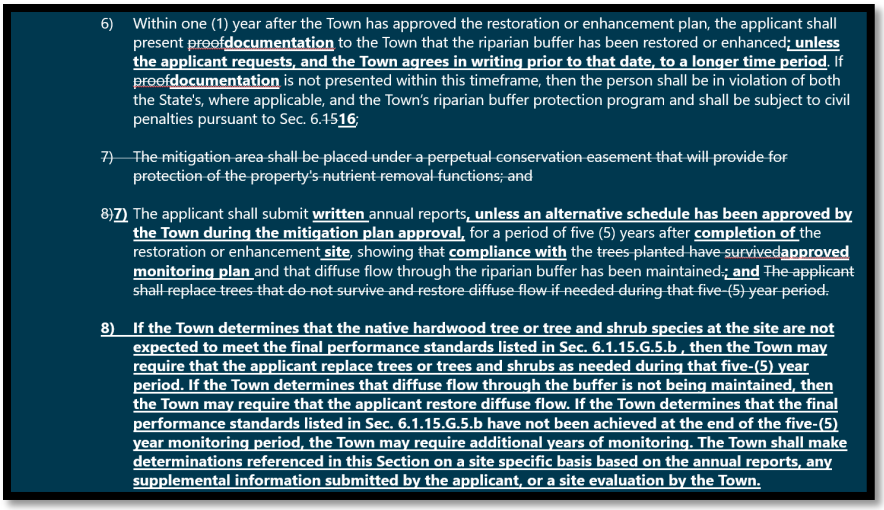

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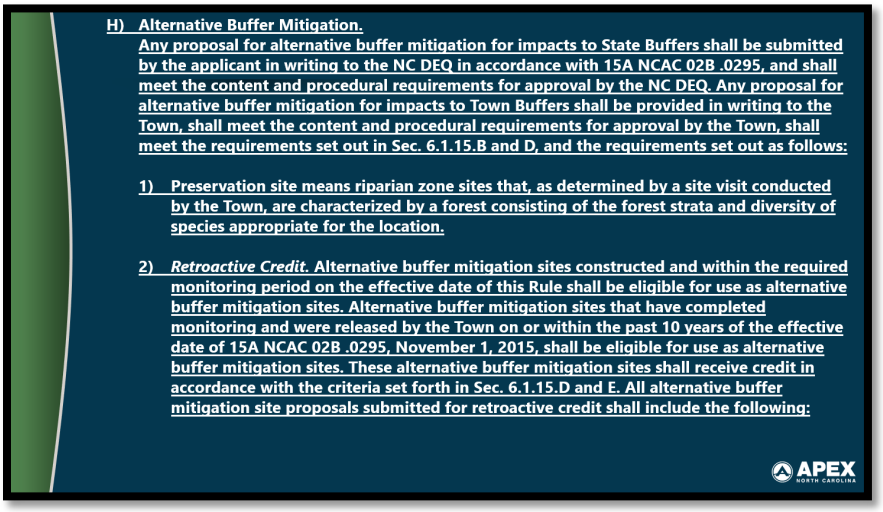

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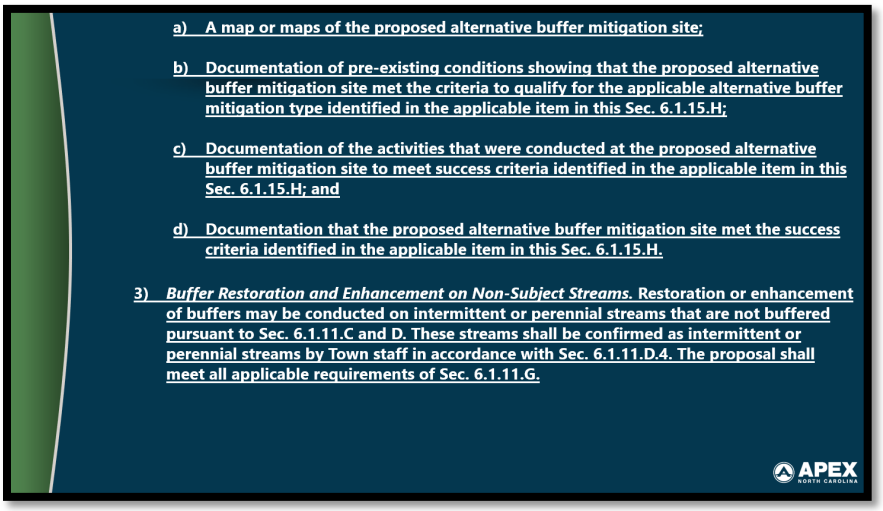

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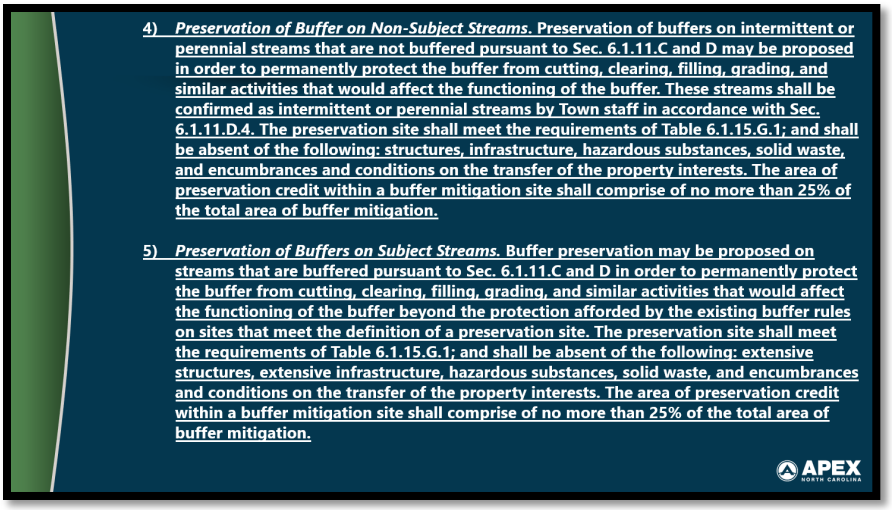

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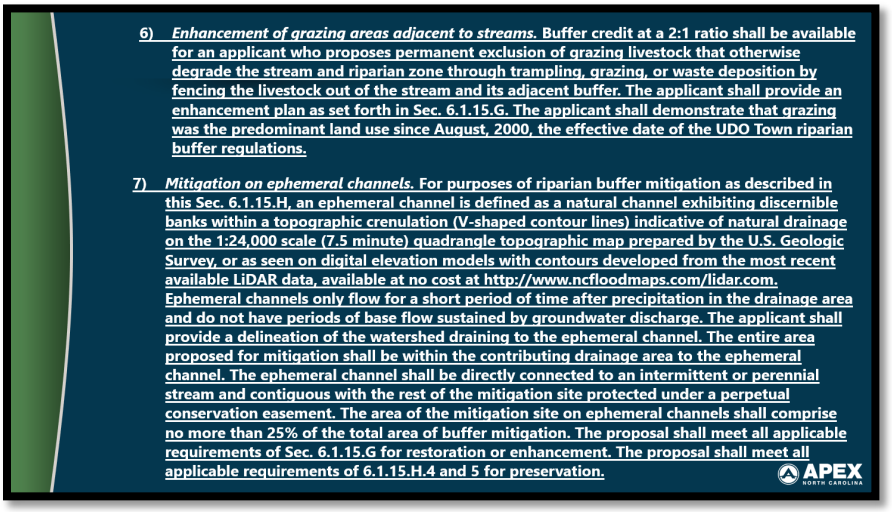

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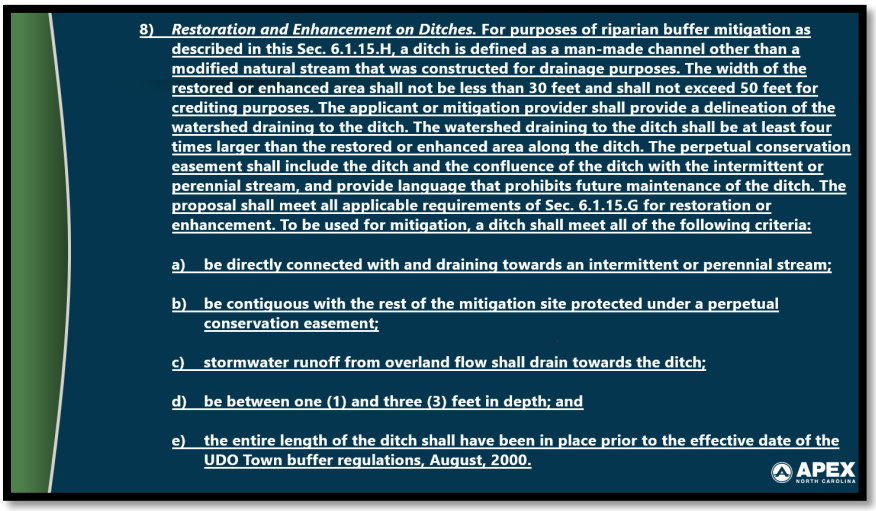

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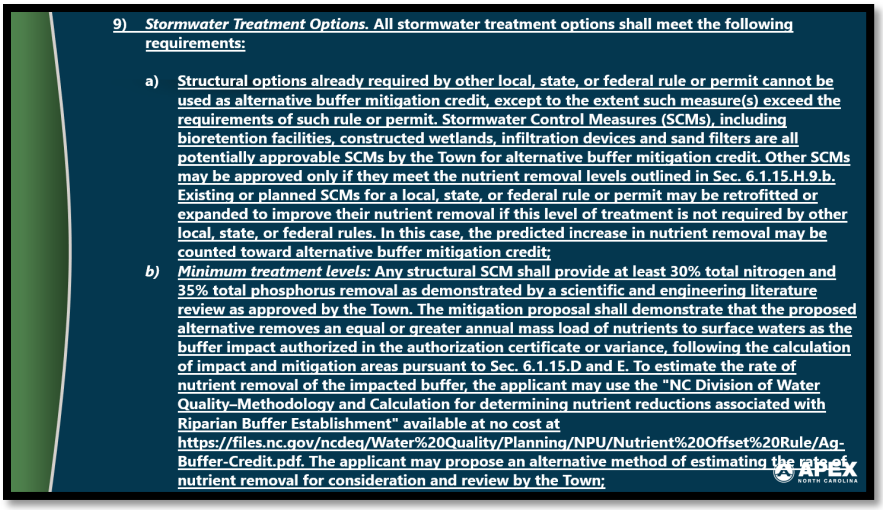

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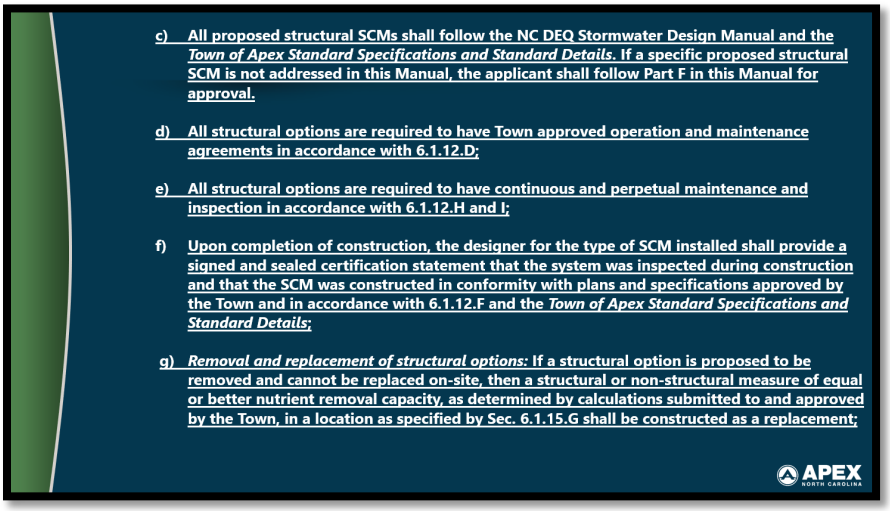

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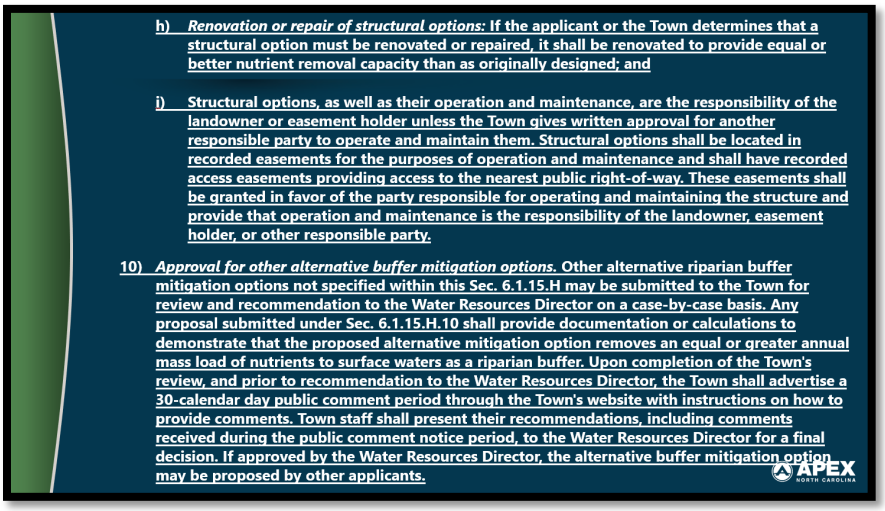

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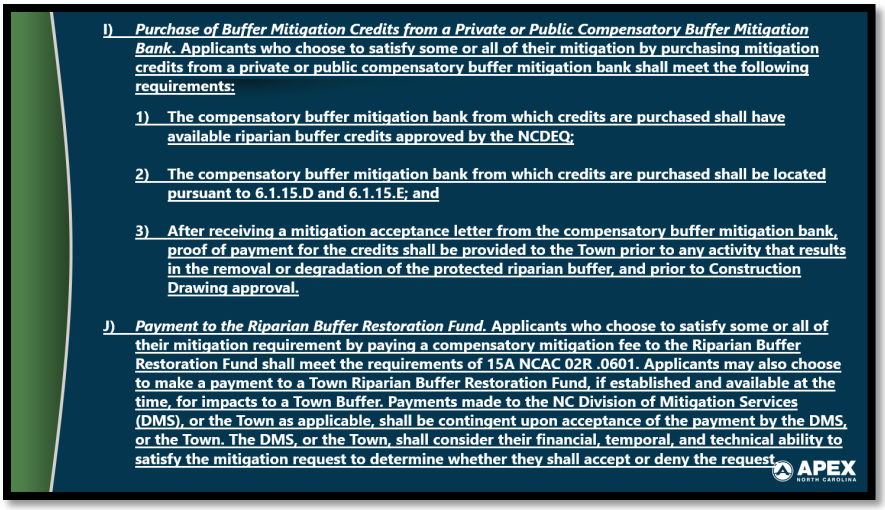

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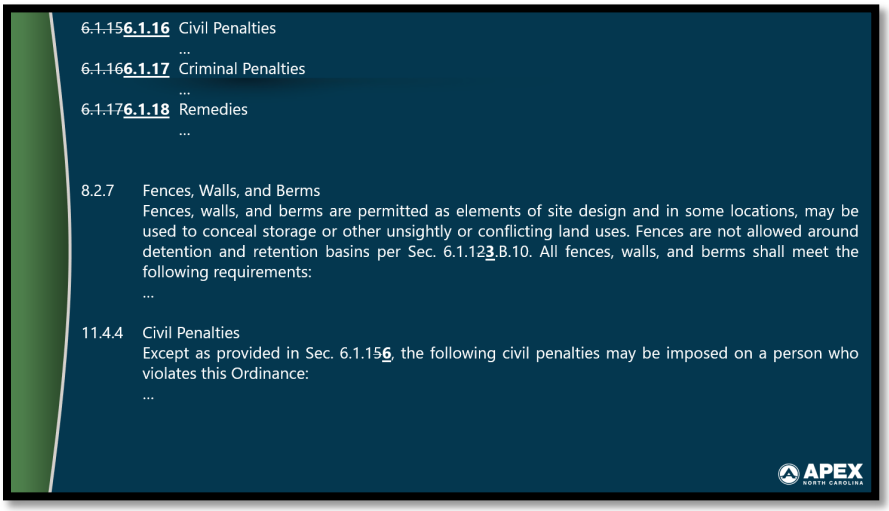

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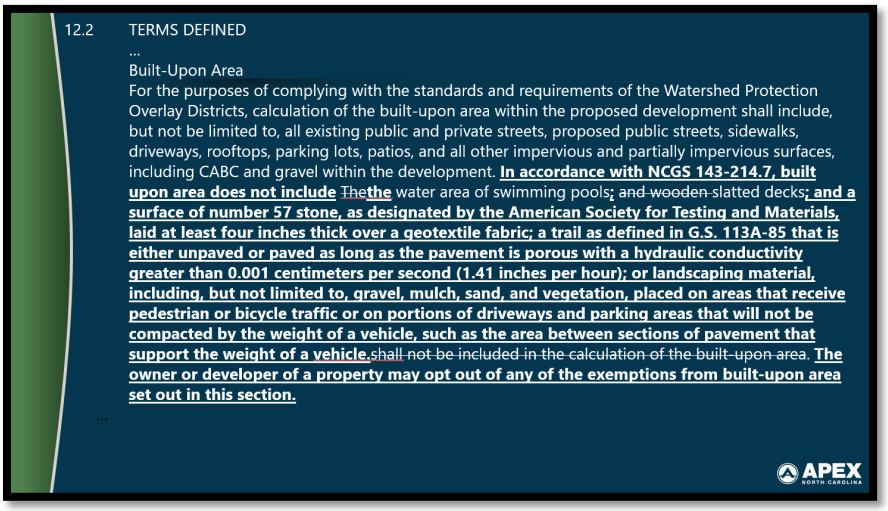


Councilmember Mahaffey asked if these were to be in compliance with state law.

Mr. Patterson said yes, with one caveat.

Councilmember Mahaffey asked how a stormwater control measure could be created on half of an acre.

Mr. Patterson said it could be underground, and there were various other options.

Councilmember Killingsworth asked how much extra time it would take to get permission from DEQ.

Mr. Patterson said it may take an extra month or two, but that could vary.

Councilmember Mahaffey asked how this impacted the current buffer width requirements.

Mr. Patterson said it did not change the current buffer and explained that it changed the mitigation calculations.

Councilmember Mahaffey asked what the state standard for buffer width was.

Mr. Patterson said the state standard was 50 feet, but the town standard was 100 feet for perennial streams, and 50 for intermittent.

Councilmember Mahaffey asked if there was any interaction with the new rules for mitigation if the town buffer rules are stricter.

Mr. Patterson said no, it will not impact that.

Mayor Gilbert opened up Public Hearing for comment. With no one signed up, he closed Public Hearing and moved discussion back to Council.

A **motion** was made by **Councilmember Mahaffey,** seconded by **Councilmember Zegerman,** to approve the Unified Development Ordinance (UDO) Amendments of April 2024.

VOTE: UNANIMOUS (5-0)

[UPDATES BY TOWN MANAGER]

Town Manager Randy Vosburg said that the budget had been released and said it could be found on the town's website. He said there were two upcoming events: The Housing Fair and Think Apex Day. He said that the Communications Department had received an Excellence in Communications Award from the North Carolina City and County Communications (NC3C), recognizing the department for their work on the 150th year and the 150th year party. He thanked the Council and the Mayor and said that everyone had been very welcoming.

[CLOSED SESSION]

A **motion** was made by **Councilmember Zegerman,** seconded By **Councilmember Gantt,** to enter into Closed Session Pursuant to NCGS § 143-318.11(a)(3) and NCGS § 143-318.11(a)(6).

VOTE: UNANIMOUS (5-0)

Council entered into Closed Session at 8:42 PM.

CS1 Laurie Hohe, Town Attorney

RE: Empire Contractors, Inc. v. Town of Apex.

NCGS § 143-318.11(a)(3)

"To consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body."

CS2 Laurie Hohe, Town Attorney

NCGS § 143-318.11(a)(6)

"To consider the qualifications, competence, performance, character, fitness, conditions of appointment, or conditions of initial employment of an individual public officer or employee or prospective public officer or employee; or to hear or investigate a complaint, charge, or grievance by or against an individual public officer or employee."

CS3 ADDED - Laurie Hohe, Town Attorney

NCGS § 143-318.11(a)(3)

"To consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body."

Council returned to open session at **10:01 p.m.**

[ADJOURNMENT]

Mayor Gilbert adjourned the meeting at 10:01 p.m.

Jacques K. Gilbert
Mayor

Allen Coleman, CMC, NCCCC
Town Clerk to the Apex Town Council

Submitted for approval by Town Clerk Allen Coleman and approved on _____.

1

TOWN OF APEX
REGULAR TOWN COUNCIL MEETING
TUESDAY, MAY 14, 2024
6:00 PM

The Apex Town Council met for a Regular Town Council Meeting on Tuesday, May 14, 2024 at 6:00 PM in the Council Chambers at Apex Town Hall, located at 73 Hunter Street in Apex, North Carolina.

This meeting was open to the public. Members of the public were able to attend this meeting in-person or watch online via the livestream on the Town's YouTube Channel. The recording of this meeting can be viewed here: https://www.youtube.com/watch?v=8ITqzzHP8o0

[ATTENDANCE]

Elected Body
Mayor Jacques K. Gilbert (presiding)
Mayor Pro Tempore Ed Gray
Councilmember Audra Killingsworth
Councilmember Terry Mahaffey
Councilmember Arno Zegerman
Councilmember Brett Gantt

Town Staff
Town Manager Randy Vosburg
Deputy Town Manager Shawn Purvis
Assistant Town Manager Marty Stone
Town Attorney Laurie Hohe
Town Clerk Allen Coleman
Deputy Town Clerk Ashley Gentry
Planning Director Dianne Khin
All other staff members will be identified appropriately below

[COMMENCEMENT]

Mayor Gilbert called the meeting to order and welcomed all who were in attendance and watching. He then said the invocation supports unity recognizing that not everyone practices the same traditions. Everyone was welcome to have a moment of silence.

Mayor Gilbert read a prayer.

Mayor Gilbert then led those in attendance in the Pledge of Allegiance.

[CONSENT AGENDA]

A **motion** was made by **Councilmember Zegerman,** seconded by **Mayor Pro-Tempore Gray,** to approve the Consent Agenda as presented.

VOTE: UNANIMOUS (5-0)

CN1 Agreement - Renewal of GoApex Agreement with Town of Cary and MV Transportation - July 1, 2024 through June 30, 2025 (REF: CONT-2024-114)

Council voted to approve an Agreement Amendment No. 2 between Town of Cary, Town of Apex and MV Transportation, to renew terms and responsibilities for the operation of GoApex transit services, effective July 1, 2024 through June 30, 2025, and to authorize the Town Manager to execute on behalf of the Town.

CN2 Annexation No. 767 - Apex Commerce Center Lot E - 5125 Jessie Drive - 27.5221 acres (REF: RES-2024-024, RES-2024-025, and OTHER-2024-061)

Council voted to adopt a Resolution Directing the Town Clerk to Investigate Petition Received, to accept the Certificate of Sufficiency by the Town Clerk, and to adopt a Resolution Setting the Date of a Public Hearing for May 28, 2024, on the Question of Annexation - Apex Town Council's intent to annex 27.5221 acres, located at 5125 Jessie Drive – Apex Commerce Center Lot E, Annexation No. 767 into the Town Corporate limits.

CN3 Annexation No. 779 - Apex YMCA - New Hill Holeman Road - 25.68 acres (REF: RES-2024-026, RES-2024-027, and OTHER-2024-062)

Council voted to adopt a Resolution Directing the Town Clerk to Investigate Petition Received, to accept the Certificate of Sufficiency by the Town Clerk, and to adopt a Resolution Setting the Date of a Public Hearing for May 28, 2024, on the Question of Annexation - Apex Town Council's intent to annex 25.68 acres, located at New Hill Holeman Road– Apex YMCA Center, Satellite Annexation No. 779 into the Town Corporate limits.

CN4 Budget Ordinance Amendment No. 16 and Capital Project Ordinance Amendment No. 2024-18 - Community Development Block Grant (CDBG) Go-Apex Project Funding (REF: ORD-2024-037 and ORD-2024-038)

Council voted to adopt Budget Ordinance Amendment No.16 and Capital Project Ordinance Amendment 2024-18 allocating additional funding for the GoApex CDBG Bus Stops Improvement and Sidewalk Project.

CN5 Capital Project Ordinance Amendment No. 2024-19 – Cybersecurity Model Grant (REF: ORD-2024-039)

Council voted to approve Capital Project Ordinance Amendment 2024-19 allocating funding and grant award for cybersecurity model project.

CN6 Contract Amendment – Itron Inc. - June 9, 2022 through June 9, 2025 (REF: CONT-2024-115)

Council voted to approve Contract Amendment No.2 between the Town of Apex and Itron Inc., to extend the Field Deployment Manager (FDM) Field Tools Mobile Device Software Agreement (CONT-2022-059) for one year, effective until June 09, 2025, and authorize the Town Manager to execute on behalf of the Town.

CN7 Council Meeting Minutes – Various

Council voted to approve Meeting Minutes from the following meetings:
April 9, 2024 – Regular Town Council Minutes
April 16, 2024 – Town Council Work Session Minutes

CN8 Historical Marker Program Update - Increase Grant to $4,000

Council voted to approve an update to the Historical Marker Program application to change the grant amount to up to $4,000.

CN9 Memorandum of Understanding (MOU) between Capital Area Metropolitan Planning Organization (CAMPO), Town of Apex, and Various Municipalities - Administrative Updates (REF: CONT-2024-116)

Council voted to approve the Memorandum of Understanding (MOU) between Capital Area Metropolitan Planning Organization (CAMPO), Town of Apex, and various municipalities, to reflect the administrative updates of current codes and practices, in cooperation with United States Department of Transportation Agreement No. 2024-04-17 and authorize the Mayor to execute the agreement on behalf of the Town.

CN10 Rezoning Case No. 23CZ22 – 1013 Olive Chapel Rd – Statement (REF: ORD-2024-040)

Council voted to approve Statement of the Town Council and Ordinance for Rezoning Case No. 23CZ22 1013 Olive Chapel Rd, Ashwini Kumar Reddy Yalala, Srikanth Nalla, Rajanikanth Chippa, and Gurudath Munimakula, petitioners, for the property located at 1013 Olive Chapel Rd (PIN 0732732042).

CN11 Rezoning Case No. 24CZ02 – 5836 Old Smithfield Rd – Statement (REF: ORD-2024-041)

Council voted to approve the Statement of the Town Council and Ordinance for Rezoning Case No. 24CZ02, Natalie Hinton-Brooks & Inetta L. Hinton, applicant, for property located at 5836 Old Smithfield Rd (PIN 0740840331)

CN12 Special Event Authorization – Alcoholic Beverages and Open Containers - Juneteenth Festival 2024

Council voted to authorize alcohol possession, consumption, and open container of the same in The Depot parking lot located at 220 North Salem Street in Apex, North Carolina, for the Town's Juneteenth Festival scheduled for June 15, 2024.

CN13 Unified Development Ordinance (UDO) Amendments – April 2024 – Statement (REF: OTHER2024-063)

Council voted to approve the Statement of the Apex Town Council pursuant to G.S. 160D-605(a) addressing action on the Unified Development Ordinance (UDO) Amendments of April 23, 2024.

[PRESENTATIONS]

PR1 Apex Public School Foundation – Quarterly Peak S.T.A.R. Awards – 3rd Quarter

Mayor Gilbert said that Councilmember Terry Mahaffey would give the presentation along with Barbara Conroy Co-Founder and President of Apex Public School Foundation.

Councilmember Mahaffey introduced the Peak S.T.A.R award, and invited Fundraising Chair of the Apex Public School Foundation Jack Otepka, to give more information.

Mr. Otepka gave information on the Apex Public School Foundation and how it promotes creativity and recognizes extraordinary employees from the Apex area in Wake County Schools with the Peak Star Award each quarter. He said that the Board of Directors selects an individual recognized for doing extraordinary work to support students at their schools. He recognized Ms. Lauren Roy for this quarter's Peak Star Award. He said that the nomination was received from Principal Kelly Wilson who said that Ms. Roy was an advocate for all children, she embraces the beauty and importance of creativity problem solving and risk-taking. He said she is someone that loves to challenge her students, always challenging herself by learning the latest and most innovative approaches to teaching and learning, and she's always looking for ways to involve the entire school community and her classroom environment. He said she sponsors open chess play, the literacy ambassadors book club for children regardless of their AIG identification. Ms. Roy recognizes that there is brilliance in all kinds of minds at West lake Elementary, and that the community is grateful and thankful to have Ms. Lauren Roy as one of their own. He congratulated Ms. Roy and thanked her. He asked Ms. Roy to come up and speak along with Principal Kelly Wilson.

Principal Kelly Wilson addressed Councilmembers, special guests, and community members. She reflected on a feeling of gratitude and appreciation that fills her heart as everyone comes together to recognize the outstanding accomplishments and contributions of Lauren Roy, AIG teacher. She has worked to increase representation with underserved populations, and acknowledged the collective impact that she has made in the community. She said Ms. Roy's tireless efforts have not only grown the AIG program but have also opened the doors of opportunity for students who have otherwise been overlooked and increased access by 20% over the past two years to students in underserved populations. She thanked the Apex Public Schools Foundation for the support and advocacy, yearly grants, teacher recognition, and community perks for local educators, and help bring and retain high quality teaching staff in Apex. She thanked the Apex Public Schools Foundation, the Apex Town Council and the Apex Community for recognizing Ms. Lauren Roy.

Ms. **Roy** came up to receive the award and to take a picture. She then thanked the Apex Public School Foundation and Town Council for the recognition and the Peak S.T.A.R Award. She also thanked Principal Wilson for her support and belief in the vision and for allowing her to create a nurturing environment at West Lake Elementary School so that every

child can thrive and excel. She also thanked West Lake Elementary school-based committee for Gifted Education, PTA, and the Advanced Learning Services team at WCPSS for the support to insure the children have access to the resources and support that they need to meet their full potential. She said that this is not just about celebrating past achievements, it's also reaffirming commitment to advocacy and equity in education. She said it was important to advocate for adequate funding and policies for gifted education. She said that as she accepts this award, she does so not for herself, but for every gifted and talented child.

Mayor Gilbert thanked Ms. Roy and thanked Councilmember Mahaffey for leading the presentation.

PR2 Proclamation - Apex Public Service Recognition Period - May 5 through May 18, 2024 (REF: PRO-2024-013)

Mayor Gilbert along with the rest of the Town Council read Apex Public Service Recognition Period - May 5 through May 18, 2024. He invited the Human Resources Director, Mary Beth Manville and other Town of Apex employees in attendance to be recognized and take a picture.

PR3 Proclamation - Asian American, Native Hawaiian and Pacific Islander Heritage Month - May 2024 (REF: PRO-2024-014)

Mayor Gilbert along with the rest of the Town Council read the Asian American, Native Hawaiian and Pacific Islander Heritage Month - May 2024. He invited Reverand Gary Lee and Linda Graham Jones, DEI Director to accept the Proclamation and take a picture.

Reverand Gary Lee said he was thankful for the Town of Apex. He said it is a great place for his family to live. He thanked Mayor Gilbert for his support for him and the faith community in Apex. He said he was happy to accept the Proclamation as part of the Asian community.

PR4 Proclamation - National Foster Care Month - May 2024 (REF: PRO-2024-015)

Mayor Gilbert with the rest of the Town Council read National Foster Care Month - May 2024. He invited Karen Morant, Kim Adcock, Shanna Davis, Sheila Alford and Joselyn Williams from Wake County Health and Human Services to receive the Proclamation and for a picture.

A Representative for Wake County Health and Human Services thanked Council for the proclamation and raising awareness. She said if anybody was interested in becoming a foster parent, they could contact foster4wake@wake.gov or call (919) 212-7474.

PR5 Proclamation - National Police Week 2024 - May 12 through May 18, 2024 (REF: PRO-2024-016)

Mayor Gilbert along with the Town Council read Proclamation - National Police Week 2024 - May 12 through May 18, 2024. Mayor Gilbert invited Police Chief Jason Armstong and other members of Apex Police Department to receive the Proclamation and take a picture. Mayor Gilbert thanked the family members of the Police Department for their sacrifice as well. He said that as part of National Police Week the Hunter Street Water Tower will be lit blue beginning tonight through Sunday in their honor. He thanked them for all they do.

PR6 Proclamation - National Tennis Recognition Month - May 2024 (REF: PRO-2024-017)

Mayor Gilbert along with the Town Council read Proclamation - National Tennis Recognition Month - May 2024. He invited Laura Weygandt, Executive Director of Western Wake Tennis to receive the Proclamation and take a picture.

Laura Weygandt thanked the Mayor and Council, and thanked Town of Apex, Parks, Recreation, and Cultural Resources Department for their partnership in helping provide tennis opportunities to the community.

PR7 ADDED - Proclamation – The Fifty-Fifth Professional Municipal Clerk's Week May 5TH – May 11th, 2024

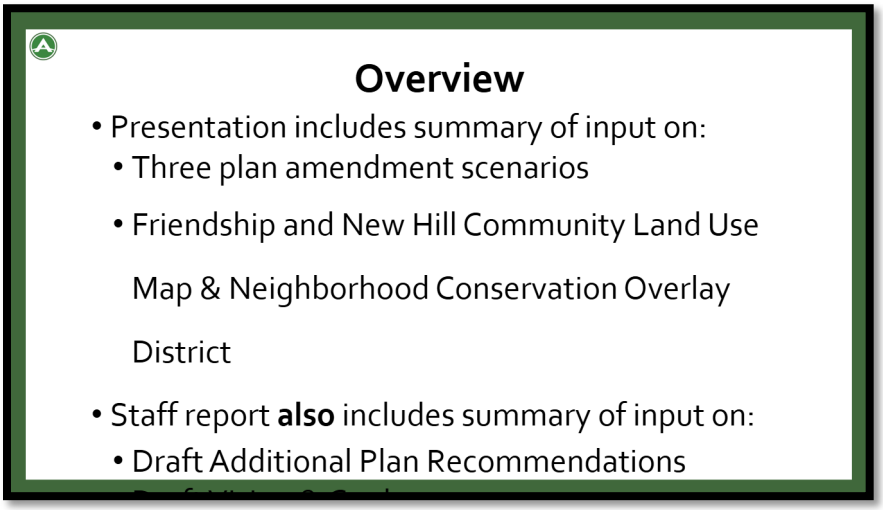
Mayor Gilbert along with the rest of the Town Council read Professional Municipal Clerk's Week May 5TH – May 11th, 2024. He invited Town Clerk Allen Coleman and Deputy Town Clerk Ashley Gentry to receive the Proclamation and take a picture.

PR8 Western Big Branch Area Plan Update

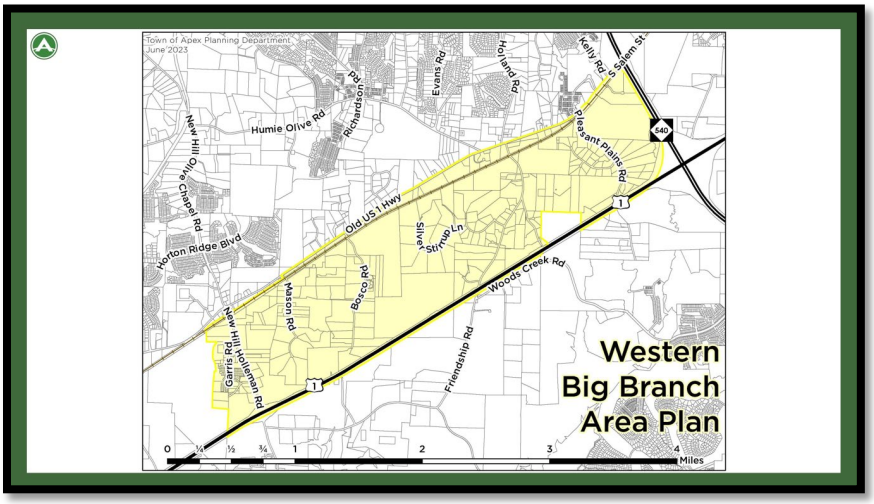
Jenna Shouse, Senior Planner, gave the following presentation of the Western Big Branch Area Plan Update.

[WESTERN BIG BRANCH AREA PLAN - SLIDE 1]

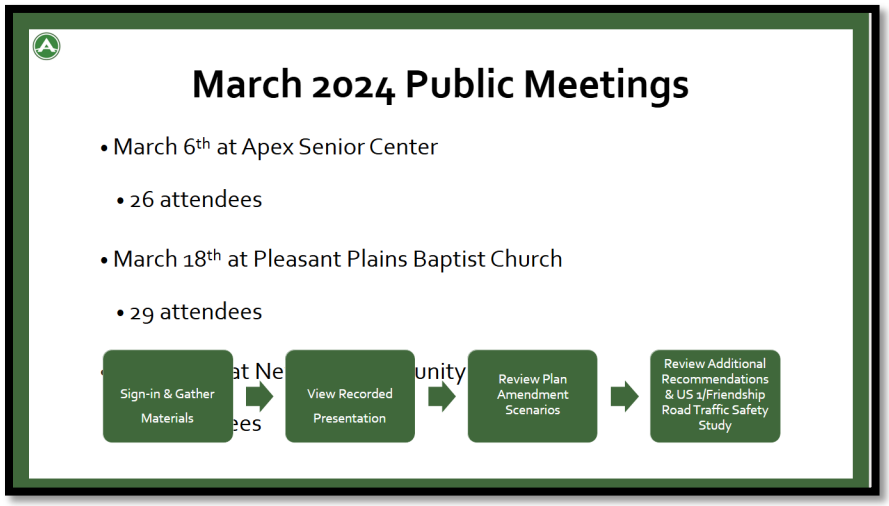
[WESTERN BIG BRANCH AREA PLAN - SLIDE 2]



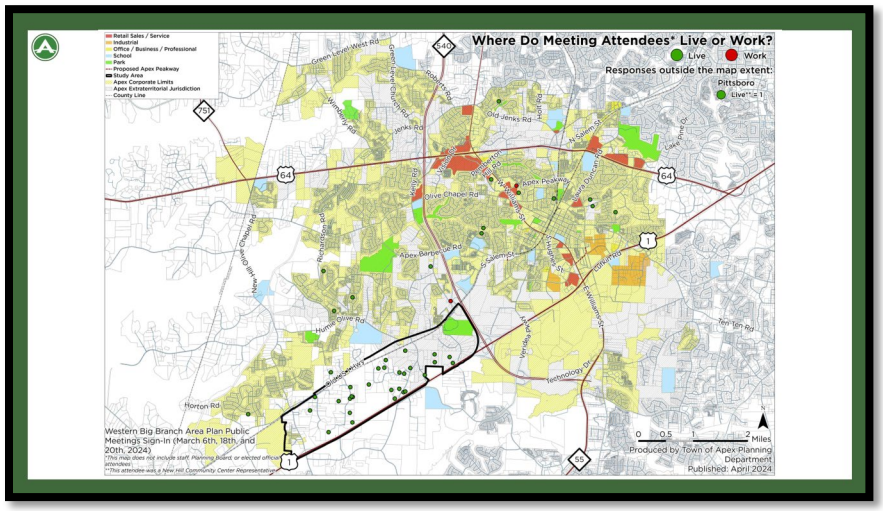
[WESTERN BIG BRANCH AREA PLAN - SLIDE 3]



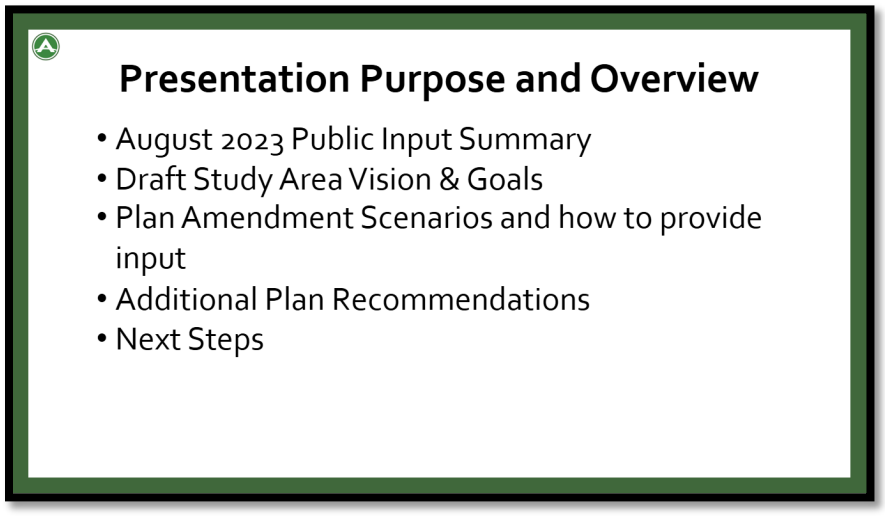
[WESTERN BIG BRANCH AREA PLAN - SLIDE 4]



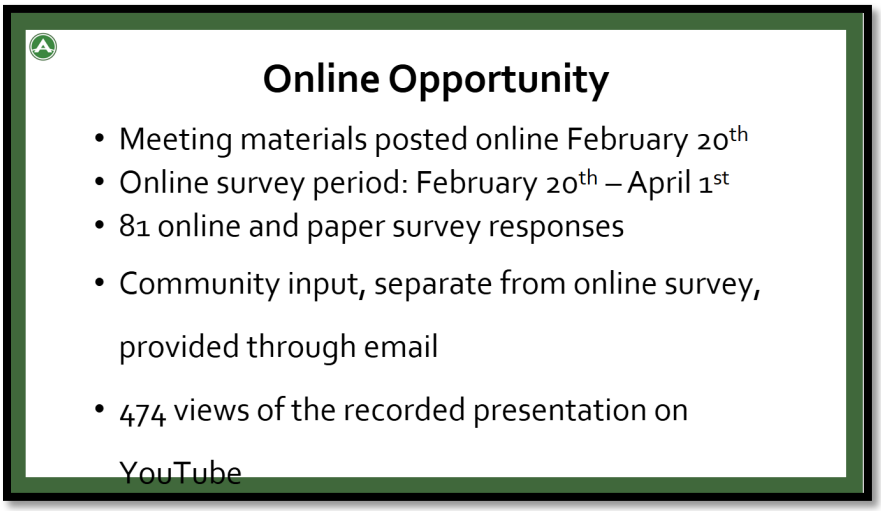
[WESTERN BIG BRANCH AREA PLAN - SLIDE 5]



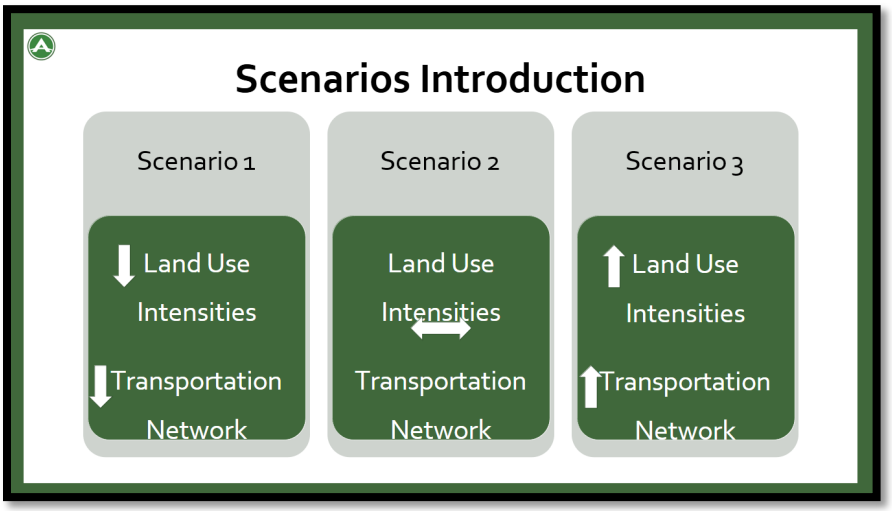
[WESTERN BIG BRANCH AREA PLAN - SLIDE 6]



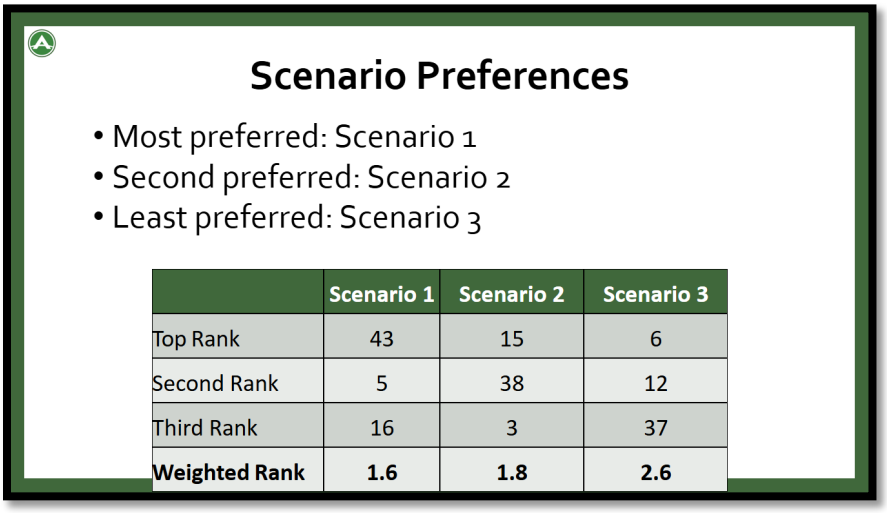
[WESTERN BIG BRANCH AREA PLAN - SLIDE 7]



[WESTERN BIG BRANCH AREA PLAN - SLIDE 8]

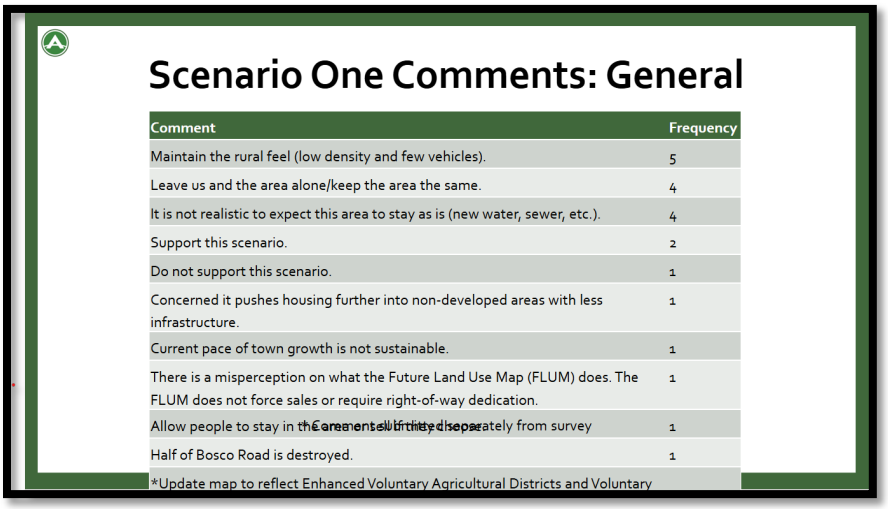


[WESTERN BIG BRANCH AREA PLAN - SLIDE 9]



	Scenario 1	Scenario 2	Scenario 3
Top Rank	43	15	6
Second Rank	5	38	12
Third Rank	16	3	37
Weighted Rank	**1.6**	**1.8**	**2.6**

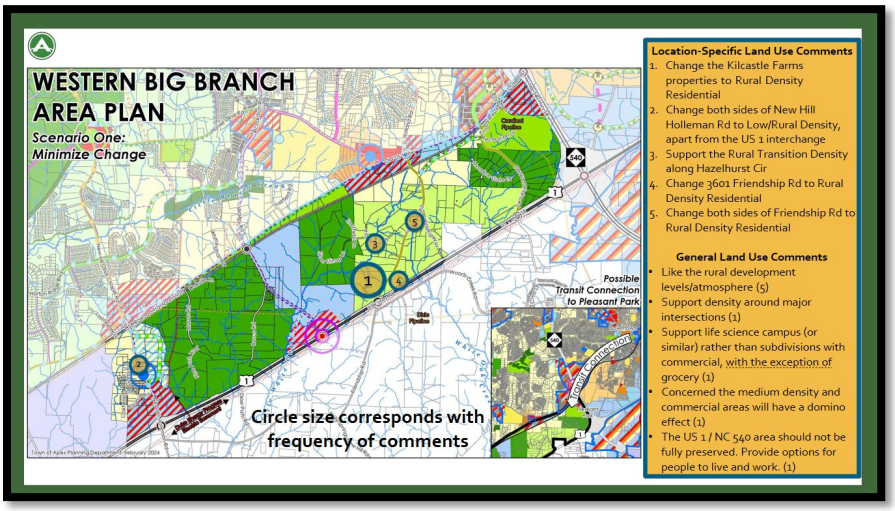
[WESTERN BIG BRANCH AREA PLAN - SLIDE 10]



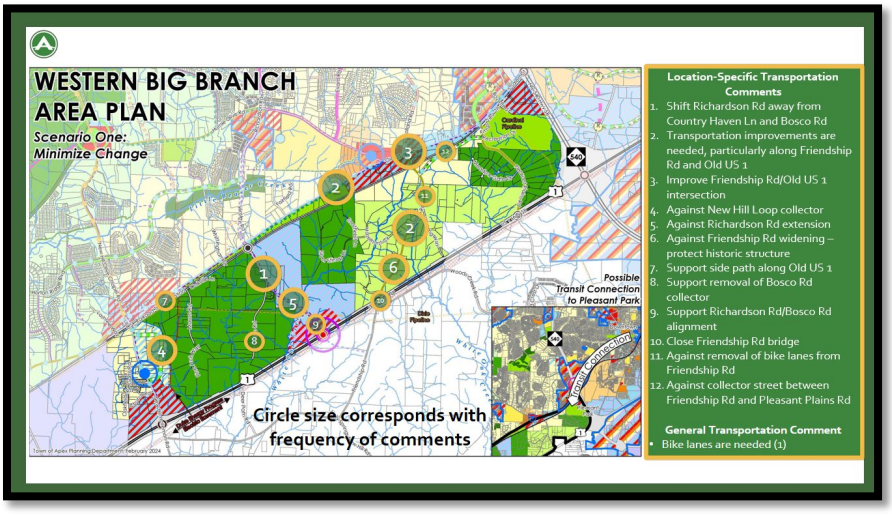
Scenario One Comments: General

Comment	Frequency
Maintain the rural feel (low density and few vehicles).	5
Leave us and the area alone/keep the area the same.	4
It is not realistic to expect this area to stay as is (new water, sewer, etc.).	4
Support this scenario.	2
Do not support this scenario.	1
Concerned it pushes housing further into non-developed areas with less infrastructure.	1
Current pace of town growth is not sustainable.	1
There is a misperception on what the Future Land Use Map (FLUM) does. The FLUM does not force sales or require right-of-way dedication.	1
Allow people to stay in the area until they desire to separately from survey	1
Half of Bosco Road is destroyed.	1
*Update map to reflect Enhanced Voluntary Agricultural Districts and Voluntary	

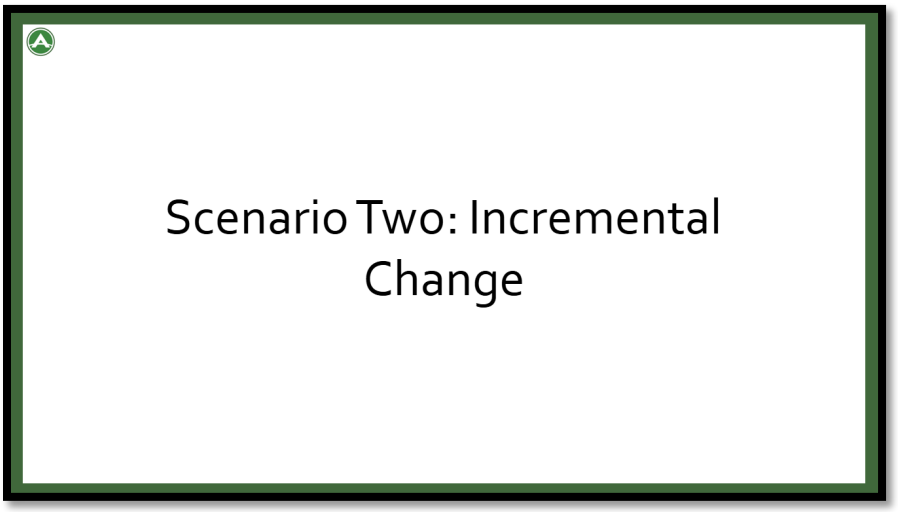
[WESTERN BIG BRANCH AREA PLAN - SLIDE 11]



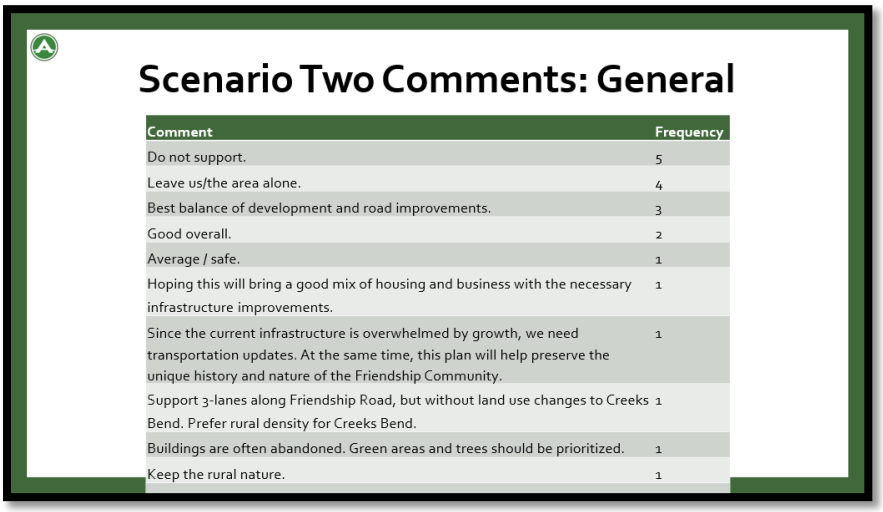
[WESTERN BIG BRANCH AREA PLAN - SLIDE 12]



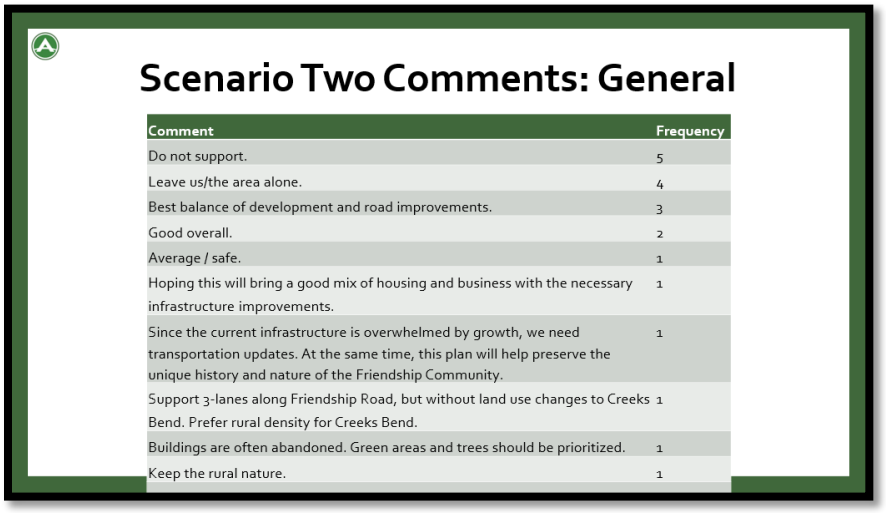
[WESTERN BIG BRANCH AREA PLAN - SLIDE 13]



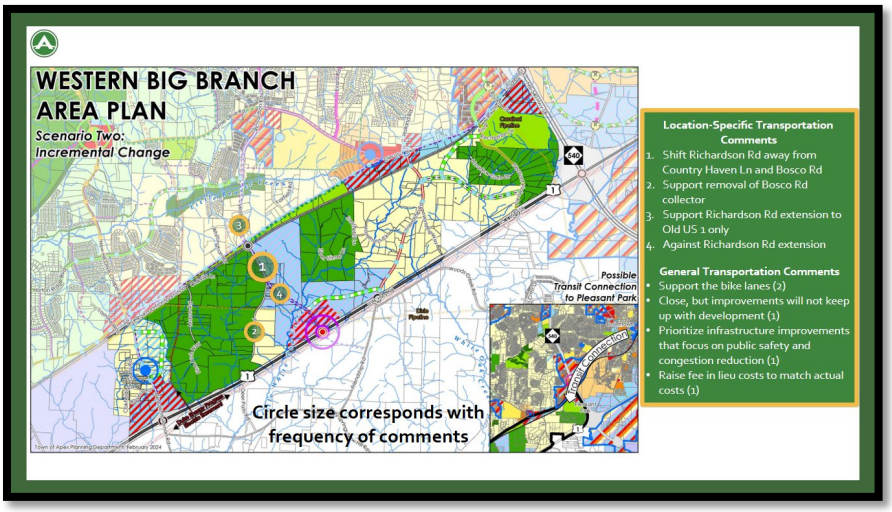
[WESTERN BIG BRANCH AREA PLAN - SLIDE 14]



[WESTERN BIG BRANCH AREA PLAN - SLIDE 15]

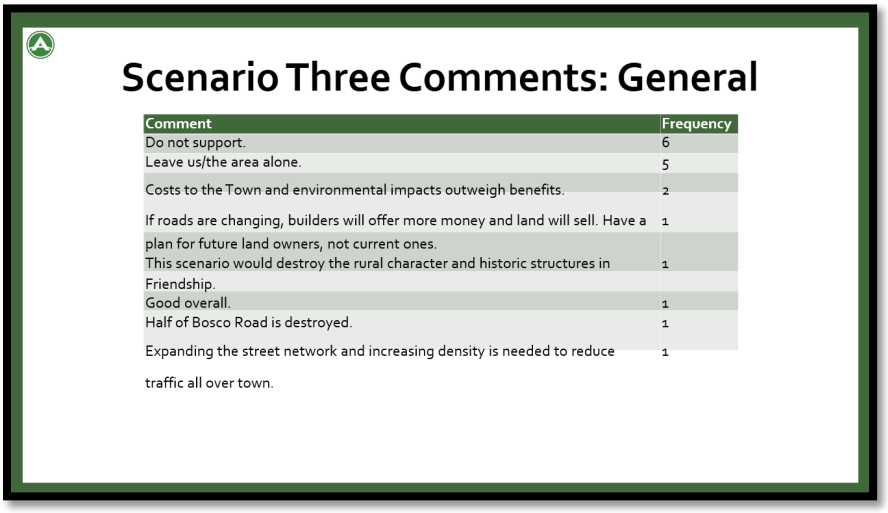


[WESTERN BIG BRANCH AREA PLAN - SLIDE 16]



[WESTERN BIG BRANCH AREA PLAN - SLIDE 17]

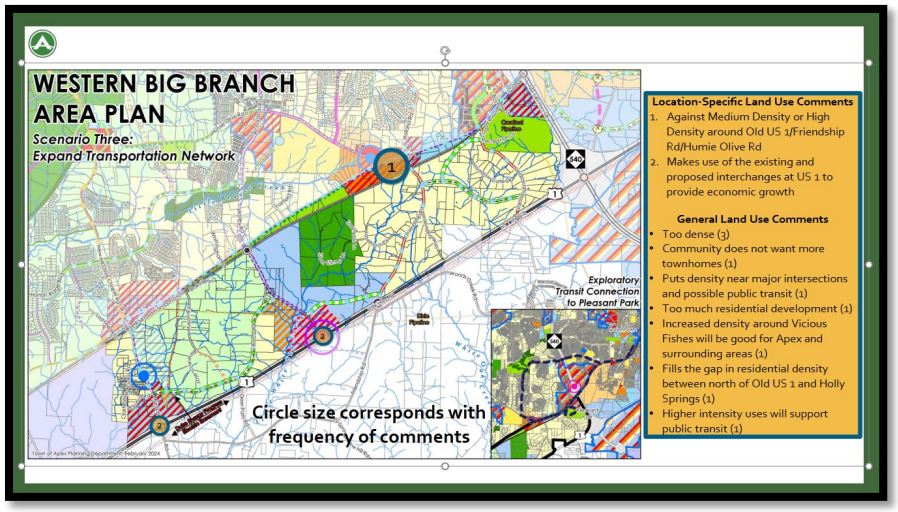
[WESTERN BIG BRANCH AREA PLAN - SLIDE 18]



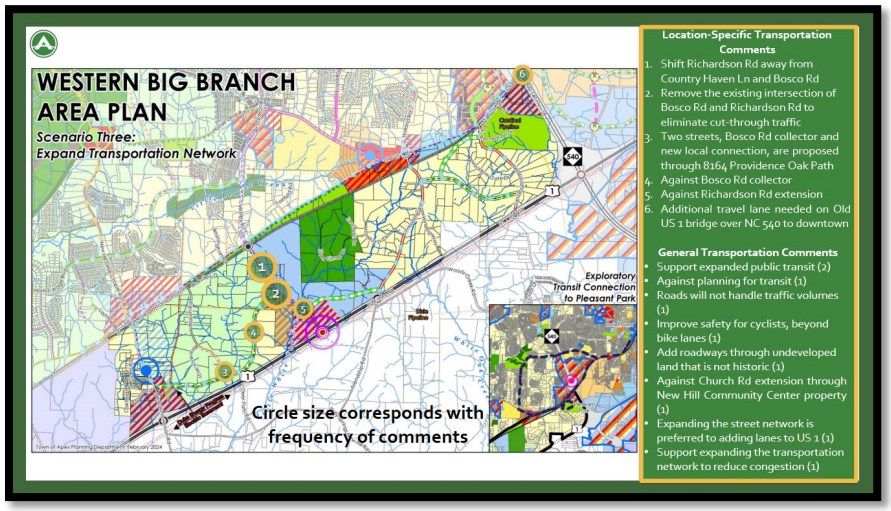
Scenario Three Comments: General

Comment	Frequency
Do not support.	6
Leave us/the area alone.	5
Costs to the Town and environmental impacts outweigh benefits.	2
If roads are changing, builders will offer more money and land will sell. Have a plan for future land owners, not current ones.	1
This scenario would destroy the rural character and historic structures in Friendship.	1
Good overall.	1
Half of Bosco Road is destroyed.	1
Expanding the street network and increasing density is needed to reduce traffic all over town.	1

[WESTERN BIG BRANCH AREA PLAN - SLIDE 19]



[WESTERN BIG BRANCH AREA PLAN - SLIDE 20]



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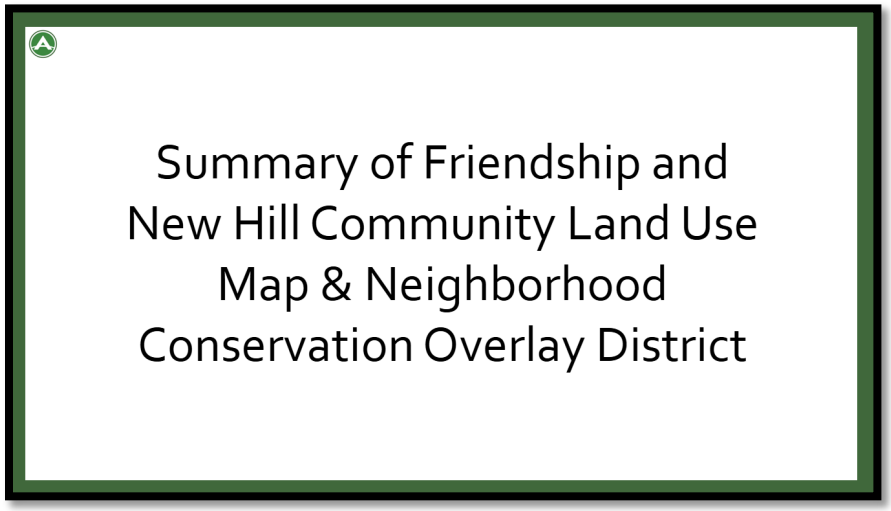
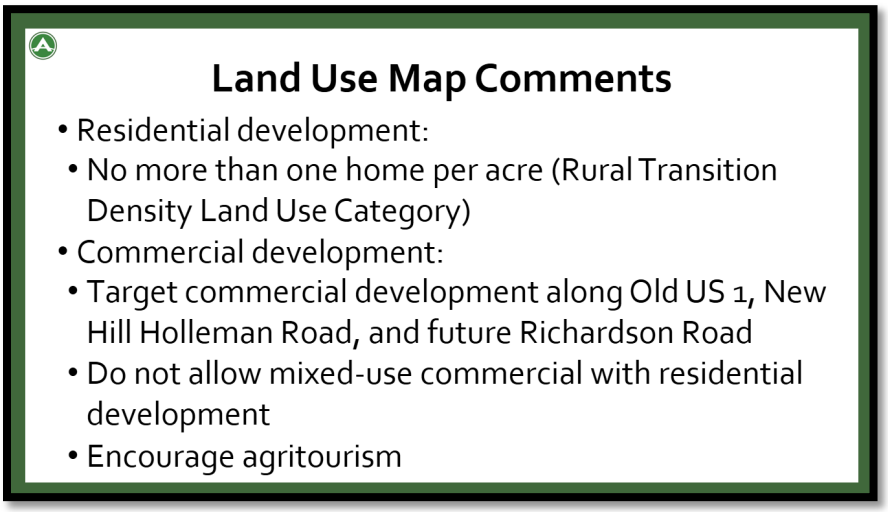


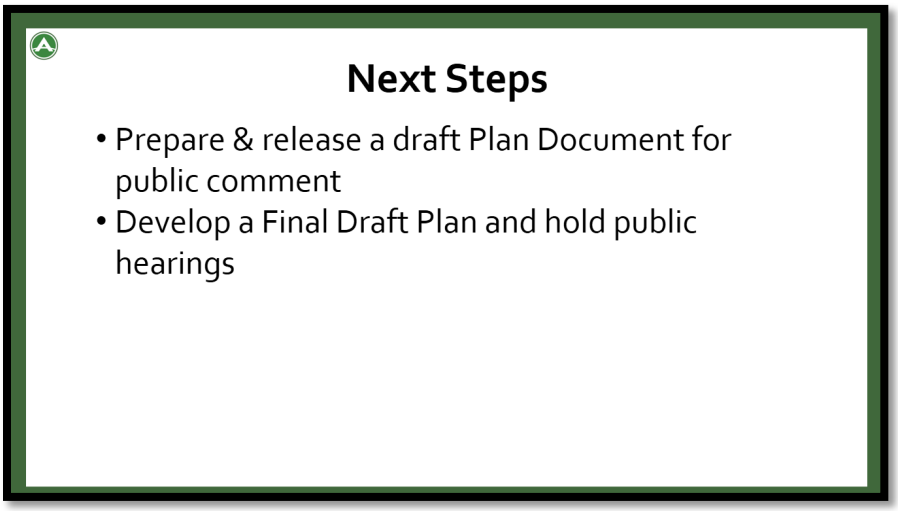
[WESTERN BIG BRANCH AREA PLAN - SLIDE 22]

[WESTERN BIG BRANCH AREA PLAN - SLIDE 23]



[WESTERN BIG BRANCH AREA PLAN - SLIDE 24]

[WESTERN BIG BRANCH AREA PLAN - SLIDE 25]



Mayor Gilbert thanked Ms. Shouse for the work and community members for being engaged, and asked if there were any questions.

Councilmember Gantt said in 2019 during the last Land Use Map update, some communities wanted the town to "leave them alone", then a few years later were wanting help developing the area around them. He said the results of this reminded him of the initial sentiment then.

Councilmember Mahaffey wanted to clarify that this is not a regulatory change on anyone's property, it is an update to a future land use map and explained that this is a plan that has to be published. He said the map reflects the possible zoning for a property if that property decides to be developed.

Councilmember Zegerman said the Land Use Map was very important for Council and future Councils, and thanked staff for their work in crafting this vision along with the community.

Mayor Gilbert thanked Ms. Shouse for the update.

[REGULAR MEETING AGENDA]

A **motion** was made by **Councilmember Gantt**, seconded by **Councilmember Killingsworth**, to approve the Regular Meeting Agenda as submitted.

VOTE: UNANIMOUS (5-0)

[PUBLIC FORUM] (NOTE: To view Public Forum and Public Hearing Sign In Sheets, see **OTHER-2024-064)**

First to speak was **Elizabeth Stitt** of 3113 Friendship Road:

"Mayor and Town Council good evening. I signed up first so I could go right behind Jenna. Jenna has done a fabulous job presenting the Planning Board, presenting to you tonight, working with us in the Community, so her and her staff, I have to say, thank you for all the time they spent. So, I am a part of the group that is proposing the Overlay District, so I'd like to address a couple of things first. If you look at the owners within that corridor, nobody has sold out or developed since 2019, and most of us that are left have no plans of going anywhere, so I appreciate you may have had some bad experiences, but I want to reassure you that's not on the current horizon. I'd also like to reassure you that there's no misunderstanding, that this is a land use map that this is not the town annexing us, this is not the town changing our land zones or anything of that nature, what our response back is we are coming to you with what we want because we have seen development around us that's not consistent with who we are as a community, and we know that if we don't take the time to engage and say, look you did project X, Y, or Z, we raised concerns and objections, you out voted us, and clearly we don't have a vote for any of you, because we don't have a right to vote in town elections, you haven't heard us, you know, you still move forward with the projects that you decided on. So through this, you know, we looked at the three plans and none of them really fit and we kind of joked about how it's kind of like, you know, it' a guy coming up saying, hey you want to go out on a date, you know, what do you want to do and you're like, oh, I don't know, you know, and they suggest three different things when it would better for us just to say, hey, this is what we like to go do on the date. So, this is a date between us and the town, so there's going to be many more conversations. I don't expect us to cover everything in the last 56 seconds I have. A couple of things I want to call out is our proposal is in the packet from page 269 to 297 and our goal is not anti-development, we've actually proposed four times the amount of residential density that exists there today. We have made recommendations on what type of commercial development, and of the 249 parcels that are included, we had 146 owners sign on to these recommendations that they were in support of it. So, it is not all anti-development, we did have some individuals that said we're not signing on because you're allowing some development, we want zero, so they're against us, so we're trying to find something that is somewhere in between all of us. We did propose a citizen committee because you need to be talking to us."

Mayor Gilbert thanked Ms. Stitt.

Next to speak was **Omar Nabulsi** of 410 James Street:

"Peace be upon you all. Today I'm going to tell you why the safety of Palestinians in Palestine is directly correlated to my safety here in America. Despite this geographical distance, as a Muslim-Palestinian American who proudly served in the US Army, I speak from both personal and collective experience. The plight of Palestinians resonates deeply with our community, as it reflects a struggle for justice, dignity and human rights. My service in the US Army

exemplifies the diversity and strength of our nation, built on the principles of equality and liberty for all. Yet as a Palestinian-American, I cannot ignore the controversy of advocating for freedom abroad and turn a blind eye to the injustices committed against my people in Palestine. While I was active duty, a Sergeant, someone I trusted with leadership and authority, expressed that if it were up to her, all Palestinians would be obliterated off the map. Hearing those words from someone in a position of power was not just shocking, it was deeply disturbing. What struck me most was the realization that individuals harboring such extreme and hateful views, are the very ones we entrust with guns and send to the countries where Palestinians reside. While the conflict may seem distant, its ramifications are felt locally. The Palestinian diaspora, including many within our city, grapple with the anguish of displacement, loss, and the constant fear for the safety of themselves and loved ones. The trauma inflicted by the ongoing violence runs back generations, leaving a profound impact on mental health and community cohesion. Moreover, our City's commitment to Human Rights and social justice demands that we stand in solidarity with oppressed communities around the world. Just as we advocate for justice on local issues, we must extend our support to those facing systemic injustice and violence elsewhere. Silence in the face of adversity condones violence and perpetuates oppression. It is silence that got UNC students Deah Shaddy Barakat, Yusor Abu-Salha, and Razan Abu-Salha killed in Chapel Hill, got Wadea Al-Fayoume, a 6-year-old Palestinian American boy stabbed to death by his neighbor, and got three Palestinian Americans in Vermont shot. These crimes were a direct result of the US's involvement in decades of vilification and dehumanization of our community and were undoubtedly fueled by hatred and bigotry. Would you sit here and tell them their lives don't matter if they were standing where today. Silence speaks volumes. Just last week a woman took a 10-second clip of me walking with Palestinian flag and fabricated a story of aggressively following a Jewish Family. I walked with cadence in this video, something that was drilled into my head during my time in service. The online responses to this were threats of violence against me. I was made to feel unsafe, simply for existing and representing my country. These incidents underscore the urgent need for advocacy and protection for Palestinian-Americans. While our government rightfully sponsors ads addressing antisemitism, and supports the Jewish Community, there is a stark absence of similar initiatives for Palestinian Americans. This disparity and support leaves Palestinian-Americans vulnerable to targeted attacks and hate crimes because of their ethnicity or perceived political affiliations. Allowing discrimination against Palestinians on foreign land, not only violates their human rights, but also jeopardizes the safety and security of Palestinian Americans at home. It undermines America's credibility, fosters resentment and radicalization, and sets a dangerous precedent for the erosion of civil liberties and human rights. Every great movement has faced resistance, ridicule, and even violence, but it's the unwavering commitment of individuals and communities to stand firm in their convictions that ultimately drives change. Whether it's advocating for marginalized communities, fighting against systemic injustice, or speaking truth to power, our actions today shape the world we leave for future generations. It is imperative that we stand against discrimination and oppression wherever it occurs both as a matter of principle and to ensure the safety and well-

being of all Americans. I will continue to be a voice for the voiceless, even when my voice shakes. I took an oath to defend the principles of freedom and justice, not just for me but for all. Thank you."

Next to speak **Zane Zanta,** 1100 Ryanmar Circle of Apex:

"Good evening, I'd like to begin by acknowledging and thanking the Council for the diversity on display here before us today. Representation is existence, and existence is to be seen, felt, and heard. While we're on the subject of diversity, we have a diversity of children in our community who look like Palestinians. They are witnessing what's happening to them as our coward leaders and soulless of a President are openly spewing Islamophobic rhetoric and encouraging a country and its inhabitants to be flattened and wiped off the Earth. Children in our community do not feel safe, we installed in our youth the love of knowledge, education, college, serving our communities, and serving our country. We champion our youth, our students for participating in society and Government, and when they do, they are being punished. Protests have broken out across the country and the world alike. Students protested peacefully after not being heard for months and their demands not being met. The University of Chapel Hill students were targeted by a police mob at the early hour of the morning. Many were arrested, but why. For protesting a genocide. Dutch police were seen bulldozing and beating students. The Dutch Colonial Empire and the American Colonial Empire are displaying what they learned from the Israeli terrorist forces, the same methods that were laid upon the South Africans during the apartheid. Have we not learned anything. If for a second, you think that this has nothing to do with you, then you better look deeper, our struggles are all connected. If anybody's freedom offends you, then you need to check yourself. The hypocrisy of our children being sent to war and die, but not being able to protest a war is unfathomable. The latest resigning of top American military personnel and the soldiers coming back home and committing suicide, should at least have you question why. As we draw parallels of student protests, we cannot forget the Greensboro luncheon protest, started by four Black students against segregation. This is a survey taken in the 1960s that I will be giving to you in a second. On the first day, four students sat in, the second day 25 more joined, and the third, 63 students joined. By the fifth day, more than 300 demonstrators had joined. Four local men against a system that prevented them from having any rights for the last 100 years after their own Liberation in the 1960s. Their movement spread to many Southern States, fueling changes which transcended into global recognition. The process which brought down segregation."

Mayor Gilbert thanked Mr. Zanta for his comments.

Next to speak was **Lorraine Meehan**, 2524 Walden Woods Creek:

"As I said, I am a resident of Apex and I want to thank you first off for acknowledging our Police. My husband was a federal law enforcement officer, he died from injuries he received

while recovering the bodies of the dead on 9/11 at the World Trade Cetner. So, what you did here tonight acknowledging the sacrifice that he made and the impact on me, I am very, very grateful. As a resident, I understand the purpose of the City Council is to act as our legislative body for the Town of Apex, not to opine on world issues or events. In the past weeks. speakers here in this room have falsely accused Israel of genocide, but they won't tell you about Hamas' own genocidal plans, written in the Hamas Covenant of 1988 Preamble. Israel will exist and will continue to exist until Islam will obliterate it. You won't hear them talk about Article 2, that Hamas is a wing of the Muslim Brotherhood, the same people responsible for the 1993 bombing of the World Trade Center, or Article 15 that Jihad is an individual duty in face of the Jews usurpation. Even the UN, who is no friend of Israel, exposed Hamas' lies and officially cut in half the number of women and children killed in this war from Humas' own official numbers. Showing that the vast majority killed in Gaza are Hamas terrorists who use women and children as human shields. In light of these veiled, yet very real anti-Semitic charges by others in this room in previous weeks, I thank Council for your position of keeping Apex Council business just that, the business of governing Apex without distraction. Thank you."

Next to speak was **Amy Rosenthal**, 402 Old Larkspur Way:

"No doubt you've seen the explosion of anti-Semitism, in other words, hatred of Jews, appear on campuses here in North Carolina and across the country. Jewish students have had water bottles thrown at them and people have spit in their faces and more, how did this happen. The infamous Nazi propaganda Minister Joseph Goebbels said if you repeat a lie often enough people will believe it and you will become to believe it yourself. The Jewish community is all too familiar with where these lies lead, to hate, to violence, to actual genocide. Unfortunately, that is exactly what we're seeing today. You have heard some of the anti-Israel lies and propaganda here in this room. Some of the speakers before you have dedicated their lives to promoting the genocide of Jews in Israel. They cloak their hate in noble language, but make no mistake, their goal is to eliminate Jews by any means. This includes terrorism as we saw October 7th when Hamas publicly bragged about cutting babies out of pregnant women, burning children alive in front of their parents, beheading babies, gang rape of women and more, just because they were Jewish. When they can't destroy, Israel with violence, they use gullible Americans to do the job for them by hurting Israel economically and more. They want Apex to be complicit in their quest to eliminate the only Jewish State in the world. They want Apex to hop onto the bandwagon of hate. Others who parrot lies about Jews are intellectually lazy, believing the anti-Sematic propaganda without question so that they'll be accepted by the mob. They call it love bombing and it works on weak minds. These are the new Nazis. You are probably tired of hearing them, you have a city to run. Thank you for standing strong against anti-Israel lies. Thank you for standing against anti-Semitism."

Next to speak was **Andrew Gluck**, 2524 Waldon Wood Creek:

"First just to address what was said here earlier, there's never been and still isn't a sovereign country called Palestine. It's never existed, and Hamas still calls for the destruction of Israel. A lot of accusations against Israel apartheid have been made, I want to point out virtually no Jews presently live in Arab and North African Nations today. Over 850,000 Jews were kicked out from those countries when Israel was founded in 1948, all victims of apartheid. They were told to leave with just what they could carry or they would be killed. They were absorbed by the State of Israel which has been the Jewish homeland for over 3,000 years, disproving the lie that Israel is a white racist country, remember Israel even went with great Pearl and rescued over 15,000 Jewish Ethiopians from the country while a Civil War was going on and brought them to Israel. To have to even come here and say anything as the Town of Apex is supposed to focus on the Town of Apex issues only, but unfortunately, we have misinformed and hateful people who want to bring world issues to a peaceful town and remember over 80% of this country supports Israel over Hamas, don't fall for the lies and hate because that's all they have. Thank you."

Next to speak was **Arnan Ullman**, Sterling Oak Court:

"I would like to address a couple of things that were said here today. First of all there were people saying genocide. In 2005, Israel left Gaza. There were 1.3 million people living there, right now there are 2.1 million. Since the war has started over 20,000 babies have been born in Gaza, those 20,000 babies are still alive, Israel does everything it it's power to protect civilian lives. When we look at death rates in global conflicts, you have a ratio of 1 to 5 when not in cities and in cities you have 1 to 9, one combat soldier to nine civilians. Right now, with that data coming from the UN, it is one to two, one combatant soldier to two civilians in one of the most densely populated areas in the world. I would not say that this is a great thing, nobody thinks so. On October 7th if that day did not happen many lives would be still here on the Palestinian and on the Israeli side, sadly it happened and since then, Israel has been doing everything in its power to defend itself and to defend the Palestinian people ability to have their own right to govern themselves and not a terrorist group. But let's talk about other things. Ethnic cleansings, there are no Jewish people living in Gaza since 2005. Right now there are 130 Israelis held as captives there, why, because they wanted to go into a trip there, no, they wee stolen from their house, people burn in their houses, we have other things said here, apartheid, Israel the apartheid state, do you know what state actually is an apartheid to Palestinians? Lebanon. Lebanon doesn't allow them to own land, doesn't allow them to be doctors. In Israel, any Arab Israeli can become whatever he wants. The Supreme Court of Israel sent a prime minister and a president to prison. That person that sent them to prison was an Arab Israeli, what they would call Palestinian Israeli, he send them that is not an apartheid state when somebody can send a president or a prime minister to prison, that just shows freedom. Lastly, a lot of times we're hearing the colonizers, colonizers are whom, out of curiosity which country did we represent, not the US, not Canada, not others, we're a Jewish nation that just came back to our homeland. And finally there was something very,

very, very, really bad said today here, oppressed people, nobody should be oppressed, but when you're held by terrorist organization, captive and holding 2.1 million people, you are oppressed, get rid of them, that's what you should be doing and if you really want to something, call Karen, Wake County has 404 people that, kids that need more fostering, do that, that's what we need to do for this community. Thank you."

Next to speak, **Daniel Cahana**, 605 West Chapel Hill St, Durham:

"Hi everyone, this is October 7th, as you can see, this is a Jewish woman pregnant being cut open and her baby being cut before he was born. Those terrorists, Hamas capture her and then didn't stop there, they go ahead and broadcast to the entire world to go to see what they mean when they say intifada and I want you to understand guys, today what they mean when they say they want to globalize it, that this is a serious matter, and it should be a threat over here. When those people ask for ceasefire, why do they ask for ceasefire, not for peace, did you ever come this mind, why not peace, I want peace, everybody wants peace. I want you to understand that in the mind of Jihadistic Islamic, that want Sharia law over the whole world, this is just a piece, ceasefire between the big war, there will be not peace up until the entire regime and the entire world become Muslim and I want you to understand that this is the reason that they ask for ceasefire. For example, only this year in Africa they kill 8,000 Christians because they are Christians. When the Jihadistic Palestinians group came to Lebanon, they decided to cleanse over there, the entire Christian population, we still have in New Jersey some of their refugee's ceasefire in 2008, 2012, 2014, 2021, 2023, they promise to do this again and again. To what we need the ceasefire another one if Hamas is going to break it one more time. When King of Jordan go ahead and create want to create a peace in the Middle East a century ago, the Palestinian terror group decided to go ahead and murder him and more than that and you can see this. All of those is a Peace Agreement that they had like an option to create a Palestinian State, why won't any one of them go ahead and advocate even once for this one? If they really want a Palestinian State, they could have any one of those. So, here's the thing, those people don't have peace, any peace in their mind. I want to guide you guys, that if they don't say the word peace, they say ceasefire, think about the global team. Now, the first thing that I want you to understand, I live next to Arabs all of my life, the Arabs is the first one that suffer from those Jihadistic group, take example for the people of Afghanistan that suffer from the Taliban, take for example the people of Iran that suffer from the Iranian regime. The same way there is people in Gaza that go ahead and oppose the Hamas regime. Israel wants to take Hamas down because Hamas is the one that prevents them to have any peace in the Middle East. In order for having that we have got to get them out, out of the equation. Thank you very much."

Next to speak was **Alex Har:**

"My name in Arabic would be Iskander because I am an Arab, I am here actually without propaganda, without a speech that I've written to you without anything I'm just here

recognizing this is the Town of Apex, you are the Council and your work is to work for the Town or the City of Apex, not international conflict. We all know that, both sides know that, but they're trying to bring politics and views that have nothing to do with your work or with anything that you do but, in case that this town will vote for anything political, or anything associated with the state of Israel, I am here to tell you that it will be a huge mistake. I can't believe that we are standing here in 2024 defending the Jewish people, how is this possible. When is this darkness will end. When will we just have peace, when will that happen? When Jihadi terrorist groups such as Hamas stop killing Jews, when people stop advocating for murder, for genocide. What is genocide. Genocide is when they say *(spoken in foreign language)* like a very known antisemite that lives in the triangle and everybody go and give her a mic, they keep saying these things, they keep saying from the river to the sea, a lot of Americans don't even know which river and which sea unfortunately, they just repeat this because of lies they hear. The river is Jordan, and the sea is the Mediterranean. It means the annihilation of Israel, the only Jewish State, the only Democratic State, the only state where the LGBT community have, oh you can laugh all you want, I am a member of the LGBT community, you know what will happen to me in there, why there are not gay people in Gaza or in Judea and Samaria or what is called West Bank because they throw them off the roofs, because they murder them, because they killed them and I quote the words of Hassan Yusef, the son of the creator of Hamas, he says 'This is a struggle between light and darkness', why do we defend the state of Israel, because Israel is the light in there, the only Democratic state in there, the only state that have yes, Black people who are not discriminated against gay people who are not discriminated against, minorities who are not discriminated against, and for that I urge you to support the state of Israel. Thank you."

Next to speak was **Emanuela** of 105 Heart Pine Drive, Cary:

"I would like to ask you not to give into any demands for resolutions against the state of Israel and for ceasefires. As has been noted, ceasefire is just an opportunity to re-arm. There are still 132 people who are hostages of Hamas in Gaza, and it is important to note that there are five of them are US citizens. Their names are not mentioned anyone by the powers that be, so I would like to name them; Keith Seagull, native of North Carolina, born in Capel Hill, Edan Alexander, Omar Naltra, Hersch Goldberg Poland and Sagui Dekel Chen. We have not forgotten them, and we hope and pray for the day they can go home to their loved ones. I noticed that this Town Council has made note of the heritage month for Asian-Americans, has noted tennis, has rightfully honored the police and in the Town of Apex which I honor as well, but you have not mentioned and I find this very odd, you have not mentioned Jewish-American heritage month which is the month of May and I have to wonder if you forgot to mention Jewish-American contributions to American fabric of life because you are cowed by the presence of Islam fascists among us. The demonstrations that you see daily in our towns on bridges in our Universities in City centers, those demonstrations are a show of force, this is the alliance between the Reds and the Greens at play. They openly say that their goal is to destroy America, we Jews are just in the way and it's always been like that, we are the counter

in the minds. You think you're safe? You cannot be, because if Jewish-Americans cannot be safe then nobody is safe in this country. That's the truth when they take down the American flag at UNC Chapel Hill, when they burn American flags in New York City, when they chant intifada, what they're saying is they're bringing their war to our shores and they're already here, so please don't be cowed. Thank you."

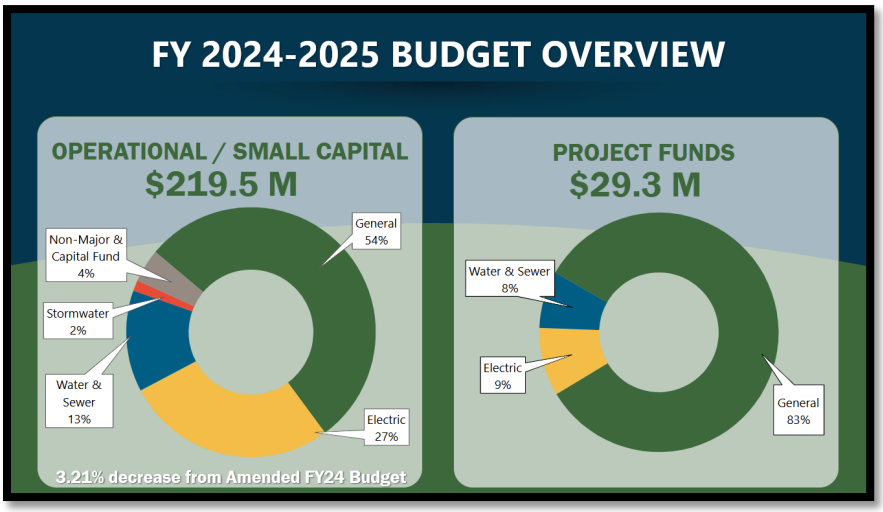
Mayor Gilbert thanked everyone that came out to speak and closed the public forum.

Mayor Gilbert called for recess at 7:40 p.m. and returned at 7:50 p.m.

PH1 FY 2024-2025 Annual Operating Budget and Capital Improvement Plan (CIP) – 2nd Budget Hearing

Amanda Grogan, Director, Budget & Performance Management Department, gave the following presentation regarding FY 2024-2025 Annual Operating Budget and Capital Improvement Plan (CIP) – 2nd Budget Hearing.

[SLIDE 1]



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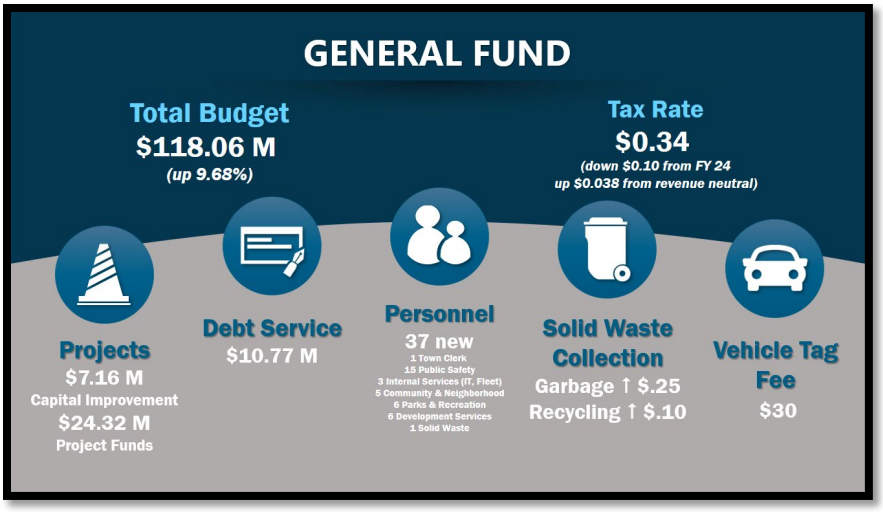

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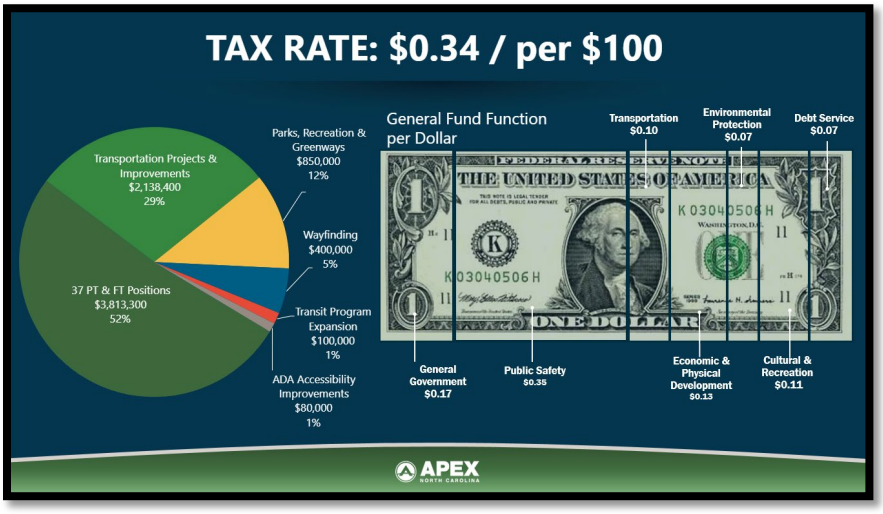
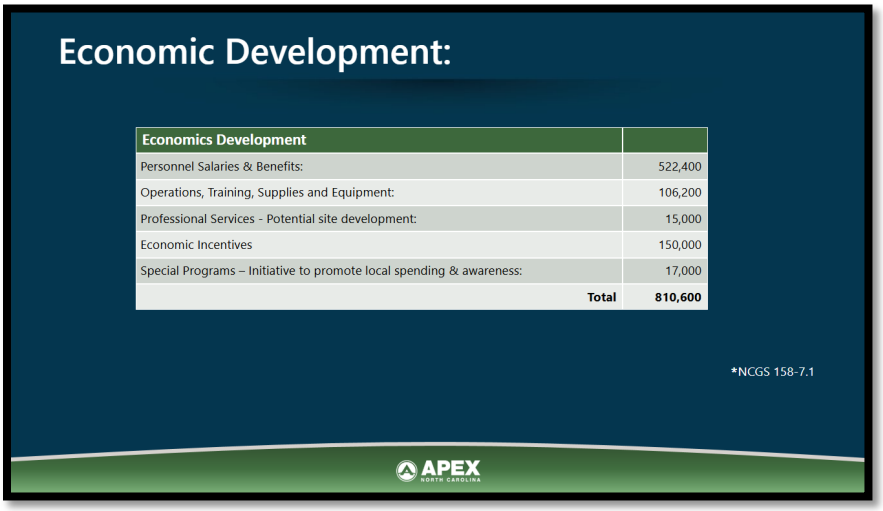


[SLIDE 4]



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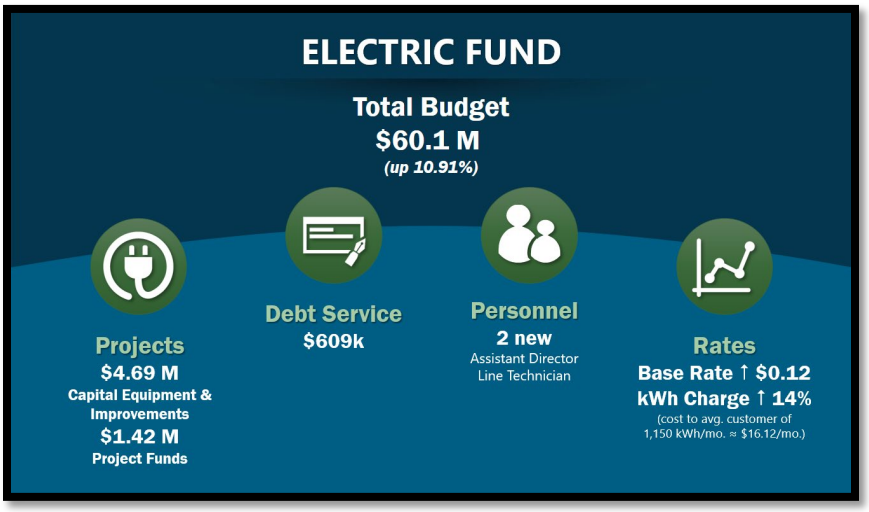

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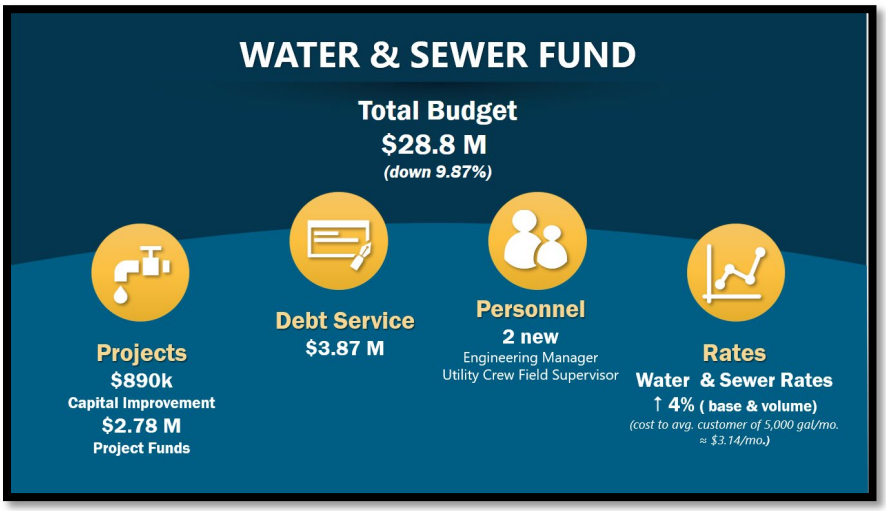

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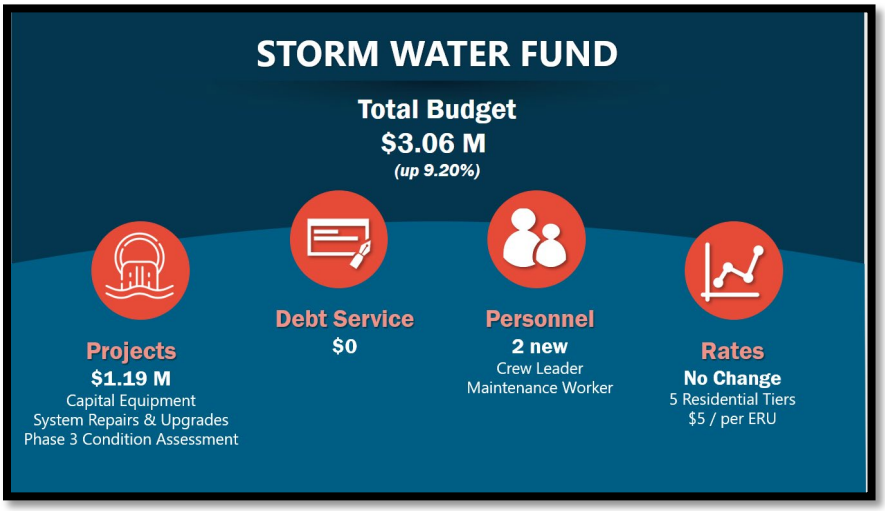

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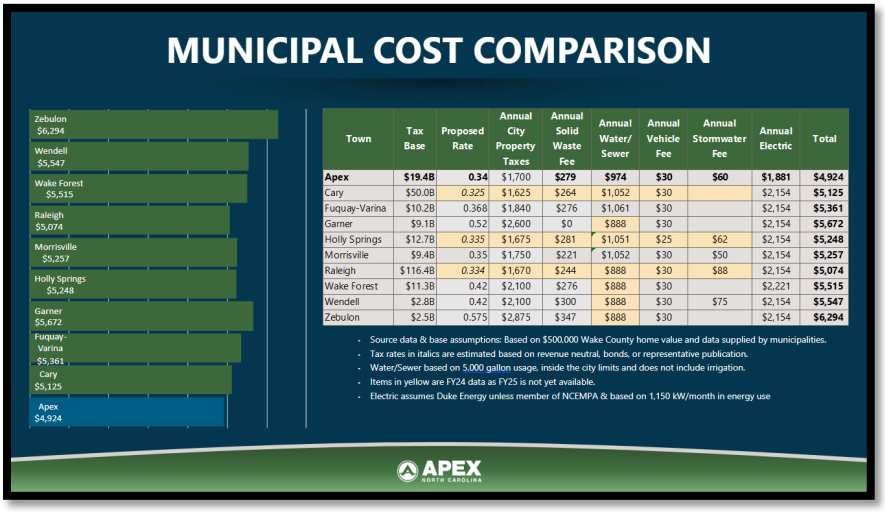
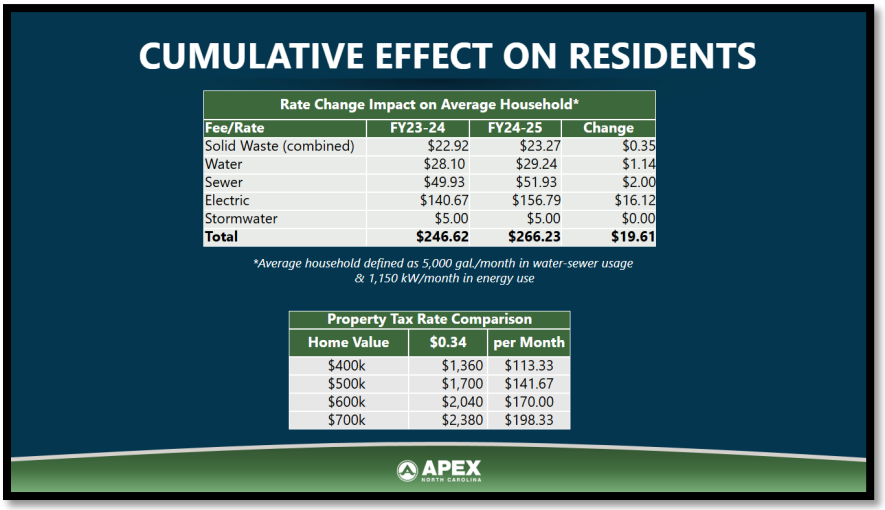


Town	Tax Base	Proposed Rate	Annual City Property Taxes	Annual Solid Waste Fee	Annual Water/ Sewer	Annual Vehicle Fee	Annual Stormwater Fee	Annual Electric	Total
Apex	**$19.4B**	**0.34**	$1,700	**$279**	**$974**	**$30**	**$60**	**$1,881**	**$4,924**
Cary	$50.0B	*0.325*	$1,625	$264	$1,052	$30		$2,154	**$5,125**
Fuquay-Varina	$10.2B	0.368	$1,840	$276	$1,061	$30		$2,154	**$5,361**
Garner	$9.1B	0.52	$2,600	$0	$888	$30		$2,154	**$5,672**
Holly Springs	$12.7B	*0.335*	$1,675	$281	$1,051	$25	$62	$2,154	**$5,248**
Morrisville	$9.4B	0.35	$1,750	$221	$1,052	$30	$50	$2,154	**$5,257**
Raleigh	$116.4B	*0.334*	$1,670	$244	$888	$30	$88	$2,154	**$5,074**
Wake Forest	$11.3B	0.42	$2,100	$276	$888	$30		$2,221	**$5,515**
Wendell	$2.8B	0.42	$2,100	$300	$888	$30	$75	$2,154	**$5,547**
Zebulon	$2.5B	0.575	$2,875	$347	$888	$30		$2,154	**$6,294**

- Source data & base assumptions: Based on $500,000 Wake County home value and data supplied by municipalities.
- Tax rates in italics are estimated based on revenue neutral, bonds, or representative publication.
- Water/Sewer based on 5,000 gallon usage, inside the city limits and does not include irrigation.
- Items in yellow are FY24 data as FY25 is not yet available.
- Electric assumes Duke Energy unless member of NCEMPA & based on 1,150 kW/month in energy use

[SLIDE 9]



Rate Change Impact on Average Household*			
Fee/Rate	**FY23-24**	**FY24-25**	**Change**
Solid Waste (combined)	$22.92	$23.27	$0.35
Water	$28.10	$29.24	$1.14
Sewer	$49.93	$51.93	$2.00
Electric	$140.67	$156.79	$16.12
Stormwater	$5.00	$5.00	$0.00
Total	**$246.62**	**$266.23**	**$19.61**

**Average household defined as 5,000 gal./month in water-sewer usage & 1,150 kW/month in energy use*

Property Tax Rate Comparison		
Home Value	**$0.34**	**per Month**
$400k	$1,360	$113.33
$500k	$1,700	$141.67
$600k	$2,040	$170.00
$700k	$2,380	$198.33

Councilmember Gantt requested for next budget year to show the percentages of expenditures on areas for other municipalities.

Ms. Grogan said that this information is submitted to the County for tax billing purposes, and the categories may not be the same.

Councilmember Gantt said that possibly Ms. Grogan could make a chart with some comparable information. He asked how often he worked with surrounding towns to see what they were doing.

Ms. Grogan said that they do talk pretty often to see what the trends are and make comparisons. She said they do share information and it's a more collaborative approach.

Councilmember Gantt commented that it is public information.

Ms. **Gorman** said that sometimes they are on different schedules, so they don't want our Council to see something before their Council.

Councilmember Gantt said he understands.

Councilmember Mahaffey commented that typically every town has some version of the expenditures chart in their budget message. He said that Public Safety is one that is usually consistent. He said he had looked a couple of years ago and Apex was among the highest in the County for Public Safety expenditures, as that was the year Apex had opened a new fire station.

Councilmember Gantt said having that expenditures comparison from year to year may be valuable.

Councilmember Mahaffey said items that are strategic priorities like environment leadership and other categories may not be comparable.

Ms. **Grogan** said that they could try to include that chart.

Councilmember Mahaffey thanked Ms. Grogan and her team for all the hard work. He said it was an excellent budget and addressed the needs and the properties of the Town and that he was very happy that the tax rate is among the lowest increases that he had seen. He asked if there was an increase in Zebulon, as they kept their rate the same, which was an 11.5% increase in taxes after revaluation.

Ms. **Grogan** said that they had just had their meeting.

Councilmember Mahaffey said that he was proud of the way Apex did their budget.

Councilmember Zegerman said that he appreciated all of the hard work and detail that went into the budget.

Ms. **Grogan** said it is a team effort and that she is very fortunate.

Mayor Gilbert opened up for public comment.

First to speak was **Elizabeth Ray Stitt**, 3113 Friendship Road.

"Mayor and Town Council, good evening. I had started my three-minute practice in saying, I should come to you guys to say hello sharks, I'm here to ask for $250,000. I am here to ask for $250,000 so through all the discussions around old US1 and the Friendship Road intersection, there's enough funding to do everything but the traffic signal and Russell Dalton said it was $250,000 and so that's why I'm asking for $250,000. It's very little when you look at a budget of $219 million, I mean come on, it's not much. But what I wanted to call out was a couple of things, so I hit send on my email while I was sitting there. This is the Town's Traffic Study that said our intersection met three of the nine warrants that we need a traffic signal, now. Then I included an updated crash analysis from D.O.T., so in the last 26 months we've had 12 accidents that was not reflected in the Big Branch or the Western Big Branch area plan. Here it said there were only three accidents in the last 5 years, that was because they didn't pull the current data, so we went back as a community, and so you now have 12 accidents, Russell and team has the 12 accidents, and basically what I was told was, hey it's

really late in the game to be asking for $250,000, but I listened to you guys budget workshop on May 2nd, y'all were talking about being number one in solar, can we be number one in safety as well, please? So, if we get a no here, we have already started talking with the State Legislature, some of the contacts there to look for funding, D.O.T. has already turned us down, after that, if we can't get any yeses, we're going to start a GoFundMe campaign and look to try to raise the $250,000. If you guys would come out, day after day, and sit there, and listen to the number of times people are now honking their horns because they are so tired and frustrated, the number of hand gestures, the number of times people are pulling into people's yards and driveways and turning around because the backups are just that ridiculous, but what's really said is we have some elderly neighbors who are fearing for their lives, they are afraid the moment they need an ambulance, nobody's going to get in, your cars cannot pull off on the side of our roads because we have no shoulders and our elderly should not be fearing for their lives because we can't come up with $250,000. I love solar, $670,000 going on solar panels, over the actual lives and safety, so I know Vision Zero is a top town priority, but if you don't fund it, is it not just Zero Vision at that point, I mean we kind of joke about that we need to get this intersection fixed. Thank you. It's in your mailbox, I already hit send, thanks."

Mayor Gilbert said thank you and closed public comment. He commented that this was the second budget hearing, the first one was held on Tuesday, January 23rd and the next budget Work Session is to be held Thursday, May 23rd. He said final budget adoption is anticipated to be on Tuesday, June 11th.

[UPDATES BY TOWN MANAGER]

Town Manager Vosburg said that Go Apex Onboard survey that started this past Saturday and will go through this upcoming Saturday to inform the Transit Prioritization Study. He said a Public Open House will be held in Town Hall on May 20th 4:30 p.m. – 6:30 p.m. related to Jessie Drive and the final design plans. He said that due to maintenance, the bridge between Ambergate Station and Grand Central Station will be closed from Monday, May 20th to Friday, May 24th. He also gave an update on Senate Bill 166 and how that Bill will impact the Town of Apex. He said one of the items is related to residential sprinklers, and were planning to bringing it to Council in June. He said their lobbyist indicated there was a high likelihood that provision would pass, but that he was happy to pause or continue efforts based on Council's direction.

Mayor Gilbert asked if the Council would want to see what the General Assembly does with Bill 166, he said that if it passed the General Assembly that it wouldn't come to Council.

Councilmember Gantt said he would agree on a pause. He said he didn't want staff to spin their wheels on something that wouldn't be allowed.

Councilmember Mahaffey supported pausing as well.

Councilmember Zegerman supported pausing the bill until there is clarity of where Bill 166 is going. He said he was frustrated that the state would be reducing what the town can do with building safety.

Councilmember Gantt asked Town Manager Vosburg if the item was paused, was there a presentation ready so that it would not delay the Work Session.

Town Manager Vosburg said he did not think it was ready for presentation.

Councilmember Gantt asked if they could provide Council the information without a presentation.

Town Manager Vosburg said that they can give them what they have.

Mayor Pro Tempore Ed Gray asked for it to be given in paper form, and any questions could be brought up in Work Session. He said it would be prudent to refocus efforts towards something else.

[CLOSED SESSION]

A **motion** was made by **Mayor Pro Tempore Gray,** seconded by **Councilmember Mahaffey,** to enter into Closed Session Pursuant to NCGS § 143-318.11(a)(3) and NCGS § 143-318.11(a)(6).

VOTE: UNANIMOUS (5-0)

Council entered into Closed Session at **8:16 p.m.**

Council will enter into closed session pursuant to:

CS1 Laurie Hohe, Town Attorney

RE: Williams v. Town of Apex.

NCGS § 143-318.11(a)(3)

"To consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body."

CS2 Randy Vosburg, Town Manager

NCGS § 143-318.11(a)(6)

"To consider the qualifications, competence, performance, character, fitness, conditions of appointment, or conditions of initial employment of an individual public officer or employee

or prospective public officer or employee; or to hear or investigate a complaint, charge, or grievance by or against an individual public officer or employee."

CS3 Laurie Hohe, Town Attorney

NCGS § 143-318.11(a)(6)

"To consider the qualifications, competence, performance, character, fitness, conditions of appointment, or conditions of initial employment of an individual public officer or employee or prospective public officer or employee; or to hear or investigate a complaint, charge, or grievance by or against an individual public officer or employee."

Council returned to open session at **10:12 p.m.**

[ADJOURNMENT]

Mayor Gilbert adjourned the meeting at **10:12 p.m.**

Jacques K. Gilbert
Mayor

Allen Coleman, CMC, NCCCC
Town Clerk to the Apex Town Council

Submitted for approval by Town Clerk Allen Coleman and approved on _____.

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Mary Beth Manville, Director

Department(s): Human Resources

Requested Motion

Motion to approve a 0.625 (25 hr.) Full-time Equivalent (FTE) position authorization for a Mail Courier, salary grade MR04, in the Finance Department.

.Approval Recommended?

Yes

Item Details

Requesting a change for the Mail Courier position to allow the position to work 25 hours per week instead of less than 20 hours per week. The additional hours would be used to assist in delivery of roll-out carts and in regular delivery of our mail/parcels as our departments/facilities have spread out. There will be an increase in the budget of $5k-$10k depending on the number of additional weekly hours, however, staff anticipates being able to absorb this in the upcoming budget through lapse salary.

Attachments

N/A

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for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11,2024

Item Details

Presenter(s): Antwan Morrison, Director

Department(s): Finance

Requested Motion

Motion to adopt a resolution authorizing Chatham County Tax Administrator to collect taxes on behalf of the Town of Apex.

Approval Recommended?

Yes

Item Details

For purposes of authorizing property tax collections in Fiscal Year 2024-25, Chatham County requires the attached resolution be adopted by the Apex Town Council which directs the Chatham County Tax Assessor to levy and collect property taxes for the Town of Apex.

This is an annual request from Chatham County and must be approved prior to July 1st.

Chatham County is responsible for listing, appraising and assessing all real estate and personal property taxes within Chatham County and their service districts. They collect all current and delinquent property taxes.

Attachments

- CN12-A1: Resolution To Collect Taxes on Behalf of the Town of Apex – County of Chatham For Fiscal Year 2024-2025

TOWN OF APEX TOWN COUNCIL

RESOLUTION TO COLLECT TAXES ON BEHALF OF THE TOWN OF APEX COUNTY OF CHATHAM FOR FISCAL YEAR 2024-2025

BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF APEX, that the Tax Administrator of the County of Chatham is hereby authorized, empowered, and commanded to collect the taxes set forth in the tax records filed in the Tax Office of the Chatham County Tax Administrator in the amounts and from the taxpayers likewise therein set forth. Such taxes are hereby declared to be a first lien upon all real property of the respective taxpayers in the Town of Apex, and this order shall be a full and sufficient authority to direct, require, and enable the Tax Administrator of the County of Chatham to levy on and sell any real or personal property of such taxpayers, for and on account thereof, in accordance with law.

ADOPTED, this the _____ day of _____, 2024.

_____
Jacques K. Gilbert
Mayor

Attest:

_____
Allen Coleman, CMC, NCCCC
Town Clerk

TOWN OF APEX TOWN COUNCIL

RESOLUTION TO COLLECT TAXES ON BEHALF OF THE TOWN OF APEX COUNTY OF WAKE FOR FISCAL YEAR 2024-2025

BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF APEX, that the Revenue Director of the County of Wake is hereby authorized, empowered, and commanded to collect the taxes set forth in the tax records filed in the Office of the Wake County Revenue Director in the amounts and from the taxpayers likewise therein set forth. Such taxes are hereby declared to be a first lien upon all real property of the respective taxpayers in the Town of Apex, and this order shall be a full and sufficient authority to direct, require, and enable the Revenue Director of the County of Wake to levy on and sell any real or personal property of such taxpayers, for and on account thereof, in accordance with law.

ADOPTED, this the _____ day of _____, 2024.

_____
Jacques K. Gilbert
Mayor

Attest:

_____
Allen Coleman, CMC, NCCCC
Town Clerk

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Antwan Morrison, Director

Department(s): Finance

Requested Motion

Motion to adopt a resolution authorizing Wake County Tax Administrator to collect taxes on behalf of the Town of Apex.

Approval Recommended?

Yes

Item Details

For purposes of authorizing property tax collections in Fiscal Year 2024-25, Wake County requires the attached resolution to be adopted by the Apex Town Council which directs the Revenue Director / County Tax Assessor to levy and collect property taxes for the Town of Apex.

This is an annual request from Wake County and must be approved prior to July 1st.

Wake County is responsible for listing, appraising and assessing all real estate and personal property taxes within Wake County and their service districts. They collect all current and delinquent property taxes.

Attachments

- CN13-A1: Resolution To Collect Taxes on Behalf of the Town of Apex – County of Wake For Fiscal Year 2024-2025

STATEMENT OF TOWN COUNCIL AND ORDINANCE AMENDING THE OFFICIAL ZONING DISTRICT MAP OF THE TOWN OF APEX TO CHANGE THE ZONING OF APPROXIMATELY 2.0 ACRES LOCATED AT 2155, 2157, & 0 BLAZING TRAIL DRIVE AND 7996, 7994, 7990, 7988, 7984, & 7982 HUMIE OLIVE ROAD FROM MEDIUM DENSITY RESIDENTIAL-CONDITIONAL ZONING (MD-CZ #22CZ18) TO MEDIUM DENSITY RESIDENTIAL-CONDITIONAL ZONING (MD-CZ)

#24CZ06

WHEREAS, Construction Masters, LLC, owners/applicant (the "Applicant"), submitted a completed application for a conditional zoning on the 1st day of April 2024 (the "Application"). The proposed conditional zoning is designated #24CZ06;

WHEREAS, the Planning Director for the Town of Apex, Dianne Khin, caused proper notice to be given (by publication and posting) of a public hearing on #24CZ06 before the Planning Board on the 13th day of May 2024;

WHEREAS, the Apex Planning Board held a public hearing on the 13th day of May 2024, gathered facts, received public comments and formulated a recommendation regarding the application for conditional zoning #24CZ06. A motion was made by the Apex Planning Board to recommend approval; the motion passed unanimously for the application for #24CZ06;

WHEREAS, pursuant to N.C.G.S. §160D-601 and Sec. 2.2.11.E of the Unified Development Ordinance, the Planning Director caused proper notice to be given (by publication and posting), of a public hearing on #24CZ06 before the Apex Town Council on the 28th day of May 2024;

WHEREAS, the Apex Town Council held a public hearing on the 28th day of May 2024. Amanda Bunce, Current Planning Manager, presented the Planning Board's recommendation at the public hearing;

WHEREAS, all persons who desired to present information relevant to the application for #24CZ06 were allowed to present evidence at the public hearing before the Apex Town Council. No one who wanted to speak was turned away;

WHEREAS, the Apex Town Council finds that the approval of the rezoning is consistent with the 2045 Land Use Plan and other adopted plans in that: The 2045 Land Use Map designates this area as Medium Density Residential. This designation on the 2045 Land Use Map includes the zoning district Medium Density Residential-Conditional Zoning (MD-CZ) and the Apex Town Council has further considered that the proposed rezoning to Medium Density Residential-Conditional Zoning (MD-CZ) will maintain the character and appearance of the area and provide the flexibility to accommodate the growth in population, economy, and infrastructure consistent with that contemplated by the 2045 Land Use Map;

WHEREAS, the Apex Town Council finds that the approval of the rezoning is reasonable and in the public interest in that: The proposed rezoning is reasonable and in the public interest because it will provide the ability for the Humie Olive Place Subdivision to achieve the permitted density that was approved with the previous rezoning case and with the needed flexibility of utilizing the public alley to meet the lot frontage and primary access requirements; and

WHEREAS, the Apex Town Council by a vote of 4 to 0 approved Application #24CZ06 rezoning the subject tract located at 2155, 2157, & 0 Blazing Trail Drive and 7996, 7994, 7990, 7988, 7984, & 7982 Humie Olive Road from Medium Density Residential-Conditional Zoning (MD-CZ #22CZ18) to Medium Density Residential-Conditional Zoning (MD-CZ).

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF APEX

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 Town of Apex Unified Development Ordinance, including the Town of Apex 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 Medium Density Residential-Conditional Zoning (MD-CZ #22CZ18) to Medium Density Residential-Conditional Zoning (MD-CZ) District, subject to the conditions stated herein.

Section 3: The Planning Director is hereby authorized and directed to cause the said Official Zoning District Map for the Town of Apex, North Carolina, to be physically revised and amended to reflect the zoning changes ordained by this Ordinance.

Section 4: The "Rezoned Lands" are subject to all of the following conditions which are imposed as part of this rezoning:

The Rezoned Lands may be used for, and only for, the uses listed immediately below. The permitted uses are subject to the limitations and regulations stated in the UDO and any additional limitations or regulations stated below. For convenience, some relevant sections of the UDO may be referenced; such references do not imply that other sections of the UDO do not apply. An "S" indicates that a use category or specific use type is allowed only if reviewed and approved in accordance with the procedures and standards of Sec. 2.3.5 *Special Use*.

1. Single-family
2. Duplex
3. Accessory apartment
4. Day care facility (S)
5. Utility, minor

Zoning Conditions:

1. Vinyl siding is not permitted, however vinyl windows, decorative elements and trim are permitted.
2. All single-family and duplex homes shall have a crawl space or have a raised foundation which at a minimum rises at least 20 inches from average grade across the front of the house to the finished floor level at the front door.
3. Garage doors must have windows, decorative details or carriage-style adornments on them.
4. The garage cannot protrude more than 1 foot out from the front façade or front porch.
5. The density for the parcel shall be limited to no more than 6 units per acre. The maximum number of units shall be 12.
6. The garages for duplex units shall be on opposite sides of the structure.
7. The width of the garage doors shall be no more than 60% of the total width of the house and garage together.
8. The rear and side elevations of the units that can be seen from the right-of-way shall have trim around the windows.
9. Eaves shall project at least 12 inches from the wall of the structure.
10. The visible side of a home on a corner lot facing the public street shall contain at least 3 decorative elements such as, but not limited to, the following elements:
    - Windows
    - Decorative shake
    - Bay window
    - Decorative air vents on gable
    - Recessed window
    - Decorative gable
    - Decorative window
    - Decorative cornice
    - Trim around the windows
    - Column
    - Wrap around porch or side porch
    - Portico
    - Two or more building materials
    - Balcony
    - Decorative brick/stone
    - Dormer
    - Decorative trim
11. The roofline for duplexes must be broken up vertically between each unit.

12. All rear elevations for duplexes shall include the following:
    - A change in roofline plus an additional projection on the rear façade such as, but not limited to, a bay window, cantilever, fireplace, or enclosed porch.
    - Windows on at least 30% of the rear façade (not including the roof). The building plans shall include the calculation of the rear wall area and the percent of that area that is windows.
13. All duplex units shall be two stories.
14. One (1) new duplex building shall provide active PV solar for a total of two (2) systems.
15. The project shall install at least one (1) pet waste station in a location that is publicly accessible, such as a side path, sidewalk or SCM .
16. All RCA landscape plantings shall be native species. Landscaping shall be coordinated and approved by the Planning Department at site or subdivision review.
17. The Developer shall extend the 5' wide sidewalk along the site frontage north along Blazing Trail Drive to complete the connection to the existing 5' wide sidewalk at The Parkside at Bella Casa - Phase 13A common area to the north. This sidewalk connection is subject to approval and recording of a public access easement on HOA common Area by The Townes at Bella Casa Association, Inc.
18. Lot frontage and primary access shall be allowed on a public alley for one (1) lot provided that a public sidewalk is built within a public access easement from the lot to a public street.

Section 5: 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. Site plans for any development to be made pursuant to this amendment to the Official Zoning District Map shall be submitted for site plan approval as provided for in the Unified Development Ordinance.

Section 6: This Ordinance shall be in full force and effect from and after its adoption.
Motion by Council Member_____

Seconded by Council Member_____

With ____ Council Member(s) voting "aye."

With ____ Council Member(s) voting "no."

This the _____ day of _____ 2024.

TOWN OF APEX

_____
Jacques K. Gilbert
Mayor

ATTEST:

_____
Allen Coleman, CMC, NCCCC
Town Clerk

APPROVED AS TO FORM:

_____
Town Attorney

Attachment A

Legal Description

Beginning at an existing iron pipe at the eastern right-of-way intersection of Blazing Trail and N.C.S.R. 1142 on the southwest corner of Ray Powell property and runs thence North 11° 37' 04" East 330.61 feet along Blazing Trail to an existing iron pipe; runs thence South 84° 43' 42" East 227.93 feet to an existing iron pipe; runs then South 06° 00' 00" West 383.23 feet to an existing iron pipe on the right-of-way of N.C.S.R. 1142; runs thence North 72° 21' 54" West 174.58 feet along the right-of-way to an existing iron pipe; runs thence North 73° 46' 33" West 90.73 feet back to the point of beginning, containing 2.00 acres.

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Joshua Killian, Planner I

Department(s): Planning

Requested Motion

Motion to approve the Statement of the Town Council and Ordinance for Rezoning Application No. 24CZ06, Construction Masters LLC, applicant, for the properties located at 2155, 2157 & 0 Blazing Trail Drive and 7996, 7994, 7990, 7988, 7984, & 7982 Humie Olive Road (PINs 0721516598, 0721517488, 0721516357, 0721517335, 0721518305).

Approval Recommended?

The Planning Department recommends approval.

Item Details

Rezoning Application No. 24CZ06 was approved at the May 28, 2024 Town Council meeting.

Attachments

- CN14-A1: Statement of the Town Council and Ordinance to Amend the Official Zoning District Map
- CN14-A2: Attachment A: Legal Description

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerk's Office

Requested Motion

Motion to approve Apex Tax Reports dated April 13, 2024; and

Motion to approve Apex Tax Reports dated May 5, 2024.

Approval Recommended?

Yes

Item Details

The Wake County Board of Commissioners, in regular session on May 6, 2024, approved and accepted the enclosed tax report for the Town of Apex, dated April 13, 2024 for the period of March 1, 2024 through March 31, 2024.

And,

The Wake County Board of Commissioners, in regular session on June 3, 2024, approved and accepted the enclosed tax report for the Town of Apex, dated May 5, 2024 for the period of April 1, 2024 through April 30, 2024.

Attachments

- CN15-A1: Tax Report for March 2024
- CN15-A2: Tax Report for April 2024

WAKE COUNTY NORTH CAROLINA

Board of Commissioners
P.O. Box 550 • Raleigh, NC 27602

TEL 919 856 6180
FAX 919 856 5699

May 7, 2024

Mr. Allen Coleman
Town Clerk
Town of Apex
Post Office Box 250
Apex, North Carolina 27502

Dear Mr. Coleman:

The Wake County Board of Commissioners, in regular session on May 6, 2024, approved and accepted the enclosed tax report for the Town of Apex.

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

Enclosure(s)

WAKE COUNTY
NORTH CAROLINA

Wake County Tax Administration
Rebate Details
03/01/2024 - 03/31/2024
APEX

DATE	TIME	PAGE
04/13/2024	8:54:25 PM	1

REBATE NUMBER	PROPERTY	CITY TAG	LATE LIST	BILLED INTEREST	TOTAL REBATED	PROCESS DATE	ACCOUNT NUMBER	TAX YEAR	YEAR FOR	BILLING TYPE	OWNER
BUSINESS ACCOUNTS											
875109	0.00	0.00	1.31	0.00	1.31	03/22/2024	0006123829	2023	2023	006000	PAWNEE LEASING CORP
872608	984.66	0.00	98.47	0.00	1,083.13	03/04/2024	0006989308	2023	2023	000000	CHILDTIME CHILDCARE INC
SUBTOTALS FOR BUSINESS ACCOUNTS	**984.66**	**0.00**	**99.78**	**0.00**	**1,084.44**	**2**	**Properties Rebated**				
INDIVIDUAL PROPERTY ACCOUNTS											
873684	39.68	30.00	0.00	0.00	69.68	03/07/2024	0007002675	2023	2022	000000	WHITWORTH, ROBERT CHARLES III
873962	66.24	30.00	0.00	0.00	96.24	03/11/2024	0007019538	2024	2023	000000	AZIZ, MOHAMED
874429	40.81	30.00	0.00	0.00	70.81	03/14/2024	0006982368	2023	2022	000000	BAYNES, SATYRA BRITTANY
874700	63.08	30.00	0.00	0.00	93.08	03/19/2024	0007022603	2024	2023	000000	LETTENEY, JOHN WILLIAM
874702	92.27	30.00	0.00	0.00	122.27	03/19/2024	0007022669	2024	2023	000000	LETTENEY, JOHN WILLIAM
875659	163.72	0.00	0.00	0.00	163.72	03/27/2024	0007005298	2023	2022	000000	QIU, JINYI
875660	26.22	0.00	2.62	0.00	28.84	03/27/2024	0006924504	2022	2022	000000	TRIANGLE DEBRIS SOLUTIONS LLC
875661	24.62	0.00	2.46	0.00	27.08	03/27/2024	0006924504	2023	2023	000000	TRIANGLE DEBRIS SOLUTIONS LLC
SUBTOTALS FOR INDIVIDUAL PROPERTY ACCOUNTS	**516.64**	**150.00**	**5.08**	**0.00**	**671.72**	**8**	**Properties Rebated**				
INDIVIDUAL REAL ESTATE ACCOUNTS											

WAKE COUNTY
NORTH CAROLINA

Wake County Tax Administration
Rebate Details
03/01/2024 - 03/31/2024
APEX

DATE	TIME	PAGE
04/13/2024	8:54:41 PM	2

REBATE NUMBER	PROPERTY	CITY TAG	LATE LIST	BILLED INTEREST	TOTAL REBATED	PROCESS DATE	ACCOUNT NUMBER	TAX YEAR	YEAR FOR	BILLING TYPE	OWNER
INDIVIDUAL REAL ESTATE ACCOUNTS											
874973	447.05	0.00	0.00	0.00	447.05	03/20/2024	0000024914	2023	2023	000000	RAGAN, ELOISE H
SUBTOTALS FOR INDIVIDUAL REAL ESTATE ACCOUNTS	**447.05**	**0.00**	**0.00**	**0.00**	**447.05**	**1**	**Properties Rebated**				
WILDLIFE BOAT ACCOUNTS											
875798	44.57	0.00	4.46	0.00	49.03	03/28/2024	0004197565	2019	2019	000000	ROSSI, DAVID PAUL
875520	62.62	0.00	6.26	0.00	68.88	03/26/2024	0004214949	2023	2023	000000	BICKELHAUPT, CHRISTOPHER
SUBTOTALS FOR WILDLIFE BOAT ACCOUNTS	**107.19**	**0.00**	**10.72**	**0.00**	**117.91**	**2**	**Properties Rebated**				
TOTAL REBATED FOR APEX	**2,055.54**	**150.00**	**115.58**	**0.00**	**2,321.12**	**13**	**Properties Rebated for City**				

WAKE COUNTY
NORTH CAROLINA

Board of Commissioners
P.O. Box 550 • Raleigh, NC 27602

TEL 919 856 6180
FAX 919 856 5699

June 4, 2024

Mr. Allen Coleman
Town Clerk
Town of Apex
Post Office Box 250
Apex, North Carolina 27502

Dear Mr. Coleman:

The Wake County Board of Commissioners, in regular session on June 3, 2024, approved and accepted the enclosed tax report for the Town of Apex.

The attached adopted actions are submitted for your review; no local board action is required.

Sincerely,

Yvonne Gilyard

Yvonne Gilyard
Clerk to the Board
Wake County Board of Commissioners

Enclosure(s)

WAKE COUNTY
NORTH CAROLINA

Wake County Tax Administration
Rebate Details
04/01/2024 - 04/30/2024
APEX

DATE	TIME	PAGE
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REBATE NUMBER	PROPERTY	CITY TAG	LATE LIST	BILLED INTEREST	TOTAL REBATED	PROCESS DATE	ACCOUNT NUMBER	TAX YEAR	YEAR FOR	BILLING TYPE	OWNER
INDIVIDUAL PROPERTY ACCOUNTS											
877677	15.53	30.00	0.00	0.00	45.53	04/18/2024	0007024414	2024	2023	000000	CARDAMONE, ANGELO ALDO
876352	365.03	30.00	0.00	0.00	395.03	04/05/2024	0007018117	2024	2023	000000	JAMAKHANDI, BASAVARAJ GANGAPPA
SUBTOTALS FOR INDIVIDUAL PROPERTY ACCOUNTS	**380.56**	**60.00**	**0.00**	**0.00**	**440.56**	**2**	**Properties Rebated**				
WILDLIFE BOAT ACCOUNTS											
875804	103.33	0.00	10.33	0.00	113.66	04/01/2024	0004209365	2023	2023	000000	JACOBSEN, WILLIAM SCOTT
876071	111.10	0.00	11.11	0.00	122.21	04/02/2024	0004202852	2023	2023	000000	GORNIAK, PAUL R
SUBTOTALS FOR WILDLIFE BOAT ACCOUNTS	**214.43**	**0.00**	**21.44**	**0.00**	**235.87**	**2**	**Properties Rebated**				
TOTAL REBATED FOR APEX	**594.99**	**60.00**	**21.44**	**0.00**	**676.43**	**4**	**Properties Rebated for City**				

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CONSENT AGENDA

Meeting Date: June 11, 2024

Item Details

Presenter(s): Jonathan Jacobs, Assistant Director

Department(s): Water Resources

Requested Motion

Motion to approve revisions to the Town Standard Specifications and Standard Details.

Approval Recommended?

Yes

Item Details

Proposed revisions to the Town Standard Specifications and Standard Details have been drafted to include revisions to **Standard Specifications** in the following sections: Section 100-Preliminary Considerations & Instructions, 200-General Provisions, Section 400-Soil Erosion & Sedimentation Control, Section 450-Utility Trenches, 500-Storm Drainage, Section 600-Water Distribution System, Section 620-Cross Connection Control, 700-Wastewater Collection Systems, Section 800-Wastewater Pumping Stations & Force Mains; and **Standard Details** in the following sections: 400-Soil Erosion & Sedimentation Control, 500-Storm Drainage, Section 600-Water Distribution System, and Section 620-Cross Connection Control.

Following approval of these revisions, the files will be updated on the Town website.

Attachments

- CN16-A1: Summary of Revisions - Town Standard Specifications and Standard Details - Revisions
- CN16-A2: Standard Specifications - Town Standard Specifications and Standard Details - Revisions
- CN16-A3: Standard Details - Town Standard Specifications and Standard Details - Revisions

Town of Apex
Standard Specifications & Standard Details
Summary of Revisions
June 11, 2024

❖ Standard Specifications

➢ OVERALL UPDATES

- Department names and staff titles have been updated to accurately reflect the current organizational structure (e.g. Public Works and Transportation to Transportation and Infrastructure Development)

- Rearranging of specifications to more appropriate sections or subsections, noted below for better organization and ease of reading. Most comprehensively, all easement requirements have been consolidated to Section 200. Sections noted as removed in their entirety may have been moved/added in another section.

- Revise *"Water Resources Director"* to *"Water Resources Department"*

- Revise all variations of "*Water Pipe", "Water Main", and "Water Line"* to "*Water Main"*

- Revise *"Storm Sewer"* to *"Storm Drain"*

- Remove all Approved Products scattered within Section 600, 620, 700, and 800. A separate Approved Products list has been created.

- Revise *"Fire Code"* to *"NC Fire Code"*

➢ SECTION 100 – PRELIMINARY CONSIDERATIONS & INSTRUCTIONS

<u>102 Submittal Requirements</u>
A. Initial Submittal
5) Soil Erosion and Sedimentation Control Plan
REMOVE: *"and 1 electronic copy of the "Financial Responsibility / Ownership Form"*

REMOVE ENTIRELY B. Second Submittal, 7) Soil Erosion and Sedimentation Control Plan

REVISE: the end of third paragraph to read: *"After construction drawings have been signed by the Town, and a preconstruction meeting has been scheduled, submit 1 electronic copy of the "Financial Responsibility / Ownership Form". After the Town issues the "Letter of Plan Approval", a NPDES Storm Water Notice of Intent for all sites greater than 1 acre is also required."*

➢ SECTION 200 – GENERAL PROVISIONS

Table of Contents
Rename Section 215 from *"Utility Easements – Special Provisions"* to *"Public Utility Easements"*
Add a subsection A and B to Section 215: "*A. General, B. Encroachments"*

201 General
ADD: *Any deviations, or sections noting "as required by" a department, or department director shall require submittal of an Exception Review Request for consideration by appropriate staff."*

202 Abbreviations & Definitions
A. Abbreviations
ADD: *"NCDEQ – North Carolina Department of Environmental Quality"*

B. Definitions,
REVISE: *"Director of Public Works and Transportation"* to *"Transportation and Infrastructure Director"* and *"Director of Water Resources"* to *Water Resources Director."*

REVISE the second paragraph to remove "*Water Resources Department"* to *Transportation and Infrastructure Development Department."*

REVISE the third paragraph to read: *"Where the word "TOWN" or "Apex" is used in these Specifications…*

215 Public Utility Easements
A. General
ADD: *"All utility easements shall be clearly identified as PUBLIC or PRIVATE and labeled as per the requirements in Section 600, 700, or 800, as applicable."*

ADD: *"Only one utility shall be installed per easement, unless as approved by exception request to the Water Resources Department."*

ADD: *"Easement shall be acquired by the Developer (unless utility is designed as part of a Capital Improvement Project) prior to construction plan approval."*

ADD: *"Fill or cut slopes greater than 6:1 shall not extend into utility easements. Easements shall be graded to provide positive drainage in all directions, with a minimum grade of 0.5%. Easements shall be fully accessible by rubber-tired vehicles in their entirety and graded smooth, free from rocks, boulders, roots, stumps, and other debris to provide a maximum 6:1 grade parallel to the utility centerline and a maximum of 4% cross-slope and seeded and mulched upon completion of construction. Utility easements shall be accessible from a public right-of-way. If the easement is not accessible perpendicular from the right-of-way due to steep slope, environmental feature, or other obstacle, additional easement may be necessary, as deemed by the Water Resources Department."*

ADD: *"All pre-existing or planned conditions as noted herein which may impact operations and maintenance within the utility easement shall be noted and disclosed during the site plan and construction drawing approval process. Pre-existing conditions not disclosed during the site plan and construction drawing approval process may nullify the approval and require relocating the utility easement, and underlying infrastructure, where no conflicts exist."*

ADD: *"Where concentrated sources of runoff (e.g. SCM discharge, FES discharge outlets, natural drainage ways, etc.) convey across an existing or proposed utility easement, the applicant must design a rip rap lined channel across the full width of the easement, graded at a 4:1 slope, or a closed drainage*

system to move all runoff across the easement. In locations where the crossing of a natural drainage way is not-feasible, or not approved by the applicable regulatory agency, a turn-around shall be provided prior to the termination."

ADD: *"All retaining walls shall have a separation from the utility easement boundary of at least 1:1 horizontal to vertical. For example, if the retaining wall is 10 feet tall, it shall be placed no closer than 10 feet from the adjacent easement boundary. In no instance shall any footer or component of a retaining wall be within 5 feet of an easement boundary."*

B. Encroachments

ADD: *No part of any structure, including substructures and overhangs, equipment, private utility line (including water, irrigation, and/or sewer lines), retaining walls, embankments, impoundments, privately maintained greenways and paths, landscaping, or other elements, both temporary or permanent, which may inhibit maintenance operations shall be constructed within a utility easement and no grading may occur within any Apex utility easement prior to obtaining final construction plan approval, a building permit, or an encroachment agreement or prior approval from the Water Resources and/or Electric Utilities.*

ADD: *Any application for an encroachment agreement must include plans to facilitate access and maintenance of the utility and must include supporting documentation to confirm no damage will occur to the utility.*

ADD: *Proposed utility easement encroachments reviewed through construction plan review will not require a separate encroachment agreement application, but will require an approved exception request from the Water Resources Director.*

ADD: *Fences may be allowed to cross utility easements provided appropriate access gates have been installed to allow maintenance. Fences shall not be installed parallel to the utility within the utility easement. Town of Apex staff shall have 24-hour access to secured access gates.*

ADD: *Any improvements encroaching within an Apex utility easement are subject to disturbance, damage, or removal during Apex's use of the easement. The Town of Apex will not repair or replace any improvements within a utility easement. Apex will not be held liable for damage to any improvement encroaching during the maintenance of the Apex facility or structure.*

➢ SECTION 400 – SOIL EROSION & SEDIMENTATION CONTROL

401 General Requirements

REVISE the second paragraph to read: *"For areas of single-family development within a project, all logging…"*

405 Inlet Protection

REVISE *"Environmental Engineering Manager"* to *"Stormwater Engineering Manager"*

ADD: "*For stub streets and street phasing lines draining away from the site, and other areas as directed by the TOWN, rolled asphalt diversions, or other TOWN approved alternative, shall be installed to direct runoff into inlets until the final lift of asphalt is installed. Cold patch asphalt shall not be used."*

ADD: "*Unless inlets are located at the street stub, erosion control measures shall be installed at the edge of stub streets draining away from the site to prevent erosion."*

➢ SECTION 450 – UTILITY TRENCHES

451 Excavation and Preparation

A. Preparation, 1. General Requirements

REVISE c) to *"In all cases where trenchless methods are planned to cross an existing utility corridor with water, sewer, force main, and/or other Town maintained pipelines, an SUE (subsurface utility exploration) services firm shall be contracted to verify the depths of existing utilities prior to submittal of Construction Drawings for review."*

452 Pipe Laying and Backfilling

A. General Requirements 6. Pipe Identification and Marking

a) Marking Tape

1) **ADD:** *"Marking tape shall be installed directly above the center of the pipe at a depth of 24-inches to 36-inches below final grade."*

REVISE 2) to *"2)Specifications: The marking tape shall be made of an approved material in Apex's Approved Products List, 6-inches wide and a minimum of 6 millimeters thick. The tape color shall be in accordance with the utility being installed:"*

REMOVE ENTIRELY b) Tracer Wire

ADD: *"b) Marker Balls*

1)Installation: Non-programmable marker balls are required at the ends of all casing pipe, fittings and reducers. Marker balls shall be used in addition to marking tape within thoroughfares and within 100-feet of a signalized intersection. Through signalized intersections, marker balls shall be spaced at 25-foot intervals. They shall also be installed along and directly above all water mains in conditions where marking tape cannot be installed due to restrictions or conflicts. In these conditions, non-programmable marker balls shall be placed at all vertical and horizontal deflection points, at all tees and crosses and at a spacing along the main no greater than 100 feet apart. Each marker ball shall be installed directly above the center of the pipe and at a depth of 24-inches to 36-inches below final grade. At any sections where tape cannot be accurately placed at time of backfilling, sufficient survey data shall be collected to reestablish location for tape installation. A table of marker ball locations, with description, must be submitted as part of the record drawing.

2) Specifications: The Marker Ball is a non-programmable ball and shall be an approved product identified in the Approved Products List. The marker ball shall be blue in color for potable water and conform to APWA standards. It shall have a minimum detectable depth of 5 feet."

REVISE c) to *"Marker Tape and Marker Ball Testing"*

REVISE 1) to *"Testing of the marker tape and marker balls shall be performed by the Contractor at the completion of the project to assure they are all working properly. It is the Contractor's responsibility to provide the necessary equipment to perform all testing. Any defective, missing, or otherwise non-locatable units shall be replaced."*

453 Pavement Repairs

A. Open Trench Pavement Repair, 1. General Requirements

REVISE a) to: *"All pavement cuts shall be repaired within a maximum of three (3) calendar days from the date the cut is made. If conditions do not permit a permanent repair within the given time limit, permission to make a temporary repair must be obtained from the Transportation and Infrastructure Development Department."*

ADD: *"c) No pavement repair joints shall be installed within the wheel path of the travel lane."*

REVISE e) to *"All pavement patches shall be provided in such a manner that a uniform and smooth driving surface free of depressions and/or bumps is obtained. Pavement patches not meeting this standard shall be milled and replaced, as directed by the Transportation and Infrastructure Development Department."*

454 Trenchless Pipe Installation

A. Design

1. General Requirements

REVISE a) to: *"All utility crossings within the Town of Apex, or State maintained streets, shall be made by trenchless methods. In cases where utility conflicts, rock, or other obstructions prevent trenchless crossings, other methods may be considered at the discretion of the Water Resources Department."*

REVISE c) to: *"In addition to meeting or exceeding all Town requirements, all trenchless crossings shall be approved by and meet the requirements of all controlling legal authorities, such as NCDOT, Norfolk Southern Railway, CSX Corporation, Colonial Pipeline, Cardinal Pipeline, and Dixie Pipeline. At a minimum, encasement pipe shall be installed at least 10 feet on either side of the easement crossing and appurtenant equipment and accessories located outside of the easement boundaries."*

➢ SECTION 500 – STORM DRAINAGE

501 Design

A. General

REVISE 6) to: *"A Hydraulic Grade Line (HGL) study shall be performed for all public storm drainage systems. Where the public storm drainage system conveys stormwater into a private SCM, the Q_{10} staging elevation shall be used as the starting point for the study. The study or plans shall include storm pipe profiles that show inverts, slopes, proposed finished grade and HGL. The HGL shall be required to stay within the pipe to ensure no surcharge on the system. ASTM Standard C443 (O Ring or Single Groove) water tight sealed pipe shall be used in cases where it is not practicable."*

502 Materials

REVISE nomenclature to:

" C. Polypropylene Pipe (PP)
D. Corrugated Steel Pipe - Type 2 (CSP)
E. Corrugated Aluminum Alloy Pipe (CAAP)"

506 Stormwater Control Measures (SCMs) within the Primary and Secondary Watershed Protection Overlay Districts

REVISE "All vegetated side slopes and tops of dams shall be sodded with non-clumping turf grass." to *"All vegetated side slopes (interior & exterior) and tops of dams shall be sodded with non-clumping turf grass."*

REMOVE: *"See Section 106 of this document for additional "as built" submittal requirements."*

ADD to the end of the fourth paragraph**:** *"Dam compaction geotechnical reports, and photographic evidence of the outlet pipe cradle and anti-seep device installation shall be included with the SCM as-builts. See Section 106 of this document for additional "as-built" submittal requirements."*

➢ SECTION 600 – WATER DISTRIBUTION SYSTEM

Table of Contents

ADD subsection *"A. General"* to 601 Water Distribution Pipe

601 Water Distribution Pipe

A. General

ADD: *"All water system extensions shall be designed by a Professional Engineer. The following Standard Specifications and associated Standard Detail Drawings shall apply to all water system extensions and development of the Apex municipal water system. The Standard Specifications included herein shall apply to all aspects of the Apex water system that is owned, operated and maintained by the Town of Apex. Any deviations from this specification, or sections noting approval required by the Water Resources Department, shall require submittal of an Exception Review Request for consideration."*

ADD: *"All private water mains that connect to the Town's water system shall also be designed in accordance with these specifications, including those under a private system permit by NCDEQ. Any private commercial water connection shall be metered and protected by a reduced pressure assembly listed on the most current Manual of Cross-Connection Control issued by the USC Foundation for Cross-Connection Control and Hydraulic Research. See Section 620."*

ADD: *"All utility extension permits must be obtained prior to construction. Refer to General Provisions in Section 200 for further requirements."*

ADD: *"The Water Resources Department maintains a list of approved products and manufacturers for all water distribution products. All DIP, DIP fittings, and RJDIP that are allowable for installation within the Town's system are found in the list of approved products and manufacturers. The use of alternative products or manufacturers may be considered with the submittal of an exception request and supporting documentation with the Construction Plan submittal."*

B. Design
REMOVE first two paragraphs entirely.

REVISE *"greenway paths"* to *"public greenway paths."*

REVISE the third paragraph in section 1) Location to**:** *"Dedicated easements for water mains and appurtenances shall be recorded as "Town of Apex Public Waterline Easement." Town of Apex utility and pipeline easements shall contain only Town of Apex utilities unless otherwise approved by an approved site plan or encroachment agreement. Easements that are shared by water mains and public greenway paths shall have a minimum width of 30 feet. See Section 215 for utility easement requirements."*

REMOVE: *"All private water mains that connect to the Town's water system shall also be designed in accordance with these specifications. Any private commercial water connection shall be metered and protected by a reduce pressure assembly listed on the most current Manual of Cross-Connection Control issued by the USC Foundation for Cross-Connection Control and Hydraulic Research. See Section 620."*

REVISE the fifth paragraph in section 1) Location to**:** *"All water main extensions and distribution facilities which connect to the water distribution system of the Town shall be considered as public facilities up to the metering point. Therefore, all such facilities must be installed in public street right-of-way (not alleys) or centered within a public utility easement. Extensions shall terminate at the furthermost property line fronting the property or as required by this section."*

REVISE *the seventh paragraph of 1) Location* to: *"If there is a gap in existing public water main along an existing road frontage or right-of-way of a proposed development, regardless of the location of the existing main within the right-of-way or along the road frontage, the development shall extend the water main along the road frontage to eliminate the gap in water service (property line to property line), unless otherwise approved by the Water Resources Department. Water mains shall be located and sized as required in this section."*

ADD: *"Where water mains dead end, or are terminated for future extension, at least one full length section of ductile iron pipe shall be installed with a thrust collar, main line valve, and blow-off assembly. This dead end shall terminate within a right-of-way or dedicated public utility easement, and shall extend to the property line. Connections to existing dead end mains in adjacent streets may be required, as directed by the Water Resources Department, in order to enhance flow, water quality, and/or pressure in the affected area."*

REMOVE the thirteenth paragraph "Easement Areas" entirely.

REMOVE: *"Easements shall be accessible from public rights-of-ways. If easement is not accessible perpendicular from right-of-way due to steep slope, environmental feature, or other obstacles, additional easement may be necessary."*

REMOVE: *"Only one utility can be installed per easement, unless prior approval from the Water Resources Director is obtained."*

REMOVE: *"All retaining walls shall have a separation from the easement boundary of at least a 1:1 ratio. For example, if the retaining wall is 10 feet tall, it shall be placed no closer than 10 feet from the adjacent easement boundary."*

Revise *"2. Sizing"* to *"Major transmission lines shall be sized in accordance with the "Water System Master Plan" or as directed by the Town, and shall be extended to the adjacent properties to provide an adequate pipe network.*

Water mains shall be sized as required by this section and to meet minimum fire flow conditions according to the type and classification of the proposed development, whichever is greater.

In residential zoning districts, water mains shall have a standard minimum diameter of eight (8) inches. Six (6) inch mains may be used on a case by case basis when the Town has determined that a sufficient hydraulic grid exists and the existing network supports using six (6) inch mains. The total maximum length of a run of 6-inch and 8-inch lines within that grid, without connecting to a larger main, is 1200 feet and 2000 feet, respectively. Water distribution facilities for multi-family units, apartments and condominiums shall comply with the provisions for non-residential zoning districts indicated below.

In non-residential and multi-family zoning districts, water mains shall have a standard minimum diameter of 12-inches. Eight (8) inch shall be used only when it completes a good hydraulic grid and the maximum length of a run of 8-inch lines within that grid without connection to a larger feeder main is 1,200 feet unless special approval for deviation from this requirement is granted by the Water Resources Department.

Where the existing network is lacking connectivity, lines shall be upsized to provide adequate fire flow as directed by the Department of Water Resources. All lines shall be designed to maintain a minimum of 20 psi at maximum daily demand with applicable fire flow conditions.

New transmission mains 12-inches in diameter and larger shall be designed to deliver maximum daily design flow with a head loss not to exceed 5' per 1000'. Lower head loss criteria may be established based on length of main and available system head. Distribution mains 8-inches in diameter and smaller shall meet the same criteria for maximum daily domestic demand, but head losses up to 10' per 100' are acceptable for fire flow design provided volume and residual pressure requirements are met. Design shall be based on a Hazen-William "C" value of 130 for ductile iron."

REVISE last row of restraint table to: *"Valves, Caps, and Plugs (Dead Ends)*

4. Depth of Installation
ADD Subsections for Depth of Installation: Public Utility Easements and Right-of-Way

REVISE *"When water lines are installed along a roadway they shall be installed at sufficient depth to maintain three (3) feet of cover to the subgrade of any future road improvements including potential vertical alignment changes."* to *"Right-of-Way: When water mains are installed along an existing right-of way, future right-of-way, or under the roadway they shall be installed at sufficient depth to maintain three (3) feet of cover to the subgrade, including any future road widening/improvements and potential vertical alignment changes based on the Comprehensive Transportation Plan, Capital Improvement Plan, and/or at the discretion of Water Resources Department. Water mains shall have a maximum cover of 8 feet measured from the top of the pipe to the subgrade."*

REVISE 5. Relation to Sanitary and Storm Drain to: *"Separation between Potable Water Mains and Sanitary Sewer Mains or Storm Drains.*

a) Parallel Installations: 10-feet lateral separation (pipe edge to pipe edge) or minimum 5-feet lateral separation and water main at least 18-inches above sanitary sewer/storm drain line measured vertically from top of sewer pipeline to bottom edge of water main.

Added Table for Clarity

b) Crossings (Water Main Over Sanitary Sewer or Storm Drain): All water main crossings of sanitary sewer lines shall be constructed over the sewer line in conformance with Town of Apex Specifications. At a minimum, 18-inches of clearance shall be maintained between the bottom edge of the water main and the top edge of the sanitary sewer main or storm drain. If 18-inches of clearance is not maintained the water main and sanitary sewer main shall both be constructed of ductile iron pipe with joints in conformance with water main construction standards. The sanitary sewer pipe shall be ductile iron the entire run from manhole to manhole. When the separation between pipelines is less than 18-inches, the void space between the pipes shall be filled with minimum 500-psi, quick setting, non-excavatable flowable fill extending 3-ft on both sides of the crossing. Regardless of pipe material, at least 12-inches of vertical separation is required for both sanitary and/or storm drain crossings of potable water mains.

c) Crossings (Water Main Under Sanitary or Storm Drain): Allowed only as approved by Town of Apex, when it is not possible to cross the water main above the sanitary or storm drain line. At a minimum, 18-inches of separation shall be maintained, (measured from pipe edge to pipe edge) and both the water main and sanitary sewer shall be constructed of ductile iron in conformance with water main construction standards. The sanitary sewer pipe shall be ductile iron the entire run from manhole to manhole. If local conditions prevent providing 18-inches of clearance, then at least 12-inches of clearance shall be provided and the void space between the pipes shall be filled with minimum 500-psi, quick setting, non-excavatable flowable fill extending at least 3-ft on both sides of the crossing."

ADD: *"6. A secondary connection to the distribution system is required for any development proposing 100 or more service connections, or at the discretion of the Water Resources Department."*

"7. Construction activities involving existing Water Mains:
a) The existing water main must remain active and protected during all phases of construction. The contractor must provide a plan for the structural protection of the existing water main.
b) A proposed construction sequence must be submitted for any demolition of a portion of existing water main. The plan must be reviewed and approved by the Water Resources Department.
c) Any approved disruption to water service requires advance notice and coordination. Coordination with Water Resources staff is required no later than 14-business days prior to any disruption to allow adequate time for planning and public notification."

B. Materials

REMOVE all approved materials, see note above.

ADD: clarification of all pipe materials and associated appurtenances to be DIP (No change in requirement)

602 Fire Protection
Remove sizing of mains in its entirely (relocated to design)

Revise *"Residential Districts"* to *"Residential Zoning Districts"*

Under Residential Zoning Districts, **REVISE** "For single-family residential projects, a hydrant shall be located at the end of all cul-de-sacs" to *"For single-family residential projects, a hydrant shall be located*

at the end of all cul-de-sacs, or other terminus not planned to be extended, and shall not include any bends within the radius of the cul-de-sac.
For residential developments which do not meet minimum fire flow requirements, water main extensions and improvements shall be installed to meet minimum fire flow requirements. If additional improvements are not an option due to proximity to existing utilities, at the approval of the Water Resources Department and Fire Marshal, all residential units shall have individual fire protection systems designed and installed at each residence. Residential fire systems must comply with the required backflow prevention based on the hazard as provided in Section 620."

REVISE *"Business, office, and institutional zoning"* to *"non-residential and multi-family zoning districts"*

REMOVE: *"Residential developments which do not meet minimum fire flow requirements shall have individual fire protection systems designed and installed at each residence. Residential fire systems must be current Town Backflow Prevention Protection, listed under Section 620."* (Relocated)

REVISE: *"Fire hydrant legs shall not be tapped from water service connections, they shall be tapped directly from the main line."* to *"Fire hydrant legs shall not be tapped from domestic water service connections, they shall be tapped directly from the main line, or dedicated fire line."*

ADD: "No domestic water service connection shall be made from a fire hydrant leg, or dedicated fire line."

REVISE 2. Specifications to read: "Hydrants shall conform to AWWA C502 with a minimum valve opening of 4 1/2 inches. Hydrants shall be furnished with a 5-inch Storz connection coupling on the steamer outlet. The Storz connection shall be manufactured by the hydrant manufacturer and only come as part of the hydrant assembly. No adaptors for the Storz connection are allowed.
Hydrants shall be also be furnished with: caps with chains for all connections, National Standard Threads, mechanical joint, 1 1/2-inch pentagon operating nut, open left, painted fire hydrant red, bronze to bronze seating, a minimum 4 feet bury depth with a break away ground line flange and break away rod coupling."

REVISE 3. Installation, 3rd paragraph to: *"A clear level space within the right-of way or public utility easement of at least 10 feet shall be provided and maintained on all sides of a fire hydrant for immediate access. Clearance from the ground surface to the center of the 5-inch Storz cap shall be between eighteen (18) inches and twenty-four (24) inches and shall be installed with positive drainage."*

REVISE 5. Hydrant Relocations to**: "***For installations where hydrants will be relocated, all hydrants with greater than 20-years of operational service, as indicated by the date of manufacture provided on the hydrant, shall be replaced with new fire hydrants. The existing fire hydrant shall be returned to the Town of Apex Water Resources Department.*
For installations where the hydrant to be relocated has less than 20-years of operational service, the existing hydrant may be relocated at the discretion of the Water Resources Department. The existing hydrant shall still be disinfected, flushed and pressure tested.
All fire hydrants shall be initially tagged and/or bagged "NOT IN SERVICE". This tag or bag shall not be removed until approved by the Inspector."

ADD subsection C. Fire Flow Requirements.

ADD: *"All water main extensions shall provide water pressures and fire flows at a standard acceptable value for the applicable zoning district requirements.*
1. One- and two-family dwellings:
The minimum fire-flow and flow duration of one- and two-family dwellings having a fire-flow calculation area, as defined by the NC Fire Code, not exceeding 3,600 square feet shall be 1,000 gpm at 20 psi for 1 hour.

For fire-flow calculation areas greater than 3,600 square feet, the minimum fire-flow and flow duration shall be specified by the NC Fire Code, but no less than 1,500 gpm at 20 psi.
2. Non-Residential, Multi-Family, and all other buildings:
The minimum fire-flow and flow duration for non-residential, multi family, and buildings other than one- and two-family dwellings shall be specified by the NC Fire Code, but no less than 1,500 gpm at 20 psi."

REVISE 3. Hydraulic Design, d) Backflow Protection to: *"When a fire protection system is proposed, with a Fire Department. connection or as otherwise required by the Cross Connection Ordinance a reduced pressure principle detector assembly (RPDA), two and one half inch or greater, shall be installed on the supply side of the sprinkler fire protection line inside the riser room. A two inch or less reduced pressure principle assembly may be allowed if the site is designed for that size. At no time shall any fire backflow preventer outlet be smaller than the water pipe inlet. These backflow prevention devices must be UL listed and/or listed by Factory Mutual Research Corporation. Reduced pressure principle detector assemblies shall not be arranged vertically. For indoor installations of RPDA's, follow Section 620.O. Relief Valve Piping."*

REVISE 4. Fire Department Connection to: "Where automatic fire sprinkler systems or standpipe systems are used, a fire department connection with National Standard threads shall be provided within 50-ft of a fire hydrant, except for town homes, apartment buildings, and within urban settings where greater lengths may be permitted. When a sprinkler system serves only part of a large structure, the fire department connection shall be labeled, with minimum 2-inch letters on a permanent sign, as to which section of the structure that sprinkler riser serves." to *"Fire Department Connection: Where automatic fire sprinkler systems or standpipe systems are used, a fire department connection with National Standard threads shall be provided at distances specified within the NC Fire Code. When a sprinkler system serves only part of a large structure, the fire department connection shall be labeled, with minimum 2-inch letters on a permanent sign, as to which section of the structure that sprinkler riser serves."*

<u>603 Valves and Appurtenances</u>

A. Valves
REMOVE: *"Valve requirements are not enforced unless the branch line serves more than one parcel or has more than one connected service."*

ADD: *"Valves shall not be installed within the curb and/or gutter*

REMOVE: *"ARV's must be located at high points with positive slope on the line to the ARV in both directions"*

REVISE: Combination air valve elevation from 10-feet to 25-feet on either side

ADD: *"6. Insertion Valves, 12-inches and under: Insertion valves shall only be used as permitted by the Water Resources Department. Insertion valves shall meet the requirements of AWWAC515, seat on the valve body and be rated for a working pressure of 250-psi or greater. All insertion valves shall be made of ductile iron in conformance with ASTM A-536 Grade 65-45-12 and epoxy coated at a minimum of 10-mils. Insertion valves may be required, as directed by the Water Resources Department to minimize disruption to water service required to perform a cut-in-tee.*

Insertion valves under this section are available for pipe sizes through 12-inches in diameter. Larger insertion valves shall meet requirements for Insertion Valves, 16-inches through 24-inches, below. In cases where insertion valves are being installed to shut down water to a work zone area, the insertion valve shall be located a minimum of 100-ft from the work zone or greater as determined by the Engineer of Record to

assure the insertion valve can safely operate as a dead end without dislodging from the pipeline or otherwise causing the existing pipeline to shift.

Disinfection – During installation of any insertion valve, positive pressure in the distribution system shall be maintained at all times. Once the water main is exposed and the trench is adequately dewatered, the exterior of the main and all insertion valves and equipment, including the cutter head and valve gate shall be cleaned and disinfected pursuant to AWWA C651-14 by spraying or swabbing with a minimum 1% chlorine solution.

Insertion Valves shall be Resilient Wedge Gate Valves, designed for use in potable water systems and be listed on Apex's Approved Products List. The body, bonnet and wedge shall be ductile iron meeting or exceeding AWWA C515. Insertion Valves shall be ductile iron construction meeting ASTM A536 Grade 65-45-12. The pressure rating markings must be cast into the body of the insert valve.

Chemical and modularity tests shall be performed as recommended by the Ductile Iron Society, on a per ladle basis. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.

Sizes 12" and smaller must be capable of working on Cast/Grey Iron or Ductile Iron Class A, B, C and D, IPS PVC, C900 and C909 PVC, Steel, AC pipe diameters without changing either top or bottom portion of split valve body.

After the installation of the insertion valve body on to the existing pipe a pressure test of 1.1 times that of the contents shall sustained for 15 minutes. Once the pressure test is effectively achieved the insert valve body must not be moved in accordance with AWWA Standards. If the insertion valve is moved the pressure test must be completed again. The insertion valve must not be moved or repositioned once the pressure test is achieved.

The construction of the Resilient Wedge shall comply with AWWA C509 requirements. The ductile iron wedge shall be fully encapsulated with EPDM rubber by a high pressure and high temperature compression or injection mold process. The ductile gate shall be fully coated with molded rubber with no exposed iron.

The resilient wedge shall seat on the valve body and not the pipe to obtain the optimum seating and flow control results. The resilient wedge shall be totally independent of the carrier pipe. The resilient wedge shall not meet the carrier pipe or depend on the carrier pipe to create a seal. Pressure equalization on the down or upstream side of the closed wedge shall not be necessary to open the valve. The wedge shall be symmetrical and seal equally well with flow in either direction.

The Resilient wedge must ride inside the body channels to maintain wedge alignment throughout its travel to achieve maximum fluid control regardless of high or low flow pressure or velocity. Insertion valve shall provide an unobstructed flow way.

The insertion valve shall be fully epoxy coated with minimum of 8 mils of epoxy on the interior and the exterior, including bolt holes and body-to-bonnet flange surfaces, prior to assembly, in compliance with AWWA C550 and certified to ANSI/NSF-61.

The insertion valve shall include triple O-Ring stem seals with two O-Rings located above, and one O-Ring below the thrust collar. Side flange seals shall be of the O-Ring type of either round, oval, or rectangular cross-sectional shape.

The gate valve stem and wedge nut shall be copper alloy in accordance with Section 4.4.5.1 of the AWWA C515 Standard. The stem shall be NRS with AWWA standard turns and must have an integral thrust collar in accordance with Section 4.4.5.3 of AWWA C515 Standard. Two-piece stem collars are not acceptable. Operated by 2" square wrench nut according to ASTM A126 CL.B and open left.

The wedge nut shall be independent of the wedge and held in place on three sides by the wedge to prevent possible misalignment. Two thrust washers are required. One shall be located above, and one located below the stem thrust collar.

All parts and components to be exclusively and completely assembled, manufactured, machined, and coated in the United States. All physical and chemical test results shall be recorded such that they can be accessed via the identification number on the casting. These Material Traceability Records (MTR's) are to be made available to the purchaser that requests such documentation. All components shall be

manufactured and assembled in the United States. The purchaser shall, with reasonable notice, have the right to plant visitation at his/her expense.

Bolting materials shall meet the requirements of ASTM A307 with dimensions conforming to ANSI B18.2.1.

The stuffing box, operating stem, and resilient wedge (complete bonnet and all moving parts) shall be removable, repairable and or replaceable under pressure without additional pipe penetration taps or foreign methods. While the valve is fully pressurized in the system all moving components shall be fully removable under pressure. In the event the valve stem is broken or damaged the bonnet shall be removable under pressure.

Restraint devices shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10 Restraint devices shall have a working water pressure rating of 350 psi for 4-12 inch and must include a minimum safety factor of 2 to 1 in all sizes and be approved by the Town. Gland body wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536. Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly. Proper actuation of the gripping wedges shall be ensured with torque limiting twist off nuts. Set screw pressure point type hardware shall not be used. Restraint devices shall be listed by Underwriters Laboratories and Approved by Factory Mutual (3-inch through 12-inch size).

Manufacturer's installation procedures shall be strictly adhered to, including the installation of vacuum flange, checking, removing and confirmation of removal of shavings in the valve body. Installation procedures shall be approved by the Town prior to installation of insertion valve.

Prior to installation, the operating pressure shall be confirmed with the Water Resources Department. Valve pressure testing procedures shall be approved by Water Resources Department and Manufacturer prior to installing.

Contractor shall confirm existing pipe outside diameter prior to purchasing insertion valve."

ADD: "*7. Insertion Valves, 16-inches through 24-inches: Insertion valves shall only be used as permitted by the Water Resources Department. Disinfection procedure listed in item 6 above shall be required."*

REMOVE: *"Insertion Valves: Insertion valves shall only be used as permitted by the Water Resources Department. Insertion valves shall meet the requirements of AWWA C515, seat on the valve body and be rated for a working pressure of 250-psi or greater. All insertion valves shall be made of ductile iron in conformance with ASTM A-536 Grade 65-45-12 and epoxy coated at a minimum of 10-mils. Insertion valves are available for pipe sizes through 12-inches in diameter. In cases where insertion valves are being installed to shut down water to a work zone area, the insertion valve shall be located a minimum of 100-ft from the work zone or greater as determined by the Engineer of Record to assure the insertion valve can safely operate as a dead end without dislodging from the pipeline or otherwise causing the existing pipeline to shift."*

B. Appurtenances

2. Reaction Blocking

ADD: *"Reaction blocking for all fittings and components subject to hydrostatic thrust shall be securely anchored by the use of thrust restraints."*

REVISE sampling stations to read: *"Sampling Stations shall be provided at all new development projects at the following rates:*

a) One (1) for every 200 residential units

b) One (1) for every 10 acres of non-residential

c) One (1) per institutional facility with more than 100,000 square feet

d) One (1) for every 100 residential units and 5 acres of non-residential in projects with multiple uses.

e) As otherwise required by the Water Resources Department.

For phased development projects, sampling stations are calculated based on the total number of units, acreage, or square footage (as applicable) at total build-out. At least one sampling station shall be installed within the first phase of a phased development, with subsequent stations installed with the phase of which the next sampling station is warranted based on the rates listed above.

Padlocks for sampling stations shall be provided by the Town of Apex Water Resources Department. The sampling station requirement may be waived in cases where area sampling is already deemed sufficient by the Town.

Sampling stations shall be installed per the standard detail and provided as a self-contained manufactured assembly with locking aluminum housing, stainless steel tube and unthreaded spigot. Sampling stations shall not be connected to a service line."

604 Water Main Taps and Services

A. Design

REVISE *"A 5-foot clear zone easement shall be maintained around meter boxes and vaults."* to *"A 5-foot clear zone shall be maintained around meter boxes and vaults, measured from the outer edge. If a 5-foot clear zone is not feasible, a public utility easement shall be required."*

REVISE 10. Meter Installation to: *"The Town of Apex shall provide and install (¾" – 2") water meters subject to the following conditions (if applicable):*
- The Town has received a copy of the waterline purity test results and the Engineer's water and sewer certification of completion
- The Developer (or property owner) has paid all Capital Reimbursement Fees.
- The Developer (or property owner) has paid any pending fee-in-lieu of construction fees.
- The Developer (or property owner) has paid prescribed meter fee.
- The backflow preventer(s) are installed.
- Applicable Building Inspections have passed.
- The Developer has installed all specified improvements or guaranteed their installation as prescribed in the Town Code."

B. Materials

ADD: *"The Water Resources Department maintains a list of approved products and manufacturers for all water distribution products. Requests to use alternative products or manufacturers shall submit an exception request with supporting documentation for the request with Construction Plan submittal."*

REVISE strap requirements table to add a 4" saddle outlet.

REVISE #8 to read: *"Meter boxes for ¾ and 1-inch services: ¾ and 1-inch meter boxes shall be high density polyethylene (black). Meter boxes shall provide a cover opening of at least 7.5 X 13 inches and boxes shall measure at least 18 inches in depth. Lids shall be provided with a recessed 4-1/8-inch diameter hole to accommodate a transmitter. All meter boxes and lids shall be installed as shown in the Details and shall meet AASHTO HS20 load bearing capacity.*

There shall be a lockable ball valve inside the box on the inlet side. Meter boxes shall also be provided with an ASSE 1024 approved inline, dual check valve located behind the meter. All fittings and connections shall be "no lead" brass conforming to UNS C89833 as per ASTM B584.

A "no lead" brass curb stop with compression connections shall be installed within 2 feet of the inlet connection. The curb stop may be buried without a box above it.

One 2-inch or 6-inch grade adjuster may be used when needed to meet final grade, however, no grade adjusters are permitted on new construction projects. Grade adjusters shall be cast iron. Grade adjuster and box shall be by the same manufacturer."

REVISE #9 to read: *"1 ½ and 2 inch Water Services: 1 1/2" and 2" meter boxes shall be concrete or light weight polymer concrete as indicated on the Standard Detail 600.02. Meter boxes for 1 ½ and 2 inch water services shall provide a cover opening of 24 X 36 inches and boxes shall measure at least 30-inches in depth and provide a straight wall arrangement. Standard meter box covers shall bolt down to the box, and all polymer cement covers shall be provided in solid configuration with a recessed 4-1/8 inch diameter transmitter hole, and with the words, "Water Meter" cast into the lid. The meter box covers shall be provided with 2 stainless steel bolts in penta-head configuration for security. To ensure positive discharge, the box should be tied into the existing storm drain system, or shall have an open bottom to allow drainage through a 6-inch stone base. All meter box covers for potable water service shall be provided in standard concrete gray or black color.*

Meter setters shall be installed per Standard Detail 600.02 meeting UNS C89833 as per ASTMB584. Copper setter shall be no lead with a high by-pass and a lockable flanged angle meter ball valve on the inlet and bypass. All applications shall have a separate above ground backflow preventer."

<u>607 Repair and Abandonment</u>

Abandonment of Existing Water Mains
ADD: *"a) Water distribution pipe abandonment involves removing the pipe and any related appurtenances from service and leaving them in such a manner that no risk is posed to public health and safety."*

ADD: *"d) Pipe and appurtenances that are to be removed due to a conflict with the proposed work shall be drained of all contents, removed, and disposed as part of the excavation process."*

ADD: *"e) Water distribution pipe shall be physically disconnected and the active water distribution pipe capped and thrust restrained. Once separated from the active pipe, the pipe specified for abandonment shall be drained and pumped entirely full with cement grout. The cement grout shall have a compressive strength of 500-psi and shall be of an appropriate consistency to completely fill the water distribution pipe."*

ADD: *"f) Gate valves shall be completely closed, the valve box removed and disposed of, the resultant void space backfilled with a minimum 500-psi compressive strength, quick setting, non-excavatable flowable fill, and a standard asphalt repair patch installed."*

ADD: *"Fire Hydrant Assembly Abandonment*
The fire hydrant assembly specified for abandonment shall have the associated gate valve completely closed, the valve box removed and disposed of, the resultant void space backfilled with a minimum 500-psi compressive strength, quick setting, non-excavatable flowable fill, and a standard asphalt repair patch installed. The hydrant shall then be removed, salvaged and returned to the Water Resources Department and the existing water main capped and thrust blocked. The void space shall be backfilled with flowable fill and the final 2 feet below ground level backfilled with topsoil and restored."

ADD: *"Blowoff Assembly Abandonment*
The blowoff assembly specified for abandonment shall have the associated gate valve completely closed, the blowoff assembly removed and disposed of, the resultant void space backfilled with a minimum 500-

psi compressive strength, quick setting, non-excavatable flowable fill, and a standard asphalt repair patch installed."

ADD: *"Combination Air Valve Abandonment*
Paved Area: The air valve specified for abandonment in a paved area or within 5-feet of a roadway shall have the valve completely closed and the associated manhole ring, cover, and chimney removed and disposed of. The barrel of the manhole shall then be filled with non-excavatable flowable fill from the bottom of the manhole to within 8-inches of the surface of the roadway. The pavement shall be replaced as specified elsewhere in the Contract Documents.

Unpaved Area: The air valve specified for abandonment in an unpaved area more than 5 feet from a roadway shall have the valve completely closed and the associated manhole ring, cover, and chimney removed and disposed of. The uppermost barrel sections of the manhole shall be removed up to a depth of at least 6 feet from the ground surface. The manhole barrel shall be filled with aggregate base course to within 12 inches of the ground surface. The manhole barrel shall be filled and tamped in 8 inch lifts with aggregate base course and compacted to a minimum of ninety percent (90%) Standard Proctor density. The upper 12 inches shall be filled with screened topsoil and graded uniformly with the surrounding area. The area shall be seeded and mulched as specified elsewhere in the Standards."

➢ SECTION 620 – CROSS CONNECTION CONTROL

Table of Contents
ADD subsection *"B. Location" to 623 Backflow Prevention Assembly Installation Requirements*

622 General Installation Requirements

A. Permits
REVISE the last sentence to *"A current list of Town approved certified backflow testers is available on the Water Resources Cross Connection Control webpage."*

B. Inspections
REVISE 1) to *"Any backflow preventer assembly that is installed, removed, or relocated shall be inspected by a Town of Apex Code Enforcement Officer. It is the responsibility of the installer of a backflow preventer assembly to secure the inspection or re-inspection by the Code Enforcement Officer. Certified test reports must be completed and submitted by the approved certified backflow tester via the Town's designated electronic reporting system AquaResourse, before the system is approved or put into use and within 10 days of the completed test."*

REVISE the last sentence of 2) to *"All other connections not related to irrigation shall meet the current North Carolina State Plumbing Code and Town of Apex Standard Specifications."*

C. Testing Backflow Prevention Assemblies
REVISE *"Double Check Detector Assemblies (DCDA)"* to *"Double Check Detector Type I and Type II Assemblies (DCDA I and II)"*

REVISE *"Reduced Pressure Detector Assemblies RPDA)"* to *"Reduced Pressure Detector Type I and Type II Assemblies (RPDA I and II)"*

REVISE *"The Town of Apex requires that a registered certified tester perform all testing. A registered certified tester is a person who has proven their competency to test, repair, overhaul and make reports on backflow prevention assemblies as evidenced by the successful completion of an approved Cross-*

Connection Control School. The registered certified tester is responsible for submitting all test forms to the Town's Water Resources Department." to *"The Town of Apex requires that an approved certified backflow tester perform testing of backflow preventer assemblies. Certified backflow tester means a person who has proven their competency to the satisfaction of the Town by successful completion of an approved Cross-Connection Control (CCC) ORC or Backflow Tester Certification school.*
Town of Apex accepts CCC ORC and Backflow Tester Certifications from the following approved schools:

- *Charlotte Mecklenburg Utilities Department*
- *Greenville Utilities Commission*
- *City of Durham*
- *City of Raleigh*
- *NC Rural Water*
- *Training Research and Education for Environmental Occupations (TREEO)*
- *University of Southern California (US FCCCHR)*
- *NC American Water Works Association (AWWA)"*

REMOVE: *"Registered certified testers in good standing with any of the following training schools in the State of North Carolina (American Water Works Association – State (NC) Sponsored, City of Charlotte-CMUD, City of Fayetteville-PWC, City of Raleigh, City of Wilmington, City of Durham, INFO-Tech, LLC Carthage, NC, Cape Fear Public Utility Authority (CFPUA) and Greenville Utilities Commission (GUC)) or Town approved may test backflow preventers on the Apex water system provided they satisfactorily completed required courses offered by the above mentioned schools and have submitted the required background information to the Town of Apex Water Resources Department. Testers not successfully completing these requirements will not be allowed to test on the Apex system. Testing schools identified above in bold are recognized as an approved Cross-Connection Control School."*

ADD: *"Certified Backflow Testers must register on the Town's designated electronic reporting system, AquaResource. The tester must upload the school certificate and pressure gauge calibration certificate to their profile on AquaResource for review and approval by the Town's CCC ORC. Certified Backflow Testers that do not complete these steps will be prohibited to test in the Town and access to the electronic reporting system will not be approved.*

Only passing backflow preventer tests may be submitted to the Town's designated electronic reporting system. The tester is responsible for notifying the consumer regarding any failed test and a quote to make the repair shall be provided to the consumer for approval.

Backflow preventer test reports must be submitted to the Town's designated electronic reporting system within 10 days of the completed report."

F. Facilities and Applications Requiring Backflow Prevention
REVISE Facilities and Applications Requiring Backflow Prevention
Public/Private Water Supply - RPA
Bakeries - RPA
Bulk Water – AG/RPA
Swimming Pools – Pools Connected to Town Water System – RPA

G. Definitions
REVISE *"Double Check Detector Assembly – (DCDA) (ASSE Approval #1048)" to "Double Check Detector Assembly Type I – (DCDA I) (ASSE Approval #1048)"*

ADD *"Double Check Detector Assembly Type II (DCDA II) (ASSE Approval #1048) - This assembly may be used singly or in parallel with any flow requirements. It shall not include contact with toxic chemicals or liquids that may be a health hazard. This assembly will have a water meter and an in-line single check valve bypass."*

REVISE "Reduced Pressure Detector Assembly (RPDA) (ASSE Approval #1047)" to "Reduced Pressure Detector Assembly (RPDA Type I) (ASSE Approval #1047)"

ADD *"Reduced Pressure Detector Assembly (RPDA Type II) (ASSE Approval #1047) – This assembly may be used singly or in parallel with any flow requirements. It shall have a water meter and an in-line single check valve bypass."*

623 Backflow Prevention Assembly Installation Requirements

ADD: *"B. Location*

Backflow preventer installations are not allowed in public rights-of-way (Town or NCDOT), under structures or within foundations.

Backflow preventers cannot exceed 50-feet from the potable water main.

Backflow preventers for irrigation must be within 25-feet of the meter and not exceed 10-feet past the front corner of the permanent structure.

All backflow preventers are considered private and shall be located outside of the Town's utility easements.

C. Materials

REVISE to *"All materials used in conjunction with a backflow preventer installation shall conform to the specifications of the North Carolina State Plumbing Code, section 605.3 and ASSE 1013, and AWWA C511."*

D. Accessibility

REVISE to *"All backflow preventers must be installed where the Water Resources staff, Inspector, or Code Enforcement Officer deems them to be ready-accessible. All RPA, RPDA, DCVA and DCDA backflow preventers are required to be installed at least 12 inches and no more than 60 inches above the floor (the vertical distance measured from the lowest point of the backflow preventer to the floor or grade). Approved minimum clearance above and around the backflow preventer must also be provided (refer to Town Standard Details for minimum installation clearance). Lawn irrigation backflow preventers must be installed outside any building, structures, or foundation crawl space and must meet clearance requirements as shown in the Town Standard Details."*

E. Orientation

REMOVE *"unless preapproved in writing by the Water Resources Department."*

F. Freeze Protection

REVISE to read as *"The NC Plumbing Code prohibits the installation of RPAs where they may be exposed "to freezing except where they can be removed by means of unions or are protected from freezing by heat, insulation, or both." Backflow preventers installed outside, require an ASSE 1060 insulated enclosure. The enclosures are rated to maintain 40 ^{o}F in as low as -30 ^{o}F weather, (a minimum R value of 8.0 (unless the backflow preventer is designed to be removed each winter and the enclosure is understood to be for decorative purposes only). For fire protection installed outside, the NFPA requires the ASSE 1060 enclosure to include permanent, hard piped electrical service, and a thermostatically controlled heater or heat trace. Freeze protection is not required for lawn irrigation where RPAs are installed outside and can be removed with unions and an upstream SOV not subject to freezing. All underground piping must be installed a minimum of 12 inches below grade and must meet the requirements of underground water service piping."*

G. Alterations

REMOVE *"Rain Sensor installation is required for all automatically controlled irrigation installations. They must be set to ¼ inch or less per Town Ordinance and specifications. Property addresses shall be displayed on the outside of the approved enclosure or inside on the backflow preventer with 6 mm or ¼ inch lettering. The properties / sites affected are townhomes, multifamily, commercial, and industrial uses / applications."*

I. Wye Strainers

REVISE to read as *"Wye Strainers shall not be allowed on fire protection systems. Wye strainers are required on all other backflow preventer assemblies (RPA, DCVA, PVB). Wye strainers specified by the manufacturer are required to be installed immediately upstream of the backflow preventer's number one shut-off valve (SOV) and after the isolation SOV. All internal or confinement (isolation) backflow preventer assemblies will have a wye strainer upstream of the assembly with the exception of fire protection systems."*

L. Identification Tag

ADD: *"Property addresses shall be displayed on the outside of the approved enclosure or inside on the backflow preventer with 6 mm or ¼ inch lettering. The properties / sites affected are townhomes, multifamily, commercial, and industrial uses / applications."*

M. Labeling of Non-Potable Piping

ADD: *"Where non-potable water systems are installed, the piping conveying the non-potable water shall be identified either by color marking, metal tags or tape. Non-potable water outlets, such as hose connections, open ended pipes and faucets, shall be identified with signage in accordance with NC Plumbing Code 608.8.1 through 608.8.2.3. that reads*

Non-potable distribution piping shall be purple in color and shall be embossed, or integrally stamped or marked, with the words: "CAUTION NONPOTABLE WATER – DO NOT DRINK" or the piping shall be installed with a purple identification tape or wrap. Pipe identification shall include the contents of the piping system and an arrow indicating the direction of flow in accordance with Plumbing Code 608.8.1 through 608.8.2"

REMOVE: *"All non-potable piping downstream of isolation backflow preventers installed on the domestic water system shall be identified with the words "NON-POTABLE" using a durable yellow paint at intervals of not more than 10 feet and at all branches as specified by the State of North Carolina Plumbing Code."*

O. Relief Outlet Piping

REVISE to read as *"When RPA and RPDA assemblies are installed inside buildings they shall be in accordance with NC Plumbing code. RPAs and RPDAs capable of experiencing a full port discharge that are installed inside shall flow by gravity to a sanitary waste floor drain designed to handle a full port discharge from these assemblies or be routed outside so long as the discharge does not create a hazard or nuisance in accordance with NC Plumbing Code. When drains from the relief valve outlets are utilized they must include the following:*

1. *An approved, prefabricated, appropriately sized Air Gap drain (factory Air Gap adapters are generally available from the manufacturer).*
2. *Drain lines to direct flow towards indirect waste floor drains.*
3. *All relief port drain lines shall be piped, full size, to their point of termination.*
4. *When run horizontally, install the drain line with a slope conforming with the NC Plumbing code 704.1."*

R. Culinary Use

REVISE to *"Backflow preventers and wye strainers used for culinary purposes such as canned food preparation or in dairies shall have an FDA (Food and Drug Administration) approved coating and shall be stamped with the appropriate seal."*

624 Drainage Requirements for Backflow Prevention Assemblies
A. Reduced Pressure and Reduced Pressure Detector

REVISE 2) Building Installation to "*An approved, prefabricated, appropriately sized Air Gap drain (factory Air Gap adapter generally available from the manufacturer). Drain lines to direct flow towards indirect waste floor drains. All relief port drain lines shall be piped, full size, to their point of termination. When run horizontally, install the drain line with a slope conforming with the NC Plumbing code 704.1."*

REVISE *"3) Below Installation: All existing assemblies shall be raised above ground to meet Town of Apex Cross Connection Standards."* To *"3) Below Ground Installation:*
All existing assemblies shall be raised above ground at the time the assembly can no longer be repaired and requires replacement to meet Town of Apex Cross- Connection Standards and Ordinance."

625 Backflow Prevention Assembly Enclosures
A. Above Ground Enclosures
ADD after the last sentence: *"For fire protection assemblies installed outside, the NFPA requires the ASSE 1060 enclosure to include permanent, hard piped electrical service, and a thermostatically control heater or heat trace."*

626 Fire Protection Backflow Preventer Requirements
REVISE the first paragraph to read: *"There shall not be any unprotected interconnection between potable water and fire lines. All backflow prevention assemblies installed on fire suppression systems shall be either a Double Check Detector Assembly Type I or Type II (DCDA I or II) for low hazard installations or a Reduced Pressure Detector Assembly Type I or Type II (RPDA I or II) for high hazard installations. All meters on the detector by-pass must read in gallons per minute. Backflow prevention assemblies on fire lines shall be installed as received from the manufacturer with no modifications. All assemblies used in fire protection systems must have USCFCCCHR, ASSE, and FM approvals."*

REVISE B. Low Hazard Systems requiring DCDA to read as *"1) Systems that do not have a fire department connection (FDC), 2) Dry pipe systems, 3) Less than 5 stories above ground level, 4) Without booster pumps, 5) Without chemical additives, 6) Line extension less than 50 feet from a potable water line for the purpose of serving a fire hydrant."*

627 Lawn Irrigation Backflow Preventer Requirements
REMOVE section in its entirety

ADD: *"A. Irrigation Meter Fed Systems*
Lawn irrigation systems have the potential to allow contaminated water to backflow into the potable water system. The Town of Apex requires the installation of an approved RPA (ASSE 1013). On properties platted after July 1, 2009, all new lawn irrigation systems are required to install a separate water meter per NCAC §143-355.4. All backflow preventers shall be installed per Town of Apex Standard Details. To obtain information for purchasing an "irrigation only" meter, contact the Building Inspections & Permitting Department.
B.Irrigation Systems Tied to Outside Hose Bibbs
Irrigation systems, piping, fittings, sprinklers, drip tubing, valve, timers, and all associated components installed for the delivery and application of water for the purpose of irrigation that are connected to outside hose bibbs shall be prohibited and are in violation of the CCC Ordinance.
The only approved method for watering from an outside hose bibb with an approved AVB or hose bibb vacuum breaker (HBVB) is an open-ended water source above grade, without valves.
C.Location and Accessibility
The location of the installed RPA shall meet the following criteria:

RPA shall be installed between the meter and the first sprinkler head (or yard hydrant).
Distance from the water main to the RPA shall not exceed 50 feet
Distance from the water meter to the RPA shall not exceed 25 feet
RPA shall not be located more than 10 feet from the front corner of the home.
RPA shall not be installed behind a fence, under a deck, crawl space, or other structure accessory.
Installation within Town right-of-way or Town easement is prohibited. The RPA must be located outside the 5-foot utility easement.
RPA must be located with a minimum clearance of 12 inches from lowest part of the assembly above final grade.

D. Backflow Preventer Orientation
All reduced pressure assemblies shall be installed in the horizontal position or per the current USCFCCHR manual.

E. Freeze Protection
All underground piping must be installed a minimum of 12 inches below grade and must meet the requirements of underground water service piping.
All enclosures must meet ASSE 1060 "Freeze Retardant" with a minimum R value of 8.0, unless the backflow preventer is designed to be removed each winter (lawn irrigation installed with unions and an upstream shut off valve not subject to freezing) and the enclosure is understood to be for decorative purposes only.

F. Inspections
Water Tap Inspection is required for contractor installed taps.
The Irrigation Rough-in Inspection is an open trench inspection from the water meter to the RPA. The trench must remain open until the inspection has passed.
Final Irrigation Inspection verifies that the concrete pad, rain sensor (if applicable), and backflow enclosure is installed and meets the requirement based on installation of the system.

G. Accessories
Rain sensor installation is required for all automatically controlled irrigation installations. The device must be set to ¼ inch or less per Town of Apex Ordinance."

<u>629 Certified Backflow Prevention Assembly Tester</u>

REVISE the second paragraph to read *"When employed by the consumer to test, repair, overhaul, or maintain backflow prevention assemblies, a tester will have the following responsibilities:*

1)Each person wishing to test, repair, overhaul, or maintain backflow prevention assemblies shall provide a certificate to the Town which sets forth that he/she has met the minimum qualification standards established by the Town for certification as a backflow preventer assembly tester.
The tester will be responsible for making competent inspections, repairing or overhauling backflow prevention assemblies, and making reports of such repair to the consumer and the Town via the designated electronic reporting system. The tester shall include the list of materials or replacement parts used. The tester shall be equipped with and be competent to use all the necessary tools, gauges, manometers, and other equipment necessary to properly test, repair, and maintain backflow preventer assemblies. It will be the tester's responsibility to ensure that original manufactured parts are used in the repair of or replacement of parts in a backflow prevention assembly. It will be the tester's further responsibility not to change the design, material, or operational characteristics of an assembly during repair or maintenance without prior approval of the Town. A tester shall perform the work and be responsible for the competency and accuracy of all tests and reports. The tester shall provide a copy of all test and repair reports to the

consumer and to the Town within 10 business days of any completed test or repair work. Testers shall maintain such records for a minimum period of 3 years.

2) All certified backflow prevention assembly testers must obtain and employ backflow prevention assembly test equipment that has been evaluated and/or approved by the Town. All test equipment shall be registered with the Town. All test equipment shall be checked for accuracy annually (at a minimum), calibrated, if necessary, and certified to the Town as to such calibration, employing an accuracy/calibration method acceptable to the Town."

➢ SECTION 700 – WASTEWATER COLLECTION SYSTEMS

701 Gravity Sewer

A. Design

ADD after the last sentence of c) *"A magnetic flow meter and manhole shall be required prior to connection to the Town's System."*

REVISE: Sewer installation depth and easement width table to the following:

Pipe Size (D)	Pipe Depth*	Easement Width	Town Road R/W
≤ 12-inches	≤ 8-ft	20-ft	Allowed
≤ 12-inches	8-ft – 15-ft	30-ft	Exception Required
≤ 12-inches	15-ft – 20-ft	40-ft	Not Allowed
>12-inches to ≤ 24-inches	≤ 15-ft	30-ft	Exception Required
>12-inches to ≤ 24-inches	15-ft to 20-ft	40-ft	Not Allowed
≥ 24-inches	Any Depth	As Specified by the WR Department	Not Allowed
Any Size	Deeper than 20 ft		

*Depth of the sewer main shall be measured from the top of the pipe to the final grade or road subgrade at the deepest point between manholes.

REVISE the second paragraph to read *"Dedicated easements for sewer mains and appurtenances shall be recorded as "Town of Apex Public Sanitary Sewer Easement". Town of Apex sewer easements shall contain only Town of Apex utilities unless otherwise approved by the site plan or an encroachment agreement. Sewer mains shall be centered in the easement. Easements shall be acquired by the Developer (unless utility is designed as part of a Capital Improvement Project) prior to construction plan approval. See Section 215 for utility easement requirements."*

REVISE e) to ***"****the minimum width of a permanent easement that contains sanitary sewer and storm drain shall be at least 10 feet in addition to the easement width required in the table above. There must be a separation of 10 feet between the outside of each pipe and 10 feet from the centerline of the pipe to the easement line. Additional easement width may be required based on the depth and combination of utility and/or storm drain within the shared easement."*

REMOVE: *"h) No structures, equipment, retaining walls, embankments, impoundments, pavement, landscaping, fill, or other elements that would inhibit maintenance operations shall be constructed within a sewer main easement as outlined in Section 200. Fences may be allowed across easements provided that appropriate access gates or removable panels have been installed to allow utility maintenance. Fences shall not be installed parallel within utility easements. In all cases, Town of Apex Operations Staff shall have access to secured access gates. Fill or cut slopes are not allowed to extend into easements without full development plan approval or an approved encroachment agreement from the Town of Apex, see Section 200 for further information. All such pre-existing or planned conditions as noted herein that would impact operations and maintenance within the noted sewer main easement shall be noted and*

disclosed during the site plan approval process. Pre-existing conditions that are not disclosed during the site plan review may nullify the approval and require relocating the sewer easement where there are no existing conflicts. If sewer main is located within road right-of-way or on Town owned property there shall be no permanent structures, equipment, retaining walls, embankments, impoundments, landscaping, or other elements that would inhibit maintenance operations unless approved by the Water Resources Director."

REMOVE: *"Easements shall be accessible from public rights-of-ways. If easement is not accessible perpendicular from right-of-way due to steep slope, environmental feature, or other obstacle, additional easement may be necessary."*

REMOVE: *"Sewer line easements shall be graded smooth, free from rocks, boulders, roots, stumps, and other debris, and seeded and mulched upon the completion of construction. Easements across sloped areas shall be graded uniformly across the slope to no steeper than a 4 to 1 ratio."*

REVISE k) to read *"k) The following minimum horizontal separations shall be maintained:*
1. 100 feet from any private or public water supply source, including wells, WS-1 waters or Class I, Class II, or Class III impounded reservoirs used as a source of drinking water (except as noted below)
2. 50 feet from wetlands and any waters (from normal high water) classified WS-II, WS-III, WS-IV, B, SA, ORW, HQW or SB (except as noted below)
3. 20 feet from waters classified as C, any other stream, lake, or impoundment (except as noted below)
4. The following separations may be acceptable when water main standards are implemented:
a. All appurtenances shall be outside the 100 foot radius of wells.
b. 50 feet from private wells (with no exceptions)
c. 50 feet from public water wells (with no exceptions)
d. Where the required minimum separations cannot be obtained, ductile iron pipe shall be used with joints constructed and tested to water main standards."

REVISE l) to "*Sanitary Sewer mains shall be extended to adjacent upstream property lines in order to serve all upstream properties. Additionally, Sanitary Sewer shall always be extended along any and all-natural drainage courses/draws that are located within the property line boundaries of the proposed development, based on the original topography.*
1) Sewer design shall account for future upstream development based on the current land use plan, or approved developments (whichever results in larger flow).
2) The most upstream manhole shall be designed and located so that all upstream properties will have access to connect with future sewer mains without the need for a pump station. Depths shall be evaluated so that streams, roads, culverts, and any other features that must be crossed by future upstream sewer mains can do so and still achieve the required minimum cover on top of the sewer main."

REVISE m) to *"The most upstream manhole shall be designed and located so that all upstream properties will have access to connect with future sewer mains without the need for a pump station."*

REVISE n) to *"Sewer mains that do not meet minimum cover stated are required to be ductile iron for the entire run between manholes. Steel casing and/or concrete may also be required for protection, at the direction of the Water Resources Department."*

REVISE r) to include the following table:

Separation Requirements Summary*					
	Vertical**				
Utility Type	*Water Main (Over)*	*Water Main (Under)*	*Sanitary Sewer*	*Force Main*	*Storm Drain*
Water Main (Over)			18"	18"	18"
Water Main (Under)			18" (DIP)	18" (DIP)	18"
Sanitary Sewer	18"	18" (DIP)			24"
Force Main	18"	18" (DIP)			18"
Storm Drain	18"	18"	24"	18"	

*Minimum Requirements. Additional requirements may be required when vertical separation is not met.
**When horizontal separation requirement is not met
(DIP) - Material Requirement for Utility Crossing Over Water Main

REMOVE: *"Where concentrated sources of runoff (e.g., SCM discharge, FES discharge outlets, natural drainage ways, etc.) convey across existing or proposed Town of Apex Sanitary Sewer Easements, the applicant must design a rip rap lined channel across the full width of the easement."*

REMOVE: *"All retaining walls shall have a separation from the easement boundary of at least 1:1, vertical to horizontal. For example, if the retaining wall is 10 feet tall, it shall be placed no closer than 10 feet from the adjacent easement boundary."*

ADD: *"Downstream Sewer Analysis: All projects shall perform evaluation of existing downstream sewer capacity to demonstrate there are no negative impacts on the existing sewer system. The limits of the downstream sewer capacity study will be determined by the Water Resources Department. The sewer capacity analysis shall be stamped and signed by the Professional Civil Engineer in the State of North Carolina. This evaluation shall address the capacity of all sewer collection and trunk sewer systems that will be impacted downstream of the new development and/or redevelopment.*

If any downstream segments of the sewer system have previously been identified as critical, or sub-critical in a monitoring report or previous analysis, additional field monitoring or data collection may be required, as determined by the Water Resources Department.

The sewer capacity analysis shall incorporate the potential sewage generated within the entire natural drainage basin in which the development is located based on the Comprehensive Plan Land Use Map, or previous development approvals, whichever is higher. Topographic maps of the entire drainage basin and any and all adjacent previously approved developments and any subsequent improvements shall be included in the analysis. The maps shall also incorporate sewage routes included in the Town's Sewer Master Plan and demonstrate no adjacent development, including existing pumped lands outside of the drainage basin, will be precluded from obtaining sewer service. The sewer capacity analysis shall include all proposed sanitary sewer alignments and potential points of entry of sewage from surrounding lands, not included in the sewer master plan.

The sewer capacity analysis shall assume standard minimum depth for all upstream sewer mains and clearly identify any proposed facilities which will exclude standard depths. Anticipated flows for undeveloped land shall be determined using the 2T rules at the rates for zoning classification as determined by the Comprehensive Plan Land Use Map.

If any downstream sewer segments exceed 50 percent full, but are less than 65% full, the Water Resources Department will evaluate and determine if upsizing is required. If any downstream sewer segments exceed 65 percent full, the sewer main must be upsized or re-installed at a greater slope to allow for greater flow through the pipe. All improvements must be made the full length, from manhole to manhole."

REVISE: Minimum grade requirements for public sewer table to the following:

Main Size *(diameter in inches)*	Minimum Slope V=2.5ft/s, depth 1/2 full *(feet per 100 feet)* *{standard required velocity}*
8	0.61
10	0.46
12	0.36
14	0.29
15	0.27
16	0.25
18	0.21
21	0.17
24	0.14
27	0.13
30	0.11
36	0.09
42	0.06
48	0.05

ADD: *"p) Construction Involving Existing Mains:*
i. The existing sewer main must remain active and protected during all phases of construction. The contractor must provide a plan for the structural protection of the existing sewer main.
ii. A proposed construction sequence and bypass pumping plan must be submitted for any demolition of any portion of existing sewer main. The plan must be reviewed and approved by the Water Resources Department.

B. Materials
ADD: *"The Water Resources Department maintains a list of approved products and manufacturers for all waste water collection system products. Requests to use alternative products or manufacturers shall submit an exception request with supporting documentation for the request with the Construction Plan submittal."*

REMOVE: Table of approved manufacturers.

<u>703 Service Connections</u>
A. Design
ADD: *"a) Direct sewer service taps shall not be allowed on sewer interceptor or outfall mains 15-inches in diameter or larger, except by manhole connection."*

REVISE b) to *"b)All residential subdivision lots shall be served by gravity unless otherwise approved. If a pump is approved, it shall be privately maintained and must pump into either a service connection placed on the lot. The private pump and force main (if needed) must have a note on the recorded plat indicating the following: "Privately maintained sewer pump and force main is required to serve this lot"."*

ADD: *"c) All non-residential development projects shall be serviced by gravity sewer and/or a public pump station, if permitted. The Town will not consider a private pump station serving more than one lot, regardless of ownership. If a private pump station and/or force main is recommended by the Water Resources Department, it must be formally approved by Town Council prior to final approval of construction documents. All private infrastructure must be located outside of the public right-of-way or utility easement and must be converted into gravity prior to entering the public sanitary sewer system. As*

directed by the Water Resources Department, a magnetic flow meter may be required prior to entering the public sanitary sewer system.

REVISE g) to *"Only if approved by the Water Resources Department, sewer cleanouts located in paved areas, which bear vehicle loading, must have ductile iron risers, ductile iron fittings and a traffic rated cast iron cover assembly."*

REVISE h) *"All 4-inch services shall connect directly into a public sewer main or manhole, in the fronting street or into an easement within the property. All services 6 inches or larger shall be into a manhole."*

B. Materials
ADD: *"The Water Resources Department maintains a list of approved products and manufacturers for all waste water collection system products. Requests to use alternative products or manufacturers shall submit an exception request with supporting documentation for the request."*

C. Installation
ADD: *"h) Buoyancy shall be considered, and floatation of the manholes shall be prevented with appropriate construction where high groundwater conditions are anticipated."*

<u>706 Repairs, Modifications, and Abandonment</u>

A. Sewer Main Repairs
REVISE to read *"1. Vitrified Clay Pipe - replace damaged section with PVC C900 and install a coupling at each end encased in concrete.*
2. PVC Pipe - replace damaged section with PVC Pipe and install a coupling at each end encased in concrete.
3. ABS/PVC Truss Pipe - replace damaged section with DIP and install a coupling at each end encased in concrete.
4. Asbestos Cement Pipe - Replace damaged section with DIP and couplings encased in concrete.

D. Abandonment of Existing Sewer Mains
REMOVE: Section in its entirety.

ADD: *"1. Existing sewer mains and casings located outside of road sections shall be removed, unless otherwise directed by the Town. All materials and labor shall be provided by the contractor.*
2. Existing sewer mains and casings located within a road section shall be grout filled and abandoned in place.
3. In other locations, grout filling and abandonment in place may be allowed with prior approval from the Water Resources Department.
4.Sewer service laterals shall be abandoned by removing and replacing the saddle with a 360-degree stainless steel sleeve. At in-line wyes the service lateral shall be cut within 12" of the wye and a mechanical cap installed on DIP/cast services or glued to PVC services and the abandoned wye encased with 1 cubic foot of concrete."

➢ SECTION 800 – WASTEWATER PUMPING SYSTEMS & FORCE MAINS

801 General

A. Design Requirements

REVISE: Multiple material changes to stainless steel throughout the entire section.

ADD: *"10. Antenna may not be installed directly on the sun shade. The antenna should be at least 10 feet higher than the sun shade, fencing, walls and any other nearby metallic objects that may cause signal interference."*

ADD: "11. *The signal for the pump station's standard low gain antenna shall be tested over a period of time to verify that it is acceptable strength and consistency for the location. If the signal strength is found unacceptable by operations, the antenna will be upgraded to a high gain antenna or directional antenna. If signal issues continue, a pole extender will be added as well as any needed extra cable."*

ADD: "12. *Pump station control design shall include a signal strength survey of the site. The design of the pump station shall incorporate any upgrades indicated necessary by the survey and approved by Water Resource Department."*

ADD: *"13. Pump station control design shall include a signal strength survey of the site. The design of the pump station shall incorporate any upgrades indicated necessary by the survey and approved by Water Resource Department."*

802 Pump Station Site and Structures

A. General

REVISE 4., second sentence to *" The pumps shall be solids handling, grinder type, submersible, centrifugal pumps each capable of pumping flows equal to the expected peak hourly flow."*

B. Site Work, 5.

ADD *"The access road concrete or pavement shall not cover any piping between the wet well, valve vault, or bypass connection."*

C. Structures

2. Wet Well

REVISE e) first sentence to "At a minimum, wet wells shall have a vent made from stainless steel with flanged or welded joint pipe fittings."

REVISE f) first sentence to *"Interior of wet wells, including the top, and wet well piping shall be coated with at least 80-mils of an approved monolithic epoxy coating system consisting of 100% solids, solvent-free, two-component epoxy resin for up to 100 mils of coating with a manufacturer approved set time of 6-hours or less."*

REMOVE: *"Each we well shall be equipped with a removable extension ladder as specified to enable access. The Town shall designate the location during the review process."*

REVISE i) first sentence to *"Pre-cast structures shall have a Raven Lining Systems, or equivalent applied to the outside of all tongue and groove joints."*

REVISE k) first sentence to *"A removable aluminum handrail shall be provided around the wet well opening of all submersible pumping stations."*

REVISE l) first sentence to *"A fall-through prevention system, with appropriate tie-off, shall be provided with the wet well hatch doors."*

D. Piping and Valves
REVISE 1. Piping first sentence to "Suction and discharge piping shall be SCH 10 304 Stainless Steel in accordance with AWWA C 115."

REVISE 5. Plug Valve second paragraph, second sentence to *"A restrained sleeve coupling shall be installed on each discharge main between the wet well and the valve vault." Add "A minimum 12-inch spool shall be installed between the check valve and plug valve to facilitate valve replacement."*

REVISE 7. to *"Air Release Valve: Each pump shall have an air release valve, installed on the discharge prior to combining with other pumps and leaving the valve vault. There shall be one additional air release valve installed in a manhole on the force main, prior to the main leaving the pump station site."*

REVISE 8. to *"Surge Valve: There shall be one surge valve installed within the valve vault, if deemed required by analysis."*

803 Pump Station Equipment
REMOVE: *"a) Pumps, motors, and major accessories shall be supplied by a single manufacturer and must be Fairbanks Morse, ABS, Hydromatic, or HOMA.*

REVISE b) to *"Each pumping unit shall be complete with a close-coupled, submersible electric motor, and all other appurtenances specified, or otherwise required for proper operation. Self-priming or vacuum primed pumps are not permitted."*

807 Wastewater Force Mains
A. Design, 3.
REVISE: Standard Easement Width for Sewer Force Mains Table:

Pipe Size (D)	Pipe Depth*	Easement Width	Town Road R/W
≤ 12-inches	≤ 8-ft	20-ft	Allowed
≤ 12-inches	8-ft – 15-ft	30-ft	Exception Required
≤ 12-inches	15-ft – 20-ft	40-ft	Not Allowed
>12-inches to ≤ 24-inches	≤ 15-ft	30-ft	Exception Required
>12-inches to ≤ 24-inches	15-ft to 20-ft	40-ft	Not Allowed
≥ 24-inches	Any Depth	As Specified by the WR Department	Not Allowed
Any Size	Deeper than 20 ft		

*Depth of the sewer main shall be measured from the top of the pipe to the final grade or road subgrade at the deepest point between manholes.

REVISE the third paragraph of 14. f) to *"The following minimum horizontal separations shall be maintained:*

1) 100 feet from any private or public water supply source, including wells, WS-1 waters or Class I, or Class II, or Class III impounded reservoirs used as a source of drinking water (except as noted below).

2) 50 feet from any waters (from normal high water) classified WS-II, WS-III, WS-IV, B, SA, ORW, HQW or SB (except as noted below).

3) 10 feet from any other stream, lake, or impoundment (except as noted below).

4) 50 feet from private wells (with no exceptions).

5) 50 feet from sources of public water supply (with no exceptions)"

❖ Standard Details

400.01 (TEMPORARY SILT FENCE) – Added required maintenance notes. Renamed alternative option to "Super Silt Fence" to be in-line with the NCDEQ design guidelines.

400.02 (TEMPORARY SILT FENCE OUTLET) – Added required maintenance notes.

400.03 (CATCH BASIN RISER/FILTER) – Added required maintenance notes.

400.04 (CATCH BASIN & YARD INLET PROTECTION) - Added required maintenance notes.

400.05 (CHECK DAM) - Added required maintenance notes. Added dimension labels to the step sequence diagram.

400.06 (CONSTRUCTION ENTRANCE) - Added required maintenance notes.

400.07 (DIVERSION DITCH) - Added required maintenance notes.

400.07 (BLOCK & GRAVEL DROP INLET PROTECTION) - Added required maintenance notes.

400.09 (GRAVEL & RIP RAP HORSESHOE INLET BASIN FOR EXISTING PIPE INVERTS) - Added required maintenance notes.

400.10 (PIPE INLET PROTECTION) - Added required maintenance notes.

400.11 (TEMPORARY STREAM CROSSING) - Added required maintenance notes.

400.12 (RISER BARREL SEDIMENT BASIN) - Added required maintenance notes. Separated into two sheets.

400.14 (SKIMMER DETAIL) - Added required general and maintenance notes.

400.15 (RIP RAP LINED CHANNELS) – Updated slopes to reflect updated specifications.

400.16 (TEMPORARY SILT DITCH) - Added required maintenance notes.

400.17 (TEMPORARY SLOPE DRAIN) - Added required general and maintenance notes.

400.18 (PIPE OUTLET) - Added required maintenance notes.

400.19 (INLET SEDIMENT CONTROL DEVICE) - Added required maintenance notes.

400.21 (WATTLE) - Added required maintenance notes.

400.22 (FILTER BAG WITH GRAVEL PAD) - Added required maintenance notes.

400.23 (TEMPORARY PUMP AROUND) - Added required maintenance notes.

400.25 (TEMPORARY ASPHALT DIVERSION) – New detail.

500.09 (STORM DRAIN PIPE BEDDING & BACKFILLING) – Updated pipe material nomenclature.

600.01 (3/4" & 1" WATER SERVICE & METER BOX) – Updated to reflect updated specifications.

600.02 (1-1/2" & 2" METER INSTALLATION & VAULT) – Modified vault dimensions.

600.03 (3" & LARGER METER INSTALLATION & VAULT) – Modified vault dimensions.

620.01 (TYPICAL SERVICE & IRRIGATION CONNECTIONS) – Updated to current standards.

620.02 (TYPICAL FIRE CONNECTIONS) – Updated to current standards.

620.03 (3/4" - 2" RESIDENTIAL & COMMERCIAL IRRIGATION BACKFLOW ASSEMBLY) – Updated to current standards.

620.04 (3/4" - 2" COMMERCIAL OUTDOOR BACKFLOW ASSEMBLY) – Updated to current standards.

620.05 (3/4" - 2" COMMERCIAL INDOOR BACKFLOW ASSEMBLY) – Updated to current standards.

620.06 (≥3” COMMERCIAL OUTDOOR BACKFLOW ASSEMBLY) – Updated to current standards.

620.07 (≥3" COMMERCIAL INDOOR BACKFLOW ASSEMBLY) – Updated to current standards.

SECTION 100
PRELIMINARY CONSIDERATIONS & INSTRUCTIONS

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101 General

The Standard Specifications as contained herein are to be utilized as a minimum standard for all subdivision and utility construction projects within the jurisdiction of the Town of Apex.

The purpose of these Specifications is to present standards for typical conditions encountered. All subdivision roadway construction and utility extension projects require that the design services be performed by, or under the direct supervision of, a Professional Engineer licensed to practice in the State of North Carolina. The existence of these Standard Specifications and Details does in no way relieve the Professional Engineer of the responsibility to correctly adapt these standards to the actual site conditions encountered on any project. The PROJECT ENGINEER preparing construction drawings for a specific project must review the applicable portions of these specifications and determine that these minimum standards will function correctly for the project. There may be circumstances whereby the engineer may wish to increase pipe strength classification, bedding requirements, reinforcing, etc. In such situations where changes or modifications are proposed, the Town of Apex should be consulted prior to completion of final design and plan submittal. This will serve to help ensure that the plan

review time is minimized. Such deviations from the TOWN'S minimum standards receiving such preliminary approval by the Department Director shall be clearly indicated at one location on the construction drawings, and labeled, **"Exceptions to the Standard Specifications of the Town of Apex".**

Each set of plans for subdivision construction and/or utility extension which is submitted to the Town of Apex for review shall have affixed to the cover sheet or first sheet, the following note and certification:

These improvements shall be constructed in accordance with the following drawings and with the Standard Specifications of the Town of Apex.

I, _____, PE, certify that the Standard Specifications of the Town of Apex have been thoroughly checked and found to be applicable to this project. All exceptions to the applicable Town Standards have been previously approved by the Town of Apex and said exceptions are shown on sheet(s) _____ of these drawings.

By: _____, PE

S E A L

Date: _____

Projects shall be constructed according to the Standard Specifications in effect at the time the project is submitted to the TOWN for initial review.

If construction of the project or phase of the project does not commence within 12 months after the date on which the final construction plans were approved, the approval shall be null and void. If a project approval is deemed null and void, all preliminary submittal procedures shall be repeated, and the resubmittal shall reflect any revisions in the Apex Standard Specifications and Details in effect on the date of the resubmittal. Upon written request, the TOWN may extend the approval of any project 12 months if the request is made within 12 months of the original approval.

The project contractor shall have at least 1 complete set of approved plans signed by the Town of Apex and specifications (including Town of Apex Standard Specifications and Details) at the job site at all times that work is being performed.

102 Submittal Requirements

Persons desiring to construct subdivisions or other utility extensions within the jurisdiction of the Town of Apex must submit **final** construction drawings **sealed** by a Professional Engineer licensed to practice in the State of North Carolina. The submittal shall be made to the Development Services office. Submittal of the construction drawings shall be made only after the project has received Site Plan approval.

The submittal process shall be as described below:

A. Initial Submittal

For the initial review, the following items shall be submitted:

1) *Final Construction Plans* –1 electronic file submittal through IDT Plans. The plan size and content shall conform to the requirements outlined in Section 103 hereof.

2) *Storm Drainage Computations* – 1 electronic copy of complete storm drainage calculations, maps, and other supporting material shall be submitted, addressing the following special issues as applicable:

   * Design calculations and proof of compliance with the TOWN'S Watershed Protection Overlay District.

   * Impact of concentrated run-off from upstream areas released onto the property being developed, and the measures selected to mitigate these impacts, i.e. either piping of this run-off into the storm water collection system, or the enhancement of existing drainage channels by enlargement, armoring, etc.

   * Impact of concentrated run-off from the property being developed onto downstream private property. In such cases, the discharge velocity must be reduced to non-eroding levels. Refer to Section 501.

3) *Wastewater Pump Station & Force Main Computations* - (if applicable) 1 copy. These calculations shall include the basis for sizing and any other calculations requested by the Town (i.e. flotation calculations, wet well sizing, drainage area, suction-lift calculations).

4) The Town of Apex may require "utility easements" for the conveyance of water, sewer, electric power, and communications. All "utility easements" shall specifically allow for water, sewer, electric power, and communications utilities maintenance and conveyance.

5) *Soil Erosion and Sedimentation Control Plan* - 1 electronic copy of the "Request for Plan Approval Form" shall be submitted.

6) *Additional Design Data* - As may be requested.

B. Second Submittal

The Town of Apex staff will review the initial items and will comment on any items needing correction or attention. The submitter shall then make the corrections, additions, or changes to the construction drawings, pursuant to the initial review comments. The second submittal shall then be made to include the following items:

1) *Final Construction Plans* –1 electronic copy submittal through IDT Plans.

2) *"Water Distribution Extension Permit Application"* - Form provided by the Town of Apex - 1 original for review by the Town Engineer. All Water Distribution Extension Permit Applications shall be accompanied by a Sealed Engineer's Report per the Town of Apex Water System Management Plan. Refer to Appendix A of these Specifications.

3) *"Gravity Sanitary Sewer Extension Permit Application"* - Form provided by the Town of Apex - 1 original for review by the Town Engineer. All pump stations and force mains shall still require permitting by the North Carolina Department of Environment and Natural Resources (NCDENR). Refer to Appendix A of these Specifications.

4) *NC Department of Transportation (NCDOT) - Encroachment Forms, Driveway Permits, etc*. - Sufficient copies as required and prepared to conform to the NCDOT requirements.

5) *Storm Drainage Computations* - 1 electronic copy of computations, if revised after initial review as per Section 501.

6) *Wastewater Pump Station & Force Main Computations* - 1 electronic copy of computations, if revised after initial review.

The Town of Apex will review the revised plans and, if they are satisfactory, the submitter will be requested to upload final plans to IDT Plans for approval signatures and upload final CAD design file to IDT. At that time, the executed forms will also be returned to the applicant or the design engineer so that the applications and proper number of plans may be submitted to the various state regulatory agencies.

Erosion and sedimentation control plans should be submitted directly by the owner to *Development Services* along with the "Request for Plan Approval" and permit fees. After construction drawings have been signed by the Town, and a preconstruction meeting has been scheduled, submit 1 electronic copy of the "Financial Responsibility / Ownership Form". After the Town issues the "Letter of Plan Approval", a NPDES Storm Water Notice of Intent for all sites greater than 1 acre is also required.

103 Plan Requirements

A. Subdivisions

All plan submittals for subdivision construction shall include the following elements:

1) Plans sealed and signed by a professional engineer registered to practice in North Carolina. Plan size shall be 24" x 36" at a scale of not less than:
1" = 50' horizontal, 1" = 5' vertical

2) Plan/profile drawings shall be provided for all street improvements, off-street sanitary sewers and storm sewers, water mains, sanitary sewer force mains, and for all utility extensions. All plan/profile drawings shall be prepared at a scale of not less than: 1" = 50' horizontal, 1" = 5' vertical

3) Boundary of the tract with all courses and distances indicated. 1 corner of the tract shall be tied to the NC Plane Coordinate System if within 2000 feet of a USGS or NCGS monument.

4) Vicinity Map, scale of drawings, and north arrow.

5) Master Plan(s) showing all improvements including: existing contour elevations (2-foot intervals) and USGS datum with benchmarks indicated. Existing and proposed elevation contours shall be based on Town of Apex LIDAR topography within the corporate limits and ETJ or topography verified by a professional land surveyor.

6) 100-year flood plain as required by Section 6.2 of the Town's Unified Development Ordinance.

7) Owner and zoning of all properties adjoining the site.

8) Tract area and specific data required by the Apex Subdivision Ordinance or Unified Development Ordinance - number of lots, average and minimum lot size, etc.

9) *Public Streets*
   - Street width (back-to-back of curbs).

- Right-of-way width.
- Horizontal curve data for each curve (centerline only).
- Vertical curve alignment.
- Sight Triangles.
- Entrance Islands with turn radii and turn paths.
- Distances to existing streets and intersections.
- Centerline linear footage (intersection to intersection, intersection to center of cul-de-sacs).
- Cross sections.

10) *Wastewater Facilities*
- Outfall lines drawings - stream location, ability to serve adjoining property.
- Pipe material, size, length, slope, invert elevations at all manholes, distance(s) from other utilities.
- 100-year flood elevations and manhole top elevations, vent elevations.
- Special construction details - piers, boring, encasement, drop manholes, etc.
- Easement widths.
- Pump station and force main calculations.
- Location of service laterals.
- Capacity of downstream facilities.
- Capacity of upstream facilities (existing and predicted future).

11) *Water Distribution Facilities*
- Pipe material (DIP), size, location and separation from other utilities.
- Valves, fittings, blow-offs, air release valves.
- Fire hydrant locations - conforming to maximum spacing.
- Service lateral locations.
- Special details - boring, etc.
- Easement widths.
- Test pressures and flow rates for any existing line to be tapped (upon request).

12) *Storm Drainage*
- Complete storm drainage calculations (Note special requirement to address impact of off-site drainage, per Section 102(A)(2).
- Invert elevations and top elevations at each structure - catch basin, curb inlet,

yard inlet, etc.

- Invert elevation at each inlet and outlet point - flared end section, head walls, etc.
- Pipe material, length, slope, etc.
- Exit velocity and details of velocity reduction facilities at each open outlet.
- Complete hydraulic calculations including hydraulic grade line analysis.
- Storm water easements and widths.
- Special details - easement widths, open channels, etc.

13) *Miscellaneous Data*
- OWNER/DEVELOPER: name, address, and telephone number.
- PROJECT ENGINEER: name, address, and telephone number.
- Utility easements as required by the TOWN.

14) *Review Certification By Town Of Apex*

The design engineer shall affix certificates to the cover sheet of the construction drawings and a signature block to the lower right hand corner of each sheet of the construction drawings except the cover page. Refer to the Construction Plan Application requirements provided by Development Services.

B. Site Plans

All site plans submittals should include, but not limited to, the following elements: Reference the Unified Development Ordinance for additional Site Plan requirements.

1) Plans sealed and signed by an engineer registered to practice in North Carolina, where public utilities, streets and pavement designs are involved, or where otherwise required by North Carolina General Statutes. Plan sheet size shall be 24" x 36".

2) Boundary of the tract with all courses and distances indicated. One corner of the tract shall be tied to the NC Plane Coordinate System if tract is located within 2000 feet of a USGS or NCGS monument. Total gross area of tract shall be indicated.

3) Vicinity map, scale of drawing, and north arrow.

4) Existing and proposed contour elevations at a maximum interval of 2 feet. Elevations based on USGS Datum with benchmark indicated.

5) 100 year flood plain as required by Section 6.2 of the Town's Unified Development Ordinance.

6) Owner and zoning of all properties adjoining the site.

7) Benchmark elevation and location.

8) *Data on Adjoining Streets*

- Street name.
- Street width and right-of-way dimensions.
- Existing utilities and storm drainage (size, material type, location).
- Driveway entrances onto site and adjoining properties.

9) *Building Site Data*

- Landscape plan including tree protection buffers.
- Number of buildings and dwelling units in each.
- Building footprint dimensions and finished ground floor elevation.
- Front, side, and rear yard set backs.

10) *Parking Data*

- Number of parking spaces provided and required.
- Location and dimensions of parking areas - angle of parking, typical width, length, aisle width, etc.
- Number of handicap spaces provided and required.

11) *Storm Drainage*

- Pipe material, size, length, slope, etc.
- Drainage areas and run-off for each storm drain pipe.
- Invert elevation, and top elevation for each structure - catch basin, yard inlet. Invert elevations for each flared end section, head wall, etc.
- Exit velocity and details of velocity reduction facilities at each outlet.
- Complete hydraulic calculations including hydraulic grade line analysis.
- Complete Storm Drainage Calculations (Note special requirement to address impact of off-site drainage, per Section 102(A)(2) and Section 500.
- Special details and storm drainage easements widths as required.

12) *Utilities*

- Waterline location, profile, type of material, and size.
- Water meter location and size; size of service branch.

- Sewer line location, profile, type of material, and size.
- Sewer service lateral - size and location.
- Water and sewer easements and required utility easements.
- Fire hydrant location.
- Valve vault for fire sprinkler line (if applicable).
- Suggested transformer location.
- Electric power easements (if required).
- Storm Water Drainage Structures - yard inlets, impoundments, catch basins, etc.

104 Approval of Materials

All materials to be used in the project shall conform to TOWN Specifications. Any variation from the pre-approved materials shall be submitted to the TOWN prior to beginning construction. The list shall include the manufacturer, model number and such other additional information as may be requested by the TOWN to determine compliance with these Specifications.

105 Permits

The owner shall be responsible for all applicable permits and associated fees.

106 Record Drawings

Record drawings which reflect “AS-BUILT” conditions must be submitted electronically through IDTPlans prior to start of warranty for roadways and/or public utilities to be maintained by the Town of Apex. The record drawings must be labeled “RECORD DRAWINGS” and signed by the Project Engineer of Record and/or PLS. An electronic file in AutoCAD format shall be submitted to the Town Engineer through IDTPlans. A survey data file (.txt) denoting the coordinates and description for each utility feature in the project scope shall be submitted to the Town Development Services group. All applicable information listed below shall be included on all “AS-BUILT” drawings:

NOTE: Record drawings of roadways and utilities are required prior to the beginning of the one-year warranty or acceptance by the TOWN.

All PDF sheets shall show the base file (approved CD) in a transparent manner, surveyed data will be shown in a bold/solid color.

“Record Drawing” plans shall be the certified plans sealed by a professional land surveyor locating the various features applicable to the project.

The “Construction Drawing” shall be the construction document designed and certified by

a professional engineer who has periodically monitored the project throughout construction and agrees with the “Record Drawing” plan as defined above.

Record Drawings are required for:

- Water and/or sanitary sewer service connections
- Doghouse manhole for service connections
- Irrigation system connections
- Water main extensions
- Fire lines (sprinkler lines)
- Fire Hydrants (including relocations of existing hydrants)
- Sewer main extensions
- Sewer outfalls
- Pump stations and force mains

The following PE and PLS Certifications are required on each sheet of the Record Drawings:

I certify that these as-builts are accurate and that each of the items listed on the Town’s “Record Drawing Checklist” as contained in the Town of Apex Standard Specifications is provided on this set of record drawings (_____ total sheets in this set).

I certify that all of the information provided is field-verified record drawing information.

Name: _____ Date: _____
(Seal) _____
Signature Registered Land Surveyor

Name: _____ Date: _____
(Seal) _____
Signature Professional Engineer

The following Field Survey Certification Statement is required on the cover sheet of the Record Drawings and the Survey data file:

I, _____, as a duly registered Professional Land Surveyor in the State of North Carolina, hereby certify that the data shown on this drawing, obtained under my supervision, is an accurate and complete representation of what was constructed in the field, that the physical dimensions or elevations shown thus are as-built conditions and the facility was constructed according to the approved plans, except otherwise noted herein.

Name: _____ Date: _____
(Seal) _____
Signature Registered Land Surveyor

A. *Site Data*

1. Boundary of tract with all courses and distances indicated. 1 corner of the tract shall be tied to the NC Plane Coordinate System if within 2000 feet of a USGS or NCGS monument.
2. Vicinity map, scale of drawings, and north arrow.
3. Master plan(s) showing all improvements and including existing contour elevations (2-foot intervals) and USGS datum with benchmarks indicated.
4. All easements identified and dimensioned.
5. Tract total acreage.
6. Total number of lots and average size.
7. Benchmark location and elevation.

B. *Public Roadway System*

1. Street widths (back-to-back of curb) and right-of-way dimensions.
2. Horizontal alignment with radii, PC's, and PT's of all curves and curve data.
3. Vertical alignment with centerline grades, vertical curve lengths, station numbers, and elevation of all PVC's and PVT's, and centerline profile and curve data.
4. Pavement sections and typical cross sections.
5. Geotextile fabric locations, type, and manufacturer.
6. Engineer's certification indicating construction of the pavement in accordance with the pavement design and specifications.

C. *Storm Water Drainage System*

1. 100-year flood limits and elevations.
2. Structure top and invert elevations.
3. Pipe size and type material.
4. Pipe grades and distances.
5. Structural BMP's (see Section 500 for detailed As-Built requirements).
6. Include all outlet structure details and invert elevations.
7. Include any applicable maintenance clauses from homeowner covenants.
8. Storm water easements.

D. *Water Distribution System*

1. Pipe size, location, and type material.
2. Separation from sanitary and storm sewer systems.

3. Location of valves, fire hydrants, meters, blow-off assemblies, bore and jack casings with distance locations provided in a survey .txt file that includes location data x,y,z.
4. Easement locations and widths.
5. Copy of PROJECT ENGINEER'S certification indicating construction of the water system in accordance with the approved plans and specifications.
6. Copy of the PLS certification indicating accuracy of data.

E. *Sanitary Sewer System*

1. Pipe size, location, and type material.
2. Manhole top and invert (in & out) elevations.
3. Pipe grades and manhole to manhole distances.
4. Clean-out locations with distance references provided in a survey .txt file that includes location data x,y,z.
5. Horizontal control (at manholes).
6. Easement location and widths.
7. Separation from water distribution and storm water systems.
8. Pump station test results.
9. Force main location, size, material type, location of air release valves and check valves, etc.
10. Pump station and associated appurtenances operation and maintenance manuals per Section 800 of these specifications.
11. Copy of the PROJECT ENGINEER'S certification indicating construction in accordance with the approved plans and specifications.
12. Copy of the PLS certification indicating accuracy of data.

For all structures and appurtenances, an electronic coordinate survey text tile (.txt) shall be submitted in the format of P,N,E,Z,D (Point Number, Northing, Easting, Elevation, Description). The descriptions used shall be common industry abbreviated terms (MH, CB, FH, WV, WM, CO, etc.) that are correctly labeled as they are in the CD file with any applicable reference numbers.

SECTION 200
GENERAL PROVISIONS

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201 General

All construction shall conform to the requirements and dimensions on the approved construction plans, Town Standard Details, the Code of the Town of Apex, or as stated in these Specifications. Any conflicting requirements or lack of information shall be brought to the attention of the TOWN prior to construction. Any deviations, or sections noting "as required by" a department, or department director, shall require submittal of an Exception Review Request for consideration by appropriate staff.

202 Abbreviations & Definitions

A. Abbreviations

AASHTO	- American Association of State Highway Transportation Officials
ANSI	- American National Standard Institute
ASTM	- American Society for Testing & Materials
AWWA	- American Water Works Association
NCDEQ	- North Carolina Department of Environmental Quality
NCDOT	- North Carolina Department of Transportation
NPDES	- National Pollutant Discharge Elimination System
OSHA	- Occupational Safety and Health Administration

B. Definitions

Where the word "ENGINEER" is used in these Specifications, it shall be the *Transportation and Infrastructure Development Director*, *Water Resources Director*, of the Town of Apex or duly authorized representative.

Where the word "INSPECTOR" is used in these Specifications, it shall be *Transportation and Infrastructure Development Department*, *Infrastructure Inspections* staff of the Town

of Apex or other duly authorized representative.

Where the word “TOWN” or “Apex” is used in these Specifications, it shall be the Town of Apex, North Carolina or an authorized representative.

Where the word “DEVELOPER” or “CONTRACTOR” is used in these Specifications, it shall be the developer of the project, or his authorized contractor performing work on the site. For purposes of these Specifications, these words are to be considered synonymous.

Where the words “PROJECT ENGINEER” are used in these Specifications, they shall mean the design engineer retained by the developer, and the person responsible for the preparation of the final construction drawings.

203 Earthwork

A. General

Earthwork shall be defined as the removal of soil (including rock) from its natural location and the depositing of such material into the proper fill areas as indicated on the plan.

B. Tree Protection

Tree protection shown on the construction plans approved by the TOWN shall be installed and inspected prior to earthwork within the area shown on the plans for protection. The protection fencing shall also be inspected on a regular basis. In the event that the tree protection fencing is not properly maintained or is in violation, the TOWN may issue a Notice of Violation, Stop Work Order, and/or assess a penalty which shall remain in effect until such time as the fencing is restored and agreements to replace damaged trees and/or vegetation have been resolved.

C. Rock Excavation - By Blasting

1) *Permit* - Where rock must be removed by blasting, a written permit must first be obtained from the Apex Fire Department.

2) *Hours of Blasting* - Blasting for rock removal shall be conducted only Monday through Friday between the hours of 8:00 AM to 5:00 PM.

D. Removal of Unstable Material

Where unstable and/or organic material (“muck”) is encountered in trenches or in roadways, the material shall be completely removed and replaced with suitable material and thoroughly compacted.

E. Placement of Fill

Fill material for roadway embankments shall be free from stones greater than 4 inches in size, construction debris, frozen, organic and/or other unstable material. Fill material placed in roadway embankments shall be placed in lifts of 8 inches or less, and compacted to a density of not less than 95% of maximum dry density as measured by the *Standard Proctor Method*. The 95% requirement shall apply for that portion of the roadway measured from the back of curb and extending outward on a slope of 1 to 1, measured perpendicular to the centerline. The remaining fill shall be compacted to a density of not less than 90% of maximum dry density as measured by the *Standard Proctor Method*.

Attention is called to Section 300 of this document for the inspection and testing requirements.

F. Compaction Tests

During roadway construction, the TOWN shall require the developer to provide compaction tests to demonstrate compliance with the compaction requirements outlined herein. Such tests may be required at any time that the TOWN believes the compaction to be less than the required density.

Backfilling of all trenches within the street right-of-way shall be thoroughly compacted to provide a minimum of 95% of the maximum density as determined by the *Standard Proctor Method*.

All backfilling of trenches outside the street right-of-way shall be compacted to provide a minimum of 90% of the maximum density as determined by the *Standard Proctor Method*.

204 Safety

The CONTRACTOR shall provide for and maintain safety measures necessary for the protection of all persons on the work site and shall fully comply with all laws, regulations, and building code requirements to prevent accident or injury to persons on or about the location of the work, **including all applicable provisions of OSHA regulations**. The CONTRACTOR shall protect all trees and shrubs designated to remain in the vicinity of the operations and barricade all walks, roads, and areas to keep the public away from the construction. All trenches, excavations, or other hazards in the vicinity of the work shall be well barricaded, and properly lighted at night.

The CONTRACTOR shall be responsible for the entire site and the necessary protection as required by the TOWN and by laws or ordinances governing such conditions. He/She shall be responsible for any damage to TOWN property, or that of others, by the CONTRACTOR, his/her employees, subcontractors or their employees, and shall correct and/or repair such damages to the satisfaction of the Town of Apex and/or other affected parties. He/She shall be responsible for and pay for any such claims against the TOWN.

The TOWN shall not be responsible for making the CONTRACTOR adhere to the Occupational Safety and Health Administration (OSHA) regulations or standards. However, the TOWN may report suspected violations of unsafe practices to the appropriate enforcement agency.

205 Work Within Right-of-Way of State Maintained Roads

A. General

No construction shall be initiated within the right-of-way of roads that are maintained by the NCDOT without the prior approval of the NCDOT. The NCDOT approval shall be evidenced by an appropriate Encroachment Agreement and/or Driveway Permit, as applicable.

A copy of the approved Encroachment Agreement and/or Driveway Permit shall be in the contractor's possession at the job site at all times that work is being performed.

The Contractor shall notify the NCDOT District Office and shall post any required Indemnity Bond prior to beginning work in the NCDOT right-of-way.

B. Utility Construction

The installation of public utilities within NCDOT right-of-way shall be accomplished in accordance with the Policies & Procedures for Accommodating Utilities on Highway Rights-of-Way, latest revision, as published by the NCDOT, Division of Highway, or those of the Town, whichever, in the opinion of the ENGINEER is more stringent.

C. Roadway Improvements - Pavement Widening, Curb & Gutter, and Storm Drainage

All improvements along existing NCDOT roadways, including pavement widening, curb and gutter, and storm drainage improvements, shall be accomplished in strict accordance with the Standard Specifications for Roads and Structures latest edition, as published by the NCDOT. The NCDOT specification shall supersede the construction specifications of the TOWN. The CONTRACTOR shall call for all inspections as required by the NCDOT District Office.

206 Maintenance of Traffic

Existing public streets or highways shall be kept open to traffic at all times by the CONTRACTOR unless permission to close the streets, or portions thereof, is granted by the ENGINEER. The Town of Apex Police Department must also be contacted by the CONTRACTOR a minimum of 24 hours before any streets are fully or partially closed. Proper and sufficient barricades, lights, signing, and other protective devices shall be

required to be installed when deemed necessary by the Police Department or ENGINEER.

207 Concrete

Concrete shall be only plant-mixed, transit-mixed, or mobile-mixed concrete conforming to ASTM C33 for aggregates and to ASTM C94 for ready-mixed concrete. Any concrete poured that has a slump over 4 inches as per ASTM C143, or has a batched time of more than 90 minutes, will be considered unacceptable. Periodic samples may be required at the expense of the owner to determine the strength of the material. Concrete shall not be deposited on frozen subgrade. Concrete shall not be poured when the air temperature is falling and below 40° degrees F, and/or the predicted low temperature for the succeeding 24-hour period is less than 32° degrees F. All concrete when placed in the forms shall have a temperature of between 50° and 90° degrees F and shall be maintained at a temperature of not less than 50° degrees F for at least 72 hours for normal concrete and 24 hours for high-early strength concrete, or for as much time as is necessary to insure proper rate of curing and designed compressive strength. Curing shall be accomplished in accordance with NCDOT specifications. Concrete shall be air entrained at 5% (±1%). Retarders and accelerators shall be used only upon approval of the ENGINEER.

208 Asphalt

Asphalt and tack coat shall be applied only when the surface to be treated is sufficiently dry and the atmospheric temperature in the shade away from artificial heat is 40° degrees F or above for base and intermediate course and 50° degrees F or above for surface course. Asphalt shall not be applied when the weather is foggy or rainy. The CONTRACTOR is responsible for seeing that these conditions exist prior to the application of tack coat or asphalt.

209 Electrical Power Service

A. General

The Town of Apex will provide electrical service to projects within the Town's ETJ, in accordance with North Carolina General Statute 160A. Electrical service facilities shall be designed, constructed and maintained by the TOWN, with the developer paying fees as may be prescribed in accordance with TOWN policy. These fees may include but are not limited to an aid-in-contribution of construction, pole relocation, and other reasonable and customary charges. The Town of Apex reserves the right to not install electrical service on any right of way, easement, or lot that has not been properly graded in accordance with these specifications.

B. Easements for Town Electric Power

Where electrical distribution facilities are required to cross private property, the DEVELOPER shall provide easements as follows:

Underground Primary Lines - 20-foot easement

Overhead Primary Lines - 30-foot easement. Easements shall be shown on the final plat for the project

NOTE: All easements shall be shown and properly labeled on the final plat.

C. Service Connections - Special Requirements

Electrical service connections to service pedestals or transformers shall be made in strict accordance with the Standard Detail.

210 Grease Traps/Interceptors

All establishments engaged in the preparation of food shall install a grease trap. The grease trap shall be located outside the building and shall intercept all kitchen wastes, floor drains, and car wash drains. Domestic waste from toilets and lavatories shall not be directed to the grease trap. The Town of Apex Code Enforcement Officer shall approve the design and construction of all grease traps as per N.C. State Building Code.

211 Dumpsters - Installation Requirements

All dumpsters shall be placed on a reinforced concrete pad conforming to the requirements shown in the Standard Detail and screened in accordance with the Apex Planning Department requirements.

212 Notification Prior to Beginning Work

The DEVELOPER or responsible contractor shall notify the TOWN not less than 24 hours prior to the commencement of any new construction activity. No new work shall commence without approval of the TOWN.

213 Materials

All materials incorporated in work to be accepted by the Town of Apex for maintenance shall be new, first quality material installed in accordance with the manufacturer's instructions or these Specifications, whichever, in the opinion of the ENGINEER, is more stringent or applicable.

It is the intent of this Specification to provide materials and construction methods of high

standard and quality and to provide materials free from defects in workmanship and product. Equal material not specified may be used provided documentation and samples are furnished to the ENGINEER not less than 14 days before their delivery to the construction site. The ENGINEER will issue written approval or disapproval of the alternate materials. Current Specifications and/or the latest revisions shall apply in all cases where materials are described.

214 Inspections

The presence of a TOWN employee at the work site shall not lessen the CONTRACTOR'S responsibility for conforming to the approved construction plans and/or specifications. Should the ENGINEER or INSPECTOR accept materials, or work that does not conform with the approved plans or specifications, whether from lack of discovery or for any other reason, it shall in no way prevent later rejection or corrections to 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. Any work that has been covered without the INSPECTOR'S approval, shall at the INSPECTOR'S request, be uncovered and be made available for inspection at the CONTRACTOR'S expense. After regular working hours or weekend work shall comply with
the TOWN'S specifications and shall include only such work that does not require continuous observation by an INSPECTOR.

215 Public Utility Easements

A. General

All utility easements shall be clearly identified as PUBLIC or PRIVATE and labeled as per the requirements in Section 600, 700, or 800, as applicable.

Only one utility shall be installed per easement, unless as approved by exception request to the Water Resources Department.

Easements shall be acquired by the Developer (unless utility is designed as part of a Capital Improvement Project) prior to construction plan approval.

Access for the purpose of construction inspection shall be provided to the Town of Apex or designated representatives. All off-street water, sewer mains, and power lines, etc. to be operated and maintained by the TOWN shall be located in a public utility easement. Private easements for water and sewer service lines are not permitted.

Fill or cut slopes greater than 6:1 shall not extend into utility easements. Easements shall be graded to provide positive drainage in all directions, with a minimum grade of 0.5%. Easements shall be fully accessible by rubber-tired vehicles in their entirety and graded smooth, free from rocks, boulders, roots, stumps, and other debris to provide a maximum

6:1 grade parallel to the utility centerline and a maximum of 4% cross-slope and seeded and mulched upon completion of construction. Utility easements shall be accessible from a public right-of-way. If the easement is not accessible perpendicular from the right-of-way due to steep slope, environmental feature, or other obstacle, additional easement may be necessary, as deemed by the Water Resources Department.

All pre-existing or planned conditions as noted herein which may impact operations and maintenance within the utility easement shall be noted and disclosed during the site plan and construction drawing approval process. Pre-existing conditions not disclosed during the site plan and construction drawing approval process may nullify the approval and require relocating the utility easement, and underlying infrastructure, where no conflicts exist.

Where concentrated sources of runoff (e.g. SCM discharge, FES discharge outlets, natural drainage ways, etc.) convey across an existing or proposed utility easement, the applicant must design a rip rap lined channel across the full width of the easement, graded at a 4:1 slope, or a closed drainage system to move all runoff across the easement. In locations where the crossing of a natural drainage way is not-feasible, or not approved by the applicable regulatory agency, a turn-around shall be provided prior to the termination.

All retaining walls shall have a separation from the utility easement boundary of at least 1:1 horizontal to vertical. For example, if the retaining wall is 10 feet tall, it shall be placed no closer than 10 feet from the adjacent easement boundary. In no instance shall any footer or component of a retaining wall be within 5 feet of an easement boundary.

B. Encroachments

No part of any structure, including substructures and overhangs, equipment, private utility line (including water, irrigation, and/or sewer lines), retaining walls, embankments, impoundments, privately maintained greenways and paths, landscaping, or other elements, both temporary or permanent, which may inhibit maintenance operations shall be constructed within a utility easement and no grading may occur within any Apex utility easement prior to obtaining final construction plan approval, a building permit, or an encroachment agreement or prior approval from the Water Resources and/or Electric Utilities Department.

Any application for an encroachment agreement must include plans to facilitate access and maintenance of the utility and must include supporting documentation to confirm no damage will occur to the utility.

Proposed utility easement encroachments reviewed through construction plan review will not require a separate encroachment agreement application, but will require an approved exception request from the Water Resources Director.
Fences may be allowed to cross utility easements provided appropriate access gates have been installed to allow maintenance. Fences shall not be installed parallel to the

utility within the utility easement. Town of Apex staff shall have 24-hour access to secured access gates.

Any improvements encroaching within an Apex utility easement are subject to disturbance, damage, or removal during Apex's use of the easement. The Town of Apex will not repair or replace any improvements within a utility easement. Apex will not be held liable for damage to any encroaching improvements during the maintenance of the Apex facility or structure.

216 Water for Construction

The Town of Apex does not provide free or otherwise unmetered water for use on any construction project. CONTRACTORS or construction personnel shall not take water from hydrants, blow-offs, water meter boxes, etc. CONTRACTORS desiring to use TOWN water for construction purposes shall apply to the *Water Resources Department* for water service and shall pay for the water service in accordance with the Town of Apex policies and requirements.

Bulk water for construction or other water requirements may be obtained at the *Water Resources Department* located at 105-B Upchurch Street. Bulk water for construction may also be obtained from a fire hydrant using a Town approved meter with back flow preventer. Bulk water rates will be billed per load of water obtained. Bulk water rate is the current TOWN Outside Water Rate.

217 Street Lights

The Town of Apex will provide 1 street light at each intersection and 1 streetlight near the midpoint of each block or approximately every 300 feet in a residential area. The TOWN shall provide 1 streetlight at the midpoint of any cul-de-sac greater than 200 feet in length in residential areas. Additional public street lighting is provided only in areas where needed for public safety, such as major intersections, the downtown area, and in cases of clearly defined need.

218 Guarantee

The DEVELOPER shall provide a guarantee as per Town of Apex Unified Development Ordinance, on workmanship and materials for a period of at least the longer of 1 year after the date of acceptance by the Town of Apex or until 60% of the lots in the bonded phase have been issued a Certificate of Occupancy. Any defects observed within the guarantee period shall be repaired and/or replaced to the Town's satisfaction and the cost of such repairs shall be borne by the developer. The guarantee shall apply to street construction, sidewalks, water lines and appurtenances, sanitary sewers, storm sewers (including ditches, drainage channels, and appurtenances, etc.), pumping stations, force

mains and appurtenances.

219 Retaining Walls

Retaining wall structures shall meet NCDOT standards. Any deviation from NCDOT standards require pre-approval of the Transportation & Infrastructure Development Director. Retaining walls higher than 4 feet shall be designed by a licensed Professional Engineer in accordance with N.C. General Statute 89C and be required to obtain a building permit in accordance with the Town of Apex Unified Development Ordinance. Safety rails or fencing may also be required. Private retaining walls, including supports, foundations, reinforcement, and any other wall appurtenances are not allowed within public right-of-way or easements.

220 Fire Department Access Roads

The CONTRACTOR shall provide a temporary access road prior to vertical construction or import of combustible materials to the project site. The specifications for temporary emergency access roads are as follows:

- Location: within 150 feet of all exterior walls of the first floor of all buildings constructed within the site; a turnaround is required on dead-end access roads in excess of 150 feet in length;
- Minimum width: 20 feet;
- Maximum grade: 10%
- Horizontal geometry, minimum turn radius, inside tire: 29 feet, outside tire: 52 feet;
- Vehicular weight capacity: 80,000 lbs;
- Materials: angular inch river rock, crushed granite, or other aggregate with 1-1.5" nominal size;
- Temporary Street Signs: Shall be posted at each intersection at the time the roadways are passible.

More than one access road may be required when it is determined that a single road may be impaired by vehicle congestion, climatic conditions, or other factors that could limit access. Access to buildings for the purpose of fire department vehicle access shall be provided at all times during construction. Construction vehicles and materials shall not block access to buildings, hydrants, or fire appliances. Site development managers and/or building construction superintendents shall have the responsibility to monitor emergency service access conditions on a daily basis. When conditions are such that emergency service access is diminished in minimum required width, capability of carrying imposed loads and/or providing adequate traction, appropriate measures shall be taken to mitigate such conditions to once again provide adequate emergency service access.

SECTION 400
SOIL EROSION & SEDIMENTATION CONTROL

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401 General Requirements

Temporary soil erosion and sedimentation control (S&E) measures shall be provided in accordance with the S&E plan approved by the Town of Apex. After the performance guarantee has been paid and the perimeter silt/tree fence has been inspected by the zoning compliance officer the S&E letter of plan approval will be issued to permit the CONTRACTOR to grade only enough as to install the S&E measures. The contractor/developer must receive a certificate of coverage from the North Carolina Department of Environmental Quality (NCDEQ) prior to installing measures. Once the S&E measures are installed and found to be acceptable with the approved S&E plan, a certificate of compliance will be issued so the CONTRACTOR can continue land disturbing activities on the applicable phase of the site. The S&E plan shall be in accordance with the North Carolina Division of Energy, Mineral and Land Resources (NCDEMLR) Erosion and Sediment Control Planning and Design manual (latest revisions) and the Town of Apex Standard Specifications and Details. The CONTRACTOR/DEVELOPER should also be familiar with the Town of Apex S&E Ordinance. The approved S&E Plan shall be kept on site by the CONTRACTOR at all times while work is being performed. For land disturbing projects equaling 1 acre or more, the NPDES Stormwater Discharge Permit (NCG 010000) issued by the NCDEQ shall be maintained on site and adhered to. The Town Construction Site Waste Management Plan is issued with the letter of plan approval and must be followed for the life of the project.

For areas of single-family development within a project, all logging and grading activities are limited to a maximum of 20 acres at one time. All S&E measures shall be installed prior to clearing operations, and in no case shall an area, where work is completed, remain denuded for more than 14 calendar days. Ground cover shall be established in graded slopes and fills within 14 calendar days for slopes 3:1 or flatter and within 7 calendar days for slopes steeper than 3:1. S&E measures shall be coordinated with all

other work on the project to ensure economical, effective, and continuous S&E throughout the construction and post construction period and to minimize siltation of streams, lakes, reservoirs, and other water impoundments, ground surfaces, roadways, or other properties.

Minimum design criteria for S&E devices shall be the following:

1. Required Volume – 3600 ft^3 per disturbed acre.
2. Required Surface Area – Shall be based on 435.6 ft^2/cfs and the peak flow rate from a 25-year, 24-hour storm event (Q_{25}).
3. The outlet structure from a sediment basin shall only withdraw water from the surface.
4. Prior to the issuance of the Certificate of Compliance, the permanent outlet structure for all temporary sediment basins (future Stormwater Control Structures-SCM's) must be installed with the skimmer attached to the bottom drain.

402 Construction Sequence and Schedule

The PROJECT ENGINEER will include a construction sequence schedule or work schedule that coordinates the timing of the land-disturbing activities and the installation of erosion and sedimentation control measures. See the Town website for a sample construction sequence.

403 Seeding & Mulching

Seeding and mulching shall be carried out immediately behind construction in accordance with the following specifications:

SHOULDERS, SIDE DITCHES, SLOPES (3:1 MAX.)

Date	Type	Planting/Acre
Aug 15 - Nov 1	Tall Fescue	300 lbs.
Nov 1 - Mar 1	Tall Fescue & Abruzzi Rye	300 lbs.
Mar 1 - Apr 15	Tall Fescue	300 lbs.
Apr 15 - June 30	Hulled Common Bermuda grass	25 lbs.
July 15 - Aug 15	Tall Fescue ***and***	35 lbs.
	*** Brown top Millet ***or***	
	*** Sorghum-Sudan Hybrids	

SLOPES (3:1 to 2:1)

Date	Type	Planting/Acre
Mar 1 - June 1	Sericea Lespedeza (scarified) ***and***	50 lbs.
Mar 1 - April 15	ADD Tall Fescue ***and***	120 lbs.

Mar 1 - June 30	ADD Weeping Love grass ***or***	10 lbs.
Mar 1 - June 30	ADD Hulled Common Bermuda Grass	25 lbs.
June 1 - Sep 1	*** Tall Fescue ***and***	120 lbs.
	*** Brown top Millet ***or***	35 lbs.
	*** Sorghum-Sudan Hybrids	30 lbs.
Sep 1 - Mar 1	Sericea Lespedeza (unhulled-unscarified) ***and***	70 lbs.
	Tall Fescue	120 lbs.
Nov 1 - Mar 1	ADD Abruzzi Rye	25 lbs.

***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12 inches in height before mowing, otherwise fescue may be shaded out.

A Conservation Engineer or Soil Conservation Service shall be consulted for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those which do well under local conditions; other seeding rate combinations are possible. Any variation from this list shall be pre-approved by the TOWN.

SEEDBED PREPARATION

1. Chisel compacted areas and spread topsoil 3 inches deep over adverse soil conditions, with stockpiled topsoil. CONTRACTOR shall reserve sufficient topsoil for seedbed preparation.

2. Rip the entire area to 6 inch depth.

3. Remove all loose rock, roots, and other obstructions leaving surface reasonably smooth and uniform.

4. Apply agricultural lime, fertilizer, and super-phosphate uniformly and mix with soil (see below*).

5. Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 4 to 6 inches deep.

6. Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.

7. Mulch immediately after seeding and anchor mulch.

8. Inspect all seeded areas and make necessary repairs or reseedings within the planting

season, if possible. If stand is less than 60% established, the entire area shall be reseeded according to specifications using the original lime, fertilizer and seeding rates.

9. Consult a Conservation Inspector on maintenance treatment and fertilization after permanent cover is established.

*Apply: Agricultural Limestone - 2 tons/acre (3 tons/acre in clay soils)
Fertilizer - 1,000 lb/acre - 10-10-10
Super-phosphate - 500 lb/acre - 20% analysis
Mulch - 2 tons/acre - small grain straw
Anchor - Asphalt Emulsion @ 300 gals/acre

404 Construction Entrances

Gravel construction entrance pads (see detail 400.06) shall be constructed at each point of construction access to the site, including residential lots. The gravel pads shall be maintained in such a manner as to prevent the deposition of mud and debris onto existing public roadways or properties adjacent to the site.

Special Note: It shall be the developer's responsibility to see that the construction entrance pads are properly maintained so that mud is not tracked onto adjacent streets. In the event that the gravel construction entrances are not properly maintained, or are otherwise ineffective, the TOWN may issue a Notice of Violation, Stop Work Order, and/or assess a penalty which shall remain in effect until such time as the pads are restored and replenished and until any resulting mud and debris has been removed from the adjacent streets by the CONTRACTOR.

405 Inlet Protection

In addition to the inlet protection standard details presented herein and to further protect the water quality of receiving streams, filtering inlet protection devices shall be used at all catch basins along roadways that have just received the first lift of asphalt. The devices shall be installed across the grate and throat and must be a product approved by the Town's *Stormwater Engineering Manager*. The filtering inlet protection device will be subject to periodic inspection and must be properly maintained throughout construction.

For stub streets and street phasing lines draining away from the site, and other areas as directed by the TOWN, asphalt diversions or other TOWN approved alternative shall be installed to direct runoff into inlets until the final lift of asphalt is installed. Cold patch asphalt shall not be used.

Unless inlets are located at the street stub, erosion control measures shall be installed at the edge of stub streets draining away from the site to prevent erosion.

406 Computations

All computations and assumptions used to formulate an S&E plan shall be reviewed by

the Town. S&E measures, structures and devices shall be planned, designed and constructed to control the calculated peak runoff from a 25-year frequency storm. Runoff rates shall be calculated using the USDA Soil Conservation Service Method, the Rational Method or other acceptable calculation procedures. Runoff computations shall be based on rainfall data published by the National Weather Service for this area.

SECTION 450
UTILITY TRENCHES

451 Excavation and Preparation

A. Preparation

1. General Requirements

a) Trenching for pipelines (water, gravity sewer, and force main), shall be excavated to the required depth to permit the installation of the pipe (inclusive of pipes and structures) along the lines and grades shown on the construction drawings.

b) Prior to trenching for the construction of any utility mains or connections, the Contractor shall locate all existing utilities within the construction zone. This may include at a minimum contacting the North Carolina One Call Center at 811 or 1-800-632-4949. Where critical Town water and sewer utilities cannot be located by traditional means, specialized utility locating, such as vacuum excavation or ground penetrating radar (GPR) may be required to locate existing utilities before excavating.

c) In all cases where trenchless methods are planned to cross an existing utility corridor with water, sewer, force main, and/or other Town maintained pipelines, an SUE (subsurface utility exploration) services firm shall be contracted to verify the depths of existing utilities prior to submittal of Construction Drawings for review.

d) The Contractor shall be responsible for implementing all required safety provisions for trenching in compliance with the Occupational Safety and Health Administration (OSHA) regulations and all other applicable safety requirements and procedures.

e) Refer to Section 500 for all Stormwater installations.

B. Trenching

1. Trench Dimensions

a) The minimum trench width at the top of the pipe shall be at least 16 inches greater than the outside diameter of the pipe, the maximum shall be 24 inches greater than the outside diameter. Rock shall be removed to a depth of at least 6 inches below the bottom of the pipe and the trench backfilled with suitable material.

b) Open trenches shall not exceed 100-ft.

c) All trenches shall be confined to the limits of the right-of-way or utility easement. Trenches in paved areas shall not be sloped.

d) All trenches shall be properly backfilled at the end of each working day.

2. Trench Protection

a) Wet gravity sewer trenches shall be stabilized with a base layer of #57 stone. The bottom of the trench shall be shaped to provide uniform support along the entire length of the pipeline. Severely unstable trench bottoms requiring undercut excavation shall receive a foundation support system for the pipeline designed by a registered Geotechnical Engineer licensed in the State of NC.

b) A space shall be excavated at each bell to provide ample space to join the pipes with no misalignment.

c) The Contractor shall take all necessary measures to prevent water from entering the trench.

3. Dewatering

a) The ground adjacent to the excavation shall be graded to prevent surface water from entering the trench. The Contractor will, at his expense, remove by pumping or other means approved by the Town, any water accumulated in the trench and shall keep the trench dewatered until bedding and pipe laying are complete. When water is pumped from the trench, the discharge shall follow natural drainage channels. Proper erosion control measures shall be employed. Direct discharge into stream is not permissible.

b) In gravity sewer trenches where water is present or where dewatering is required, the trench bottom shall be undercut and stabilized with No. 57 or No. 67 stone, having a minimum depth of 8-inches.

452 Pipe Laying and Backfilling

A. General Requirements

1. Embedment Material

a) Bedding and embedment material classifications shall be defined as follows:

1) CLASS I - Angular, (1/4 to 1-1/2 inch) graded stone, including a number of fill materials that have regional significance such

as coral, slag, cinders, crushed stone, crushed gravel, and crushed shells.

2) CLASS II - Coarse sands and gravels with maximum particle size of 1-1/2 inch, including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil types GW, GP, SW and SP are included in this class.

3) CLASS III - Fine sand and clayey gravels, including fine sands, sand-clay mixtures, and gravel-clay mixtures, Soil Types GM, GC, SM, and SC are included in this class.

4) CLASS IV - Silt, silty clays, and clays, including inorganic clays and silts of medium to high plasticity and liquid limits. Soil Types MH, ML, CH and CL are included in this class. These materials shall not be used for embedment.

b) Class I foundation material consisting of ¼-inch to 1½ -inch graded stone shall be required in addition to standard bedding and embedment for all sewer installations, regardless of pipe material, when the trench bottom is unstable due to water, rock, infiltration or soil type.

c) All bedding, embedment and backfill materials shall be compacted to a minimum of 95% Standard Proctor density regardless of material. In instances where compliance with compaction requirements is questionable as determined by the Town, testing shall be provided by the Contractor and a reputable licensed Geotechnical Engineer to verify compliance.

d) The minimum trench width shall be one pipe diameter plus 8 inches on each side of the pipe, with a maximum of 12 inches on each side of the pipe.

e) In any area where the pipe will be installed below existing or future ground water levels or where the trench could be subject to inundation, additional Class I material shall be used for bedding.

f) If hydraulic jack shoring is utilized for trench walls, it shall be restricted to the area just above the top of the pipe. This will ensure the embedment materials and pipe will not be disturbed when the shoring is removed.

2. Pipe Laying

a) Open ends of pipe shall be plugged when pipe laying is not in progress to prevent trench water, soil, and debris from entering.

b) All pipe shall be laid in accordance with the manufacturer's recommendations, all applicable Town Standards, Specifications and Details, and in accordance with construction drawings.

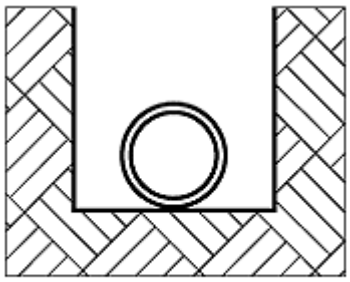
c) Pipe laying shall be accomplished in a manner and with the required resources to provide a properly aligned and sealed pipeline and joints.

d) Pipe deflection limits shall not be exceeded in accordance with manufacturer requirements.

e) All gravity mains shall be installed beginning with the downhill section at the lowest elevation, and advanced upgrade to the terminus of the main. All bell ends shall be oriented facing the uphill direction.

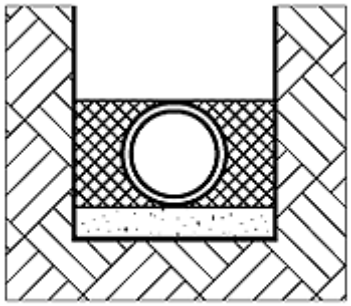
f) Laying conditions shall be defined as follows:

Type 1:
Flat Bottom Trench with Pipe Resting on Stable Undisturbed Earth. Unstable conditions such as wet trench bottoms, intermediate rock layering, partially weathered rock, and other unsuitable soil conditions shall require utilizing more stringent laying conditions. At a minimum, Type 4 laying condition shall be utilized with a minimum of 4-inches of bedding to overcome unstable conditions. For severe unstable soil conditions, undercut excavation and an engineer designed foundation plan shall be provided prior to pipeline installation.



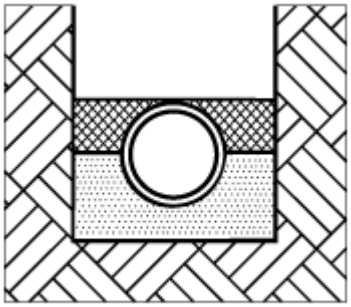
Type 1*

Type 4:
Pipe bedded in Class 1 material, No. 67 or No 57 crushed stone to a depth of 1/8 pipe diameter or a minimum of 6-inches. Embedment material, consisting of Class 1, Class 2 or Class 3 materials, shall be compacted greater than 95% Proctor to the top of the pipe. Careful attention must be allocated to compacting embedment material under the bottom edges of the pipe.



Type 4

Type 5:
Pipe bedded in Class 1 material, No. 67 or No. 57 crushed stone to the center of the pipe and extending a minimum of 6-inches under the pipe. Granular or select embedment, consisting of Class 1 or Class 2 materials, compacted to greater than 95% Proctor installed to the top of the pipe.



Type 5

g) For installations below the water table, a single layer of engineering fabric shall be installed between the pipe and trench floor/trench wall. The fabric shall fully encapsulate the waterline, bedding, and embedment material with a minimum of 12-inch overlap at the top of the embedment material.

3. DIP Specific Installation Requirements

a) Ductile iron pipe shall be installed in accordance with the requirements of AWWA C600 and the Ductile Iron Pipe Handbook published by the Ductile Iron Pipe Research Association. Materials at all times shall be handled with mechanical equipment or in such a manner to protect them from damage. At no time shall pipe and fittings be dropped or pushed into ditches.

b) Pipe shall be installed at laying conditions as specified herein and identified by the plan drawings. Laying conditions for ductile iron pipe shall be as described in AWWA C151 and the Ductile Iron Pipe Research Association.

4. PVC Specific Installation Requirements

The installation of PVC Pipe shall satisfy the requirements of the manufacturer, and/or the following, whichever is more stringent:

a) For PVC pipe, the pipe shall be produced with bell and spigot end construction. Joining shall be accomplished by rubber gasket in accordance with manufacturer's recommendation. Flexible watertight elastomeric seals in accordance with ASTM D3212-1 may also be used. Each pipe length shall be clearly marked with information including pipe size, profile number and class number.

b) Installation of PVC pipe shall follow the recommendations of ASTM D-2321 "Underground Installation of Thermoplastic Pipe for Sewers and other Gravity-Flow Applications". For PVC pipe installation, bedding and embedment material shall be Class I, typically No. 67 or No. 57 washed stone. Bedding and embedment materials for PVC gravity sewers other than No. 67 or No. 57 washed stone shall be approved by the Town of Apex prior to use.

c) Bedding for gravity sewer shall consist of minimum 4-inches of No. 67 or No. 57 stone installed under the pipe (Type 4). Embedment shall extend to the top of the pipe. Bedding and embedment shall be compacted to 95% standard proctor density. Careful attention shall be placed on compacting embedment under the haunches of the pipe to prevent any potential voids.

d) The bedding and embedment materials shall be in accordance with ASTM D-2321. The embedment materials shall be installed from trench wall to trench wall.

e) The maximum allowable deflection after installation shall BE LESS THAN 5% for PVC pipe.

f) All PVC pipe shall be stored properly to prevent UV damage prior to installation. Any PVC pipe with visible fading caused by UV radiation from sunlight shall be rejected.

g) All PVC pipe shall be free from nicks, scratches and gouges at the time of installation. Such defects can impact the strength of PVC pipe and all pipes with visible gouges shall be rejected.

5. Backfill

a) Backfill material shall be free from construction material, frozen material, organic material, or unstable material. Backfill with a high clay content or high shrink-swell potential that cannot meet compaction requirements shall be deemed unsuitable and replaced.

b) Backfill materials that have been allowed to become saturated or with moisture contents non-conducive to meeting compaction requirements shall be deemed unsuitable and replaced.

c) When original excavated materials have been deemed unsuitable, granular material must be imported to the site to backfill utility trenches and meet compaction requirements. The following materials shall be acceptable forms of granular backfill: aggregate base course, soil type base course, select backfill material, sand or screenings in accordance with NCDOT Specifications.

d) In all open utility trenches, backfill shall be compacted to 95% maximum dry density as measured by AASHTO method T99. The Contractor shall be responsible for verifying that compaction requirements have been met or exceeded by providing soils testing data from an approved Geotechnical Firm. The soil test results shall be certified by a licensed Geotechnical Engineer.

e) Backfill for utility trenches shall be placed in lifts of uncompacted soil in accordance with the standard detail and compacted with a mechanical tamp before placing additional layers.

f) No rocks, boulders, or stones shall be included in the backfill material for at least 2 feet above the top of the pipe. In traffic areas, the final backfill shall be placed and compacted in 6-inch layers. Backfill shall be of such density as to ensure no settlement of the trench.

g) A compaction test shall be performed every 1,000 feet for utility installations, with a minimum of one test per utility by a licensed Professional Engineer and shall be coordinated and submitted at the Contractor's expense. The location of tests shall be determined by the Town. The Town may request

additional testing. Additional tests that are deemed passing will be at the Town's expense, failed tests shall be paid for by the Contractor. Organic material shall not be permitted for backfill.

h) Should any water line trench exhibit settlement, the Contractor shall correct the deficiency to the complete satisfaction of the Town. Where a utility line is in or crosses existing State roads or other public roads, the backfill shall be compacted to at least 95% standard density as measured by AASHTO Method T-99, or in accordance with NCDOT specifications, whichever is more stringent.

i) For permitted open-cut utility installations and/or tie-ins, the Town may require that "flowable fill" be used for backfill material. If required, 1 foot of approved natural backfill material shall be compacted over the main per Apex Specifications, the remaining excavated trench shall be backfilled with "flowable fill". Within seven (7) days after the excavation has been filled, the open-cut area shall be repaired per the Standard Detail.

6. Pipe Identification and Marking

a) Marking Tape

1) Installation: Marking tape shall be installed continuously and longitudinally along all mains and services for new construction and for any repair or retrofit construction using open trench methods. For service connections, the marking tape shall extend from the main line to the meter or first cleanout off the main/manhole. Marking tape shall be installed directly above the center of the pipe at a depth of 24-inches to 36-inches below final grade.

2) Specifications: The marking tape shall be made of an approved material in Apex's Approved Products List, 6-inches wide and a minimum of 6 millimeters thick. The tape color shall be in accordance with the utility being installed:

a. Blue for water and shall be marked with words "CAUTION WATER LINE BURIED BELOW" (or an approved equivalent wording).

b. Green for gravity sewer and force mains and shall be marked with words "CAUTION SEWER LINE BURIED BELOW" (or an approved equivalent wording).

3) The wording shall be repetitive along the full length of the tape.

b) Marker Balls

1) Installation: Non-programmable marker balls are required at the ends of all casing pipe, fittings and reducers. Marker balls shall be used in addition to marking tape within thoroughfares and within 100-feet of a signalized intersection. Through signalized intersections, marker balls shall be spaced at 25-foot intervals. They shall also be installed along and directly above all water mains in conditions where marking tape cannot be installed due to restrictions or conflicts. In these conditions, non-programmable marker balls shall be placed at all vertical and horizontal deflection points, at all tees and crosses and at a spacing along the main no greater than 100 feet apart. Each marker ball shall be installed directly above the center of the pipe and at a depth of 24-inches to 36-inches below final grade. At any sections where tape cannot be accurately placed at time of backfilling, sufficient survey data shall be collected to reestablish location for tape installation. A table of marker ball locations, with description, must be submitted as part of the record drawing.

2) Specifications: The Marker Ball is a non-programmable ball and shall be an approved product identified in the Approved Products List. The marker ball shall be blue in color for potable water and conform to APWA standards. It shall have a minimum detectable depth of 5 feet.

c) Marker Tape and Marker Ball Testing

1) Testing of the marker tape and marker balls shall be performed by the Contractor at the completion of the project to assure they are all working properly. It is the Contractor's responsibility to provide the necessary equipment to perform all testing. Any defective, missing, or otherwise non-locatable units shall be replaced.

453 Pavement Repairs

A. Open Trench Pavement Repair

1. General Requirements

a) All pavement cuts shall be repaired within a maximum of three (3) calendar days from the date the cut is made. If conditions do not permit

a permanent repair within the given time limit, permission to make a temporary repair must be obtained from the Transportation and Infrastructure Development Department.

b) Pavement repairs shall be made in accordance with the Details.

c) No pavement repair joints shall be installed within the wheel path of the travel lane.

d) All asphalt pavement utilized to repair open trenches shall comply with all applicable Town of Apex asphalt pavement material and installation Specifications.

e) All pavement patches shall be provided in such a manner that a uniform and smooth driving surface free of depressions and/or bumps is obtained. Pavement patches not meeting this standard shall be milled and replaced, as directed by the Transportation and Infrastructure Development Department.

f) All utility mains installed by open cut across Town or NCDOT roadways shall include steel encasement, sized in accordance with tables found in this specification.

454 Trenchless Pipe Installation

A. Design

1. General Requirements

a) All utility crossings within the Town of Apex, or State maintained streets, shall be made by trenchless methods. In cases where utility conflicts, rock, or other obstructions prevent trenchless crossings, other methods may be considered at the discretion of the Water Resources Department.

b) The preferred trenchless method shall be auger boring. Alternate trenchless methods including microtunneling, guided boring, conventional tunneling, horizontal directional drilling or hand tunneling may be approved after thorough evaluation by the Water Resources Department.

c) In addition to meeting or exceeding all Town requirements, all trenchless crossings shall be approved by and meet the requirements of all controlling legal authorities, such as NCDOT, Norfolk Southern Railway, CSX Corporation, Colonial Pipeline, Cardinal Pipeline, and Dixie

Pipeline. At a minimum, encasement pipe shall be installed at least 10 feet on either side of the easement crossing and appurtenant equipment and accessories located outside of the easement boundaries.

d) Direct bores may be made without a casing pipe on pipelines 6-inches in diameter and smaller.

e) Encasement pipe shall be installed with all trenchless construction methods (excluding horizontal directional drilling when it is approved and as noted above). There shall be a minimum cover of 4-ft between the pavement subgrade and the top of the casing pipe. Under no circumstances shall the pavement subgrade be disturbed.

f) Permanent easements shall be provided at all trenchless pits to allow for future access to casing pipes.

B. Materials

1. Encasement Pipe

a) Encasement pipe shall be new and manufactured of grade 'B' steel with minimum yield strength of 35,000-psi in accordance with ASTM A139 and A283.

b) All casing pipe shall have machine cut, bevel ends that are perpendicular to the longitudinal axis of the casing. Ends shall be plumb and welded without the use of filler material.

c) Size and minimum wall thickness of smooth wall or spiral welded steel encasement pipe shall be as shown in the below table. Actual wall thicknesses shall be determined by the casing installer based on their evaluation of the required forces to be exerted on the casing when it is installed.

Minimum Wall Thickness of Steel Encasement Pipe

Encasement Pipe Outside Diameter *(inches)*	Minimum Wall Thickness *(inches)*
14	0.375
16	0.375
18	0.375
20	0.375
24	0.375
26	0.500
28	0.500
30	0.500
36	0.625
42	0.625
48	0.750
54	0.750
60	0.750
66	0.750

d) Encasement pipe installed for railroad bores shall meet the requirements of the American Railway Engineering Association (AREA) for boring under railroads.

e) Encasement pipe shall be sized in accordance with the standard detail.

2. Casing Pipe Spacers and End Closures

a) The carrier pipe shall rest on steel pipe alignment spacers. The spacers shall have either a bituminous or epoxy coating. A minimum of 3 steel spacers per joint shall be required on carrier pipe less than 36-inches. Carrier pipe greater than or equal to 36-inches shall have a fourth spacer. The steel spacers shall be located evenly along the carrier pipe alignment in such a manner that each spacer supports the same unit weight of carrier main. The spacing interval of the steel spacers shall assure the necessary grade, clearance, and support of the carrier main. The spacers shall be manufactured for the specific carrier pipe and casing pipe diameters being used such that the risers do not allow the pipe to float within the casing.

b) In cases where the encasement pipe is installed in within the easement of facilities with stray current, such as gas lines, high voltage power transmission lines, petroleum lines, railroad tracks, etc., the spacers shall be a composite material such as an ultra-high molecular weight polyethylene plastic to prevent transmitting the stray current to the carrier pipe.

c) In cases where PVC carrier pipe is installed in an encasement pipe, steel spiders with soft contact surfaces rated for use with PVC pipe shall be used.

d) The carrier pipe bells shall not be allowed to contact the interior of the encasement pipe under any circumstances.

e) No blocks or temporary spacers shall be wedged between the carrier pipe and the top of the encasement pipe.

f) The ends of the encasement pipe shall be sealed using solid 8-inch bricks and a non-shrink grout.

g) A 2-inch galvanized vent pipe shall be provided on the upper end of the casing on all stream and railroad crossings.

3. Carrier Pipe

a) All carrier pipe shall be manufacturer provided restrained joint ductile iron pipe except for sewer force mains in which restrained PVC C900 may be utilized in compliance with Section 0800.

4. Polyethylene (PE) Pressure Pipe

a) Pipe shall be certified and listed for potable water distribution products in accordance with NSF 61 and bear the NSF seal on each section of pipe.

b) Outside diameter shall conform with ductile-iron pipe.

c) Material for pipe manufacturing shall be PE 3408 high density polyethylene (HDPE) meeting ASTM D3350 cell classification of 345444C.

d) Pipe shall be pressure class PC 250 with a standard dimension ratio (DR) of 9.

e) Fittings shall be made of material meeting the same requirements as the pipe.

5. Fusible Polyvinylchloride Pipe

a) Fusible polyvinylchloride pipe shall conform to AWWA C900. Testing shall be in accordance with AWWA standards.

b) Pipe shall be DIPS standard dimensions with a minimum pressure rating of 235 psi (DR18) and the size as indicated on the Drawings.

c) Piping shall be made from a PVC compound conforming to cell classification 12454 per ASTM D1784.

d) Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.

e) Fusible polyvinylchloride pipe shall be manufactured in standard 40 foot nominal lengths.

f) Fusible polyvinylchloride pipe shall be blue in color for water use or green in color for wastewater use.

g) Pipe generally shall be marked per industry standards, and shall include as a minimum:

1. Nominal pipe size
2. PVC
3. Dimension Ratio
4. Pipe legend or stiffness designation, or AWWA pressure class
5. AWWA Standard designation number
6. Extrusion production-record code
7. Trademark or trade name
8. Cell Classification 12454 and/or PVC material code 1120 may also be included.

h) Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.

C. Installation

1. General Requirements

a) As the trenchless operation progresses, each new section of encasement pipe shall be joined using full penetration seal welds prior to installation of the casing. Joints shall be electric-fusion welded by operators qualified in accordance with the American Welding Society's standard procedure for arc welds. The welds shall be capable of transmitting all thrust and other loads across the joints.

b) If voids are encountered while installing encasement pipe thirty (30) inches and larger, 2-inch or larger grout holes shall be installed at ten (10) foot centers in the top section of the encasement pipe. The grout

holes shall be used to fill the void spaces with 1:3 Portland cement grout at sufficient pressure to prevent settlement of the roadway, unless NCDOT approval stipulates otherwise. Other grout mixtures may be submitted for approval.

c) In the event that an obstruction is encountered during the trenchless operations, the equipment shall be withdrawn. The pipe shall be cut off, capped, and filled with 1:3 Portland cement grout at a sufficient pressure to fill all voids before moving to another boring site.

d) Restrained joint ductile iron carrier pipe shall be pulled into the casing pipe. Pipe lined with Protecto 401 for sewer application shall never be pushed into a casing.

2. Settlement Surveying

a) For all trenchless operations of 100-ft or more, the ground surface elevations shall be recorded prior to beginning work.

1. At a minimum, survey points shall be identified with a nail or hub located as follows:

i. Road crossings: Centerline and each shoulder/curb

ii. Utility and Pipeline Crossings: Directly above and 10-ft each side of the crossing

iii. All locations: Points shall not exceed 50-ft spacing

2. Elevations at each point shall be recorded with an accuracy of 0.01-ft.

b) Settlement observations shall be made each day until the pipe/casing is fully installed. Once installed, observations shall be made weekly for a period of at least four (4) weeks.

c) Readings shall be reported to the Infrastructure Inspector.

d) In the case of observed settlement, the monitoring points and observation frequency shall be increased as determined by the Town.

3. Horizontal Directional Drilling

a) General

1. Drill pilot hole along the path shown on the Drawings to the following tolerances:

    a. Vertical Location - Plus or minus 1 foot

    b. Horizontal Location - Plus or minus 3 feet.

2. At the completion of the pilot hole drilling, provide a tabulation of coordinates referenced to the drilled entry point which accurately describes the location of the pilot hole.

3. Perform reaming diameter to 1.25 to 1.5 times the outside diameter of the pipe being installed. Prepare pipe to facilitate connection to the remainder of the pipeline being installed.

4. Use care to protect the pipe from scarring, gouging, or excessive abrasion.

5. Method of connection between HDD pipe and other pipe materials shall be as indicated on the Drawings.

6. Pipe shall be deflected within the tolerances as provided by the pipe manufacturer.

7. For drills under structural conditions (i.e., roadways), perform reaming diameter to 2 inches maximum greater than outside diameter of the pipe being installed. If larger size is necessary, provide statement from North Carolina Professional Engineer stating that “an overbore in excess of 2-inches will arch and no damage will be done to pavement or sub-grade”.

b) Fusible Polyvinylchloride (FPVC) pipe

1. General

    a. Installation guidelines from the pipe supplier shall be followed for all installations.

    b. The fusible polyvinylchloride pipe will be installed in a manner so as not to exceed the recommended bending radius guidelines.

2. Handling and Storage

    a. Pipe shall be offloaded, loaded, installed, handled, stored and stacked per the pipe supplier's guidelines. These guidelines include compliance with the minimum recommended bend radius and maximum safe pull force for the specific pipe being used.

3. Fusion Joints

    a. Fusible polyvinylchloride pipe lengths shall be assembled in the field with butt-fused joints. The fusion technician shall follow the pipe supplier's guidelines for this procedure. All fusion joints shall be completed as described in this specification.

4. Fusion Process

    a. Fusible polyvinylchloride pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier's guidelines.

    b. Fusible polyvinylchloride pipe will be fused by qualified fusion technicians holding current qualification credentials for the pipe size being fused, as documented by the pipe supplier.

    c. Pipe supplier's procedures shall be followed at all times during fusion operations.

5. Installation

    a. Once installed according to manufacturer's requirements, the contractor shall make connections to the open cut pipe by means of mechanical joint fittings, taking care to correct horizontal or vertical alignment with the fittings rather than the Fusible PVC.

455 External Corrosion Protection

1. General Requirements

a) External corrosion can occur at an accelerated rate in metallic pipelines such as steel and ductile iron when they are installed in aggressive soils

or when they are installed near other structures or utilities that carry impressed currents. Such facilities that typically utilize impressed current cathodic protection are gas pipelines, such as owned by Colonial Pipeline, Cardinal Pipeline and Dixie Pipeline. Other potential sources that may create stray currents that contribute to accelerated pipeline corrosion are high voltage power transmission lines and railroad crossings.

b) In cases where metallic steel and ductile iron pipelines or encasement pipes are planned for installation in close proximity to any potential sources of stray current or aggressive soils, zinc coated pipe shall be specified and a field analysis consisting of stray current evaluation and soil testing shall be conducted by an experienced technician, as certified by the National Association of Corrosion Engineers, (NACE), to determine the potential for external corrosion and the need for additional protection measures. In cases where stray current conditions and/or aggressive soils are prevalent, a corrosion specialist certified by the NACE or other applicable certification board shall be consulted regarding the design of pipeline protection measures.

c) At a minimum, all stray current protection systems should include bonded joints and sacrificial anodes with a 50-year or longer design life and test facilities in lieu of polyethylene encasement, unless otherwise approved by the Town of Apex. The cathodic protection element of the pipeline design package shall be sealed by Professional Engineer licensed in the State of NC.

d) Full impressed current cathodic protection shall only be utilized when extreme corrosion potential has been proven and/or as otherwise directed by the Water Resources Department and the certified corrosion engineer of record.

e) When field conditions require cathodic protection, the Engineer must provide alignment showing no practical alternative, as well as calculations and design of cathodic protection system. Design shall include, but not be limited to, the provisions of all instruments, anodes, wiring, appurtenant equipment, and accessories and must be specifically called out on the drawings for a complete and operating cathodic protection system.

f) All ductile iron pipe that is installed within 60 feet of any gas line shall be wrapped with a dual layer of 8 mil polyethylene encasement. The dual polyethylene encasement shall meet AWWA C105 requirements for dielectric strength of 800 volts per mil (12,800 volts per a 16-mils thick dual polyethylene system) to shield the ductile pipe from elevated stray currents.

g) Perpendicular crossings of gas lines/easements with ductile iron pipe shall include a dual layer of 8 mil polyethylene encasement across the entire easement width plus a distance of 60 feet on each side of the easement.

456 Rock Excavation

1. General Requirements

a) Rock shall be defined as that solid material that cannot be excavated, in the opinion of the Water Resources Director, by any means other than drilling and blasting, drilling and wedging, or boulders and broken concrete exceeding ½ cubic yard in volume. Rock shall be excavated to the same limits as earth excavation except that the trench shall be made 6- inches lower than the outer bottom of the pipe. This 6-inches shall be refilled with 6-inches of #67 stone and thoroughly compacted to the sub-grade level. All blasting shall be done under the supervision of the Town Inspector or Engineer and subject to all applicable regulations. The Town reserves the right to require the removal of rock by means other than blasting where any pipe or conduit is either too close to or so situated with respect to the blasting as to make blasting hazardous. Rock taken from the ditch shall immediately be hauled away and disposed of by the contractor.

b) Blasting procedures shall conform to all applicable local, state and federal laws and ordinances. A blasting permit shall be obtained from the Town's Fire Marshal's Office, prior to any blasting. The application shall be obtained 24-hours before any blasting takes place, and the Fire Marshal may specify the hours of blasting. The contractor shall take all necessary precautions to protect life and property, including the use of an approved blasting mat where there exists the danger of throwing rock or over-burden. The contractor shall keep explosive materials that are on the job site in special constructed boxes provided with locks. Failure to comply with this specification shall be grounds for suspension of blasting operations until full compliance is made. No blasting shall be allowed unless a galvanometer is employed to check cap circuits. Where blasting takes place within five-hundred feet of a utility, structure or property which could be damaged by vibration, concussion or falling rock, the contractor shall be required to take seismograph readings and to keep a blasting log containing the following information for each and every shot:

1) Date of shot
2) Time of shot
3) Crew Supervisor
4) Number and depth of holes

5) Approximate depth of overburden
6) Amount and type of explosive used in each hole
7) Type of caps used (instant or delay)
8) The weather
9) Seismograph instrument and readings

c) This blasting log shall be made available to the Water Resources Director upon request and shall be kept in an orderly manner. It shall be the contractor's responsibility to have adequate insurance to cover any damages resulting from blasting so to hold the Town of Apex harmless from any claims.

SECTION 500
STORM DRAINAGE

501 Design

A. General

Storm drainage facilities shall be designed to dispose of stormwater generated upon or passing through the project location. The determination of the quantities of water which must be accommodated will be based upon peak flows from storms having the following return periods:

Drainage Structure	***Design Storm Event - Return Frequency***
Roadside Ditches	10-year storm
Curb Inlet	4 inches/hour
Storm Sewer Collector	10-year storm
Cross Street Storm Drainage	25-year storm
Greenways	25-year storm
Structures in Floodplain	100-year storm*

*Drainage structures in the floodplain should pass 100-year storm without over-topping the roadway -- or in the alternative, the structures may be designed to pass only the 25-year event, in which case, the downstream roadway embankment shall be fully protected from the residual flow which may overtop the roadway during a 100-year event.

1. Runoff rates shall be calculated by the Rational Method (for drainage areas less than 2 square miles), SCS Method (for drainage areas greater than 2 square miles) or other acceptable procedures. Runoff computations shall be based on rainfall data for the last 30 years published by the National Weather Service for this area.
2. Time of concentration (t_c) shall be determined using standard acceptable methods and the storm duration shall equal t_c.
3. Pipe shall be sized in accordance with the Manning Equation and applicable nomographs to carry the design flow and to provide a velocity of at least 2.5 feet per second during the 2-year storm event.
4. Culverts shall be sized in accordance with the Energy Equation and applicable nomographs to carry the design flow and to provide a velocity between 2-10 feet per second during the 2-year storm event.
5. Channels and ditches shall be designed to carry the design flow at nonerosive velocities. Calculations indicating design velocities shall be provided along with typical channel cross-sections. The maximum allowable design velocity in grass channels is 4 feet per second.
6. A Hydraulic Grade Line (HGL) study shall be performed for all public storm drainage systems. Where the public storm drainage system conveys stormwater into a private SCM, the Q_{10} staging elevation shall be used as the starting point for

the study. The study or plans shall include storm pipe profiles that show inverts, slopes, proposed finished grade and HGL. The HGL shall be required to stay within the pipe to ensure no surcharge on the system. ASTM Standard C443 (O Ring or Single Groove) water tight sealed pipe shall be used in cases where it is not practicable.

7. Stream crossings will necessitate a backwater study on the 100-year storm event. The localized 100-year flood elevation at each crossing is not allowed to stage onto an individual lot.
8. The minimum allowable slope is 0.50% or the slope which will produce a velocity of 2.5 fps when flowing full, whichever is greater for all proposed pipes and culverts.
9. The following criteria for headwater shall be used (based on the design storm):
    a. Minimum 12 inch freeboard for culverts up to 36”
    b. Minimum 18 inch freeboard for culverts greater than 36”
    c. Elevations established will delineate localized floodplain
    d. HW/D ≤ 1.2

Prediction of the peak flow rates shall be calculated using the procedure in the USDA Soil Conservation Service Method, the Rational Method, or other acceptable calculation procedures as determined by the TOWN. The size of stormwater conduits shall be determined by utilizing the standard energy equation for inlet control or outlet control and headwater nomographs as published by various federal agencies – US FHWA - H.E.C. #5, Soil Conservation Service, etc. The minimum pipe size to be used shall be 15-inch diameter.

Discharge from the stormwater drainage systems shall not be of such a velocity as to cause damage after leaving the pipe. Maximum allowable outlet velocity will be 2.5 feet per second (refer to “Code of Ordinances, Town of Apex, North Carolina”; Chapter 5, Article X, Sec. 5-149). Exiting velocities shall be in conformance with the sedimentation and erosion guidelines and outlet protection used whenever the velocity exceeds the allowable limit. Pipe outlets, flared end sections and head walls shall be provided, with rip-rap aprons designed to reduce velocity and dissipate energy so that downstream damage from erosion does not occur. Calculations shall be submitted with plan review.

B. Location

Manholes or structures shall be installed at each deflection of line or grade. Acute angle junctions (angles less than 90 degrees) between pipe runs should be avoided. No inaccessible junction boxes shall be permitted. The maximum distance between access openings shall not exceed 400 feet for pipes 30 inches and smaller. For pipes 36 inches and larger, the maximum distance between access openings may be increased to 500 feet.

Stormwater shall not generally be allowed to flow across the roadway. Any deviation shall require pre-approval by the ENGINEER. Catch basins shall be provided to intercept the flow prior to the radius of an intersection, or the design of the roadway shall indicate a continuous grade around the radius to allow the flow to continue down the intersecting street. Inlet spacing shall be sufficient to limit spread to no more than half of a through

lane during a 4-inch per hour rain storm. No catch basin shall be installed in the radius of a curve.

Stormwater that is piped or is conveyed as open channel flow and originates within or passes through the public street rights-of-way shall be conveyed through a contiguous public drainage easement. The public drainage easement must extend from the public street rights-of-way through points downstream, to the point of open discharge.

In natural drainage ways, a storm drain main shall be extended to the property lines to readily enable future connection to adjoining upstream property. Storm design shall account for future upstream development based on the current land use plan and shall include an evaluation of the existing downstream storm capacity.

Private storm drainage systems will be permitted, provided that: (1) such systems collect and discharge impounded stormwater wholly within the same lot; or (2) such systems collect water from one single lot and discharge into the public storm drainage system; or (3) such systems are properly engineered and approved on the signed set of construction drawings. Private storm drainage systems that connect to the public storm drainage system shall have the connecting leg of such a system, which crosses into the public street rights-of-way or easement, constructed in accordance with TOWN specifications, including but not limited to: the necessary easements, piping, inlets and junction boxes. Connection of plastic pipe to TOWN infrastructure is prohibited. Piped private storm drainage systems may not cross property lines, convey stormwater from one lot to another unless criterion #3 is met, or point discharge adjacent to curb. Where permitted by topography and site conditions, storm drainage systems that serve a single non-residential lot (i.e., parking lots, private streets, vehicular use areas), shall be privately maintained.

C. Easements

All storm sewers shall be installed in dedicated street rights-of-way or easements. Minimum width of permanent storm drainage easements for public storm drain pipe shall be 20 feet. Where storm drain pipes are installed at a depth in excess of 10 feet or for pipes greater than or equal to 36-inch diameter, the easement widths shall be increased in accordance with the following table:

Pipe Diameter (in)	***Pipe Depth (D, ft)***	***Easement Width (ft)***
36 -- 48	10 < D ≤ 15	30
54 -- 72	15 < D ≤ 20	40
> 72	> 20	To be determined by the TOWN

No structures or equipment such as buildings, fences, playsets, pools, HVAC units, etc. shall be placed within any public easement. The Town of Apex is not liable for any

damage to personal property located on public easements that may occur resulting from enactment of official duties.

Where multiple pipes are installed, the edges of the easement shall be a minimum of 10 feet from the centerline of the outside pipe with 3 feet clearance between the exterior of the parallel storm sewer pipes. Pipes shall not outfall in the front yard of a lot, but should extend to the rear third of the lot or property line in residential subdivisions.

D. Depth of Cover

Cover heights shall be as follows:

- Reinforced Concrete Pipe (RCP)
- Polypropylene Pipe (PP)
- Corrugated Steel Pipe - Type 2 (CSP)
- Corrugated Aluminum Alloy Pipe (CAAP)

	RCP	
CLASS	***MIN (ft)***	***MAX (ft)***
III	2	20
IV	1	30

	PP		***CSP***		***CAAP***	
Pipe Diameter (in)	***MIN (in)***	***MAX (ft)***	***MIN (in)***	***MAX (ft)***	***MIN (in)***	***MAX (ft)***
15	12	28	12	158	12	98
18	12	28	12	131	12	81
21			12	113	12	69
24	12	26	12	98	12	60
30	12	26	12	79	12	57
36	12	20	12	65	12	47
42	12	20	12	55	12	40
48	12	20	12	48	12	35
54			12	56	15	31
60	24	20	12	50	15	28

502 Materials – Storm Drainage Pipe

A. General

All storm sewer pipes to be installed in projects within the jurisdictional limits of the TOWN shall conform to the specifications presented herein. In special cases where material other than those listed below is requested, the applicant's plan submittal must contain a formal request to use other material and complete background data to justify its use.

B. Reinforced Concrete Pipe (RCP)

RCP shall be as per ASTM C76 (or the latest revision), Class III or Class IV with a minimum 15-inch diameter. All joints shall include rubber gaskets conforming to ASTM C 1628. All RCP installed on thoroughfare routes shall be approved and stamped by the NCDOT Materials and Tests Unit at the manufacturer's facility prior to delivery.

Any of the following criteria will be grounds for rejection of RCP material:

1) Any fracture or crack that visibly passes through the wall of pipe;
2) Any fracture or crack that is 0.01 inch wide or greater at the surface and 12 inches or longer regardless of position in the wall of the pipe;
3) Offsets in form seam that would prevent adequate concrete cover over reinforcing steel;
4) Delamination in the body of the pipe when viewed from the ends;
5) Evidence of inadequate concrete cover for reinforcing steel;
6) Any severe surface condition that affects the majority of the pipe section surface and could reduce the durability and service life of the pipe;
7) Damaged or cracked ends where such damage would prevent making a satisfactory joint.

C. Polypropylene Pipe (PP)

The pipe and fittings shall be an annular corrugated wall and a smooth interior wall (double-wall) or pipe and fittings with an annular corrugated wall and a smooth interior and exterior wall (triple-wall), conforming to the requirements of ASTM F2764 and AASHTO Specifications M330 (latest edition) for Polypropylene Pipe.

Bell and spigot joints are required on all pipes. Bells shall cover at least two full corrugations on each section of pipe. The spigot shall be double-gasketed. The bell and spigot joint shall have "O"-ring rubber gaskets meeting ASTM F477 with the gaskets factory installed and placed on the spigot end of the pipe. Pipe joints shall meet all requirements of AASHTO M330. Transitions from PP to RCP shall be made with the appropriate adapter. Refer to Section 505 A.

D. Corrugated Steel Pipe - Type 2 (CSP)

Aluminized Steel Type 2 pipe shall be 14 gauge minimum for 15-inch and 18-inch diameters, 12 gauge for all other sizes. Coils shall conform to the applicable requirements of ASTM A929. CSP shall be manufactured in accordance with the applicable requirements of ASTM A760. All fabrication of the product shall occur within the United States. Coupling bands shall be made of the same base metal and coatings as the CSP to a minimum of 18 gauge.

E. Corrugated Aluminum Alloy Pipe (CAAP)

Aluminum pipe shall be 14 gauge minimum. Coils shall conform to the applicable requirements of ASTM B744. CAAP shall be manufactured in accordance with the

applicable requirements of ASTM B745. All fabrication of the product shall occur within the United States. Coupling bands shall be made of the same base metal and coatings as the CAAP to a minimum of 18 gauge.

503 Materials - Storm Drainage Structures

A. General

All structures (manholes, curb inlets, catch basins, junction boxes, etc.) shall be constructed of concrete brick masonry units, cast-in-place reinforced concrete, or pre-cast concrete. Structures shall be repaired and re-built with solid concrete brick and mortar. Materials such as broken concrete pipe, clay brick, and rock are prohibited. Structure walls shall be repaired to original manufacturer conditions. Waffle boxes are not permitted. All pre-cast boxes shall be solid boxes.

Curb inlets in streets with curb and gutter shall be NCDOT type standard frame, grate, and hood.

B. Concrete Brick Masonry Units

Concrete brick masonry units shall be solid units meeting the requirements of ASTM C55, Grade S-II. Clay brick shall not be permitted for any drainage structure.

C. Precast Concrete Manholes

Pre-cast concrete manholes shall meet the requirements of ASTM C478. Manholes shall have joints sealed with a pre-formed rope-type gasket per ASTM C990. Manhole base diameters shall conform to the following for the various storm sewer pipe sizes:

Pipe Diameter (in)	***Manhole Base Diameter (ft)***
15 - 36	5
42 - 48	6
54	8

For pipes greater than 54 inches, manhole base sections shall be sized as required and shall be approved by the ENGINEER. All precast manholes installed on thoroughfare routes shall be approved and stamped by the NCDOT Materials and Tests Unit at the manufacturer's facility prior to delivery.

Transition reducing slabs may be used to enable the use of 4-feet diameter eccentric cones at the top. All pre-cast manholes for storm sewers in traffic areas shall be of the eccentric type for ease of access. Manholes in non-traffic areas shall be flat-top type.

D. Mortar

Mortar shall be proportioned as shown below for either Mix No. 1 or Mix No. 2. All proportions are by volume. Water shall be added only in the amount required to make a workable mixture.

MIX NO. 1	1 part Portland Cement 1/4 part Hydrated Lime 3 3/4 parts Mortar Sand (maximum)
MIX NO. 2	1 part Portland Cement 1 part Masonry Cement 6 parts Mortar Sand (maximum)

Portland cement shall be ASTM C-150, Type 1. Hydrated lime shall conform to ASTM C207, Type S. Masonry cement shall meet the requirements of ASTM C91. Mortar sand shall be standard size 4S, per requirements of the NCDOT.

E. Castings

1) General – All castings shall meet the requirements of ASTM A48, Grade 35B iron and shall be manufactured in the USA. Country of origin shall be embossed on each casting.

   At a minimum, manufacturers shall submit the following to substantiate to the ENGINEER that castings meet the minimum criteria:

   a. Bar tensile test reports from an independent testing laboratory. The results must confirm that the material meets ASTM A48 Class 35B.
   b. Casting proof load test report on the subject casting. Proof load tests shall be conducted in accordance with AASHTO M306, Section 7.0. During proof load testing, castings shall maintain a 40,000 lb proof load for one minute without experiencing any cracking or detrimental deflection.
   c. A written statement of certification by a qualified licensed engineer, employed by the producing foundry, that castings meet these specifications.

2) Curb Inlet - Grates, frames, and hoods shall be in accordance with NCDOT Standard 840.02 and 840.03. Curb inlet hoods shall be embossed with “Dump No Waste! Drains to Waterways”.

3) Grates & Frames - Cast iron grates and frames for yard inlets shall be of the size indicated on the approved plans. Grates and frames shall be in compliance with NCDOT Standards.

4) Manhole Rings & Cover - Cast iron manhole rings and covers shall be in compliance with the Standard Detail with the words “STORM SEWER” cast on the cover. Covers shall have two 1-inch holes. Manhole castings shall be machined to

provide a continuous bearing around the full periphery of the frame.

F. Portland Cement Concrete

Portland cement concrete used for storm drainage structures, end walls, etc. shall conform to the technical requirements presented in Section 200 of these Specifications, and shall have a minimum compressive strength of 3,000 psi at 28 days. Primary structures, such as box culverts, may require concrete having a compressive strength greater than 3,000 psi, and may require the submission of mix designs and testing of the concrete by an independent laboratory. These special requirements may be imposed by the ENGINEER for all such structures where deemed necessary.

G. Reinforcing Steel

Reinforcing steel shall be new billet steel conforming to ASTM A615 for grade 60. Reinforcing steel shall be deformed per current ASTM standards.

H. Connections

All storm drain connections shall be made with non-shrink grout.

504 Miscellaneous Materials

A. Rip Rap

Riprap shall be large aggregate of the size and class shown on the approved drawings. Stormwater calculations shall be submitted with the construction plan review application.

505 Inlets and Outlets

A. Headwalls, Endwalls, and Flared End Sections

Headwalls, endwalls, and flared end sections shall be constructed of structural cast-in-place concrete or pre-cast concrete in accordance with NCDOT Roadway Standard Drawings and shall be installed at all discharge points and inlets where there is not a structure. Details and design of headwalls, endwalls, and flared end sections shall be in accordance with NCDOT requirements. Details shall be shown on all plan submissions.

Flared end sections shall be installed on single pipe culverts up to and including 36 inches in diameter, and on multiple pipe culverts less than 30 inches in diameter. Flared end sections shall also be installed at the outlet point of all storm drainage systems. Dissimilar pipe couplers shall be used to connect PP, CSP, or CAAP pipe to end sections.

Headwall and endwall shall be installed on single pipe culverts greater than 36 inches in diameter, and on multiple pipe culverts greater than and including 30 inches in diameter.

The slope from pipe invert to top of berm shall not exceed 2:1. Any deviation from NCDOT standard drawings requires pre-approval of the Transportation & Infrastructure

Development Director.

B. Dissipaters and Scour Protection

Energy dissipaters shall be installed at all discharge points and shall be properly sized to ensure that stormwater is released at a non-erosive velocity.

Scour protection shall be provided for all drainage ways where, in the opinion of the ENGINEER, erosive velocities or other factors require the use of protective measures. All protective measures shall be shown on all plan submissions.

Additional information on the impact of stormwater discharge onto adjacent properties may be required by the ENGINEER.

506 Stormwater Control Measures (SCMs) within the Primary and Secondary Watershed Protection Overlay Districts

Stormwater Control Measures (SCMs) shall be designed and constructed per the guidelines and minimum design criteria (MDC) presented in the State of North Carolina Department of Environmental Quality (NCDEQ) Stormwater Design Manual, latest revisions. These structures shall be designed to meet all stormwater requirements presented in Section 6.1 of the TOWN Unified Development Ordinance (UDO).

In addition to the guidelines and MDC presented in the NCDEQ Stormwater Design Manual, the following specifications shall be used for all SCMs:

1. The invert elevation for the inlet to the SCM shall be set no lower than the normal/permanent pool elevation controlled by the water quality orifice(s). Refer to Section 501.B.6 of this document for inlet pipe network HGL requirements.
2. The outlet structure shall be constructed of precast reinforced concrete and the outlet pipe shall be either reinforced concrete pipe (RCP) or polypropylene pipe (PP).
3. All vegetated side slopes (interior & exterior) and tops of dams shall be sodded with non-clumping turf grass.
4. All SCM side slopes stabilized with vegetated cover shall be no steeper than 3:1 (horizontal to vertical).
5. When the proposed impervious area is unknown for residential subdivision projects, a 70% impervious assumption per lot should be made when sizing proposed SCMs.

Prior to the approval of a final plat (with respect to a subdivision), issuance of a certificate of occupancy (with respect to a site plan), or commencement of a use for any development upon which an SCM is required, the applicant shall certify that the completed project is in accordance with the approved stormwater management plans and designs, and shall submit actual “as-built” plans and corresponding as-built supplements for all SCMs.

The “as-built” plans shall show the final design specifications for all SCMs and practices and the field location, size, elevations, and planted vegetation of all measures, controls,

and devices, as installed. The designer of the SCMs shall certify, under seal, that the as-built SCMs, controls, and devices are in compliance with the approved plans and designs as required by the TOWN UDO. Dam compaction geotechnical reports, and photographic evidence of the outlet pipe cradle and anti-seep device installation shall be included with the SCM as-builts. See Section 106 of this document for additional “as-built” submittal requirements.

A final inspection and approval by the TOWN Stormwater Engineering Manager or his/her designee must occur before the release of any performance and/or maintenance securities.

507 Construction Methods

A. Trenching & Bedding for Storm Sewers

The trench shall be constructed per the Standard Detail. Where the foundation is found to be of poor supporting value, the pipe foundation shall be conditioned by undercutting the unacceptable material to the required depth as directed by the INSPECTOR, and backfilling with stone or other approved material. Where necessary, surface water shall be temporarily diverted in order to maintain the pipe foundation in a dry condition. The flow of water from such temporary diversions shall be directed into suitable erosion control devices.

B. Pipe Laying

Concrete pipe culverts shall be laid carefully with bells or grooves upgrade and ends fully and closely jointed.

C. Backfilling

The trench shall be backfilled per the Standard Detail. The backfill materials shall be moistened when necessary in the opinion of the INSPECTOR to obtain maximum compaction. Water setting or puddling shall not be permitted.

All trash, forms, debris, etc., shall be cleared from the backfill material before backfilling. Backfilling around structures shall be done symmetrically and thoroughly compacted in 6-inch layers with mechanical tampers to the specified 95% density (Standard Proctor).

D. Masonry Structures

Excavations shall be made to the required depth, and the foundation, on which the brick masonry is to be laid, shall be approved by the TOWN. The brick shall be laid so that they will be thoroughly bonded into the mortar by means of the “shove-joint” method. Buttered or plastered joints will not be permitted. The headers and stretchers shall be so arranged as to thoroughly bond the mass. Brickwork shall be of alternate headers and stretchers with consecutive courses breaking joint. All mortar joints shall be at least 3/8 inches in thickness. The joints shall be completely filled with mortar. No spalls or bats shall be used except for shaping around irregular openings or when unavoidable to finish out a course.

All details of construction shall be in accordance with approved practice and to the satisfaction of the ENGINEER.

Steps as shown on the plans shall be placed in all catch basins and inlets when they are greater than five feet in depth. The steps shall be set in the masonry as the work is built up, thoroughly bonded, and accurately spaced and aligned.

Inverts in the structures shall be shaped to form a smooth and regular surface free from sharp or jagged edges. They shall be sloped adequately to prevent sedimentation. The castings shall be set in full mortar beds. All castings when set shall conform to the finish grade shown on the drawings. Any castings not conforming shall be adjusted to the correct grade.

Two (2) 2-inch diameter weep holes shall be installed above the upstream pipe invert in all storm drain structures. Protect weep holes with screen wire or fabric outside the structure to prevent clogging.

E. Concrete Construction

The forming, placing, finishing, and curing of Portland cement concrete shall be performed in strict accordance with all applicable requirements as contained in the Standard Specifications for Road & Structures latest edition, as published by the NCDOT and pertinent ACI (American Concrete Institute) codes and guidelines.

F. Installation of Precast Concrete Structures

Pre-cast concrete manholes, junction boxes, etc. shall be installed level and upon a firm, dry foundation, approved by the INSPECTOR. Structures shall be backfilled with suitable materials, symmetrically placed and thoroughly compacted so as to prevent displacement. Castings shall be set in full mortar beds to the required finished grade. Refer to the Standard Detail.

Two (2) 2-inch diameter weep holes shall be installed above the upstream pipe invert in all storm drain structures. Protect weep holes with screen wire or fabric outside the structure to prevent clogging.

508 Inspection Prior to Acceptance

Prior to acceptance of any development with public storm drainage infrastructure, the utility contractor shall arrange a camera inspection of all public storm drainage lines with a 3rd party camera service and then coordinate the results with the Infrastructure Inspector or Manager within the *Water Resources Department*. Any discrepancies found in violation of these Specifications shall be repaired to the satisfaction of the INSPECTOR prior to acceptance and prior to issuance of any Certificates of Occupancy. When inspection indicates possible excessive deflection in PP, CSP, or CAP, the contractor shall complete a deflection test by mandrel using a rigid device approved by the INSPECTOR. The mandrel size shall be clearly labeled and shall be sized so as to provide a diameter of at least 95% of the inside pipe diameter. If deflection exceeds 5%, the pipe shall be

evaluated to determine what corrective measures are required.

Video Assessment and Cleaning

a) As a final measure required for acceptance the Contractor shall clean and televise all newly installed public storm drain lines installed from the upstream to downstream manhole with no reverse setups or cutaways. Throughout shooting, the camera shall be panned and tilted for a complete view of the line. Lighting shall be adequate to view the entire storm drain line from beginning to end. The video inspection shall be submitted to the Town on a CD/DVD and formatted with software compatible and readable by the Town. The Town shall not be responsible for purchasing additional software necessary to view the CD/DVD.

b) The camera shall be advanced at a uniform rate not to exceed 20 feet per minute that allows a full and thorough inspection of the new storm drain line. The camera shall be a color, pan and tilt camera capable of producing a five hundred line resolution picture. Lighting for the camera shall be sufficient to yield a clear picture of the entire periphery of the pipe. The picture quality shall be acceptable and sufficient to allow a complete inspection with no lapses in coverage. The length of the storm drain line shall be measured and recorded on the video screen. The distance counter shall be calibrated before shooting the inspection video.

c) The Contractor shall clean the storm drain lines ahead of video inspection with a high-velocity water jet. The video inspection shall take place within 2-hours of cleaning operations as witnessed by the Town. All construction debris shall be collected in the downstream manhole and shall not be released into the storm drain system.

d) The TOWN shall be present throughout the cleaning and televising of the storm drain lines to verify that the video work complies with the Specifications. The camera operator shall stop, reverse, pan, and tilt the camera to view any area of interest during the inspection as directed from the Town.

e) It is recommended that site grading and all utilities be installed and complete prior to final inspection to ensure that damages to the storm drain lines do not occur. Damages found after final inspection would requiring re-inspection by the Town.

f) Prior to submitting the CD/DVD to the TOWN, the Contractor shall label the CD/DVD with the following information:

- Name of the Project/Development.
- Name and contact information of responsible party.

- Date of televising.
- Manhole identification as shown on the design plans.

509 Maintenance of Municipal Separate Storm Sewer System (MS4)

The TOWN shall maintain all piping and structures within TOWN identified easements. The easements must be labeled as the following: “Town of Apex Public Utility Easement” or “Town of Apex Public Drainage Easement”. Easements labeled as “Drainage Easement” or “Private” shall be maintained by the responsible party or property owner where such system is located.

TOWN maintenance will stop just beyond one half the distance of the total recorded easement width which is measured from the end of the pipe or the center of a flared end section. TOWN maintenance responsibilities are summarized in the following table.

Easement Width (ft)	***Maintenance Distance (ft)***
20	10
30	15
40	20

When an approved private drainage system is designed and installed onto private property and connects to the TOWN street rights-of-way, a TOWN approved stormwater structure will be required and placed no further than 10 feet from the recorded or proposed street rights-of-way. A TOWN approved easement will be placed around the stormwater structure that meets the current TOWN specifications. The TOWN shall stop all maintenance activities at this point. A private easement boundary shall be shown beyond this point and recorded to describe and allow ownership inspection and maintenance activities. The TOWN shall not be responsible for any infrastructure, grassed swales, or other stormwater conveyances located within private easements.

SECTION 600
WATER DISTRIBUTION SYSTEM

601 Water Distribution Pipe

A. General

All water system extensions shall be designed by a Professional Engineer. The following Standard Specifications and associated Standard Detail Drawings shall apply to all water system extensions and development of the Apex municipal water system. The Standard Specifications included herein shall apply to all aspects of the Apex water system that is owned, operated and maintained by the Town of Apex. Any deviations from this specification, or sections noting approval required by the Water Resources Department, shall require submittal of an Exception Review Request for consideration.

All private water mains that connect to the Town's water system shall also be designed in accordance with these specifications, including those under a private system permit by NCDEQ. Any private commercial water connection shall be metered and protected by a reduced pressure assembly listed on the most current Manual of Cross-Connection Control issued by the USC Foundation for Cross-Connection Control and Hydraulic Research. See Section 620.

All utility extension permits must be obtained prior to construction. Refer to General Provisions in Section 200 for further requirements.

The Water Resources Department maintains a list of approved products and manufacturers for all water distribution products. All DIP, DIP fittings, and RJDIP that are allowable for installation within the Town's system are found in the list of approved products and manufacturers. The use of alternative products or manufacturers may be considered with the submittal of an exception request and supporting documentation with the construction plan submittal.

B. Design

1. Location:

   Water transmission lines shall be located and sized in accordance with the current "Water System Master Plan" or as directed by the Town, and shall extend to the adjacent properties to provide an adequate network.

   All public water mains shall be located within dedicated right of way of Town roads, outside of the right of way on NCDOT roads, or dedicated easements with a minimum width of 20 feet.

   Dedicated easements for water mains and appurtenances shall be recorded as "Town of Apex Public Waterline Easement." Town of Apex utility and pipeline easements shall contain only Town of Apex utilities unless otherwise approved by an approved site plan or encroachment agreement.

Easements that are shared by water mains and public greenway paths shall have a minimum width of 30 feet. See Section 215 for utility easement requirements.

If the water main is located within the road right-of-way, a clear width equal to or greater than the easement width required must be available. If adequate width is not available within the right-of-way, additional easement outside of the right-of-way must be maintained. For example, if a water main normally requiring a 20-foot easement is installed 5 feet inside of the right-of-way, an additional 5 feet of easement must be obtained outside of the right-of-way to provide a clear total width of 10 feet on each side of the pipe.

All water main extensions and distribution facilities which connect to the water distribution system of the Town shall be considered as public facilities up to the metering point. Therefore, all such facilities must be installed in public street right-of-way (not alleys) or centered within a public utility easement. Extensions shall terminate at the furthermost property line fronting the property or as required by this section.

Where deemed necessary to enhance water flow and/or pressures in the area, extensions may be required to be “looped” to an existing water main or “dead end” line within the area being developed.

If there is a gap in existing public water main along an existing road frontage or right-of-way of a proposed development, regardless of the location of the existing main within the right-of-way or along the road frontage, the development shall extend the water main along the road frontage to eliminate the gap in water service (property line to property line), unless otherwise approved by the Water Resources Department. Water mains shall be located and sized as required in this section.

Where water mains dead end, or are terminated for future extension, at least one full length section of ductile iron pipe shall be installed with a thrust collar, main line valve, and blow-off assembly. This dead end shall terminate within a right-of-way or dedicated public utility easement, and shall extend to the property line. Connections to existing dead end mains in adjacent streets may be required, as directed by the Water Resources Department, in order to enhance flow, water quality, and/or pressure in the affected area.

Mains shall not be installed under any part of water impoundments or area to be impounded. Mains shall not be installed through, above, or below any retained earth structure. Main location and depth shall not be within the theoretical 1:1 slope of any impoundment dam or structure, or shall maintain a minimum of 10’ horizontal separation from the toe of slope, whichever is

greater. The entire easement shall be outside of the toe of slope, unless prior approval is obtained from the Water Resources Department.

Where public water mains are installed within public utility easements crossing private property, the Water Resources Department shall have the right to enter upon the easement for purposes of inspecting, repairing or replacing the water mains and appurtenances. Where paved private streets, driveways, parking lots, etc. have been installed over the public water mains, the Town of Apex shall not be responsible for the repair or replacement of pavement, curbing, etc. which must be removed to facilitate repairs. The Water Resources Department shall excavate as necessary to make the repair, and shall backfill the disturbed area to approximately the original grade. Replacement of privately owned pavement, curbing, walkways and any other private infrastructure shall be the responsibility of the property owner or Homeowner's Association.

2. Sizing:

Major transmission lines shall be sized in accordance with the "Water System Master Plan" or as directed by the Town, and shall be extended to the adjacent properties to provide an adequate pipe network.

Water mains shall be sized as required by this section and to meet minimum fire flow conditions according to the type and classification of the proposed development, whichever is greater.

In residential zoning districts, water mains shall have a standard minimum diameter of eight (8) inches. Six (6) inch mains may be used on a case by case basis when the Town has determined that a sufficient hydraulic grid exists and the existing network supports using six (6) inch mains. The total maximum length of a run of 6-inch and 8-inch lines within that grid, without connecting to a larger main, is 1200 feet and 2000 feet, respectively. Water distribution facilities for multi-family units, apartments and condominiums shall comply with the provisions for non-residential zoning districts indicated below.

In non-residential and multi-family zoning districts, water mains shall have a standard minimum diameter of 12-inches. Eight (8) inch shall be used only when it completes a good hydraulic grid and the maximum length of a run of 8-inch lines within that grid without connection to a larger feeder main is 1,200 feet unless special approval for deviation from this requirement is granted by the Water Resources Department.

Where the existing network is lacking connectivity, lines shall be upsized to provide adequate fire flow as directed by the Department of Water

Resources. All lines shall be designed to maintain a minimum of 20 psi at maximum daily demand with applicable fire flow conditions.

New transmission mains 12-inches in diameter and larger shall be designed to deliver maximum daily design flow with a head loss not to exceed 5 feet per 1000 feet. Lower head loss criteria may be established based on length of main and available system head. Distribution mains 8-inches in diameter and smaller shall meet the same criteria for maximum daily domestic demand, but head losses up to 10 feet per 100 feet are acceptable for fire flow design provided volume and residual pressure requirements are met. Design shall be based on a Hazen-William "C" value of 130 for ductile iron.

3. Restraint:

All valves and fittings shall be restrained. Pipe joints shall also be restrained an adequate length away from valves and fittings in accordance with AWWA manual M41 (or the latest edition of *Thrust Restraint Design for Ductile Iron Pipe* as published by the Ductile Iron Pipe Research Association). The standard joint restraint method shall be to use manufacturer provided restrained joint pipe and fittings.

a) 6” to 12” Diameter Pipe: For pipe 6-inches through 12-inches, the following table may be used to determine the required restrained length of pipe for single occurrences of valves or fittings within the pipe system. The table may not be used for combined bends or offsets where a series of fittings occur. In lieu of using the below table, a pipe restraint plan detailing all assumptions and calculations may be provided by the NC Professional Engineer sealing the plan drawings. In either case, the method of restraint to be used and the length of pipe to be restrained (if applicable) shall be clearly identified on the plans at all necessary locations.

Required Restrained Lengths for Single Fittings and Valves for Pipe 6-inches to 12-inches in Diameter (in Feet, Both Directions unless otherwise noted)

	6”	8”	10”	12”
45° Horizontal **45° Vertical Up** **45° Vertical Down**	34’ 34’ 53’	44’ 44’ 69’	53’ 53’ 82’	61’ 61’ 96’
22½° Horizontal **22½° Vertical Up** **22½° Vertical Down**	17’ 17’ 26’	21’ 21’ 33’	26’ 26’ 40’	30’ 30’ 47’
11¼° Horizontal **11¼° Vertical Up** **11¼° Vertical Down**	8’ 8’ 13’	11’ 11’ 17’	13’ 13’ 20’	15’ 15’ 23’
Tee ***(Restrain the Branch)***	*6”* – 115’	*6”* – 111’ *8”* – 154’	*6”* – 107’ *8”* – 151’ *10”* – 186’	*6”* – 103’ *8”* – 148’ *10”* – 184’ *12”* – 220’
Reducer ***(Restrain Larger Pipe)***	N/A	70’	10” x 8” – 67’ 10” x 6” – 122’	12” x 10” – 68’ 12” x 8” – 123’ 12” x 6” – 169’
Valves, Caps, and Plugs (Dead Ends)	126’	165’	198’	232’

b) All valves, pipe, and fittings: **Projects with pipe diameters greater than 12-inches, poly-wrapped pipe, or combined bends must have a pipe restraint plan with the method of restraint to be used and the length of pipe to be restrained clearly identified on the plans at all necessary locations.** The pipe restraint plan must be calculated in accordance with AWWA manual M41 (or the latest edition of *Thrust Restraint Design for Ductile Iron Pipe* as published by the Ductile Iron Pipe Research Association). The plan must also account for the actual soil types that exist at the project site. A minimum safety factor of 1.5 (2.0 if/when required by NCDOT) and a minimum pressure of 200 PSI must be used.

c) Valves: Valves shall be restrained in a manner consistent with operation as a dead end. This includes restraining the valve to the pipe and restraining a sufficient number of pipe joints on both sides of the valve to accommodate dead end restraint. Valves located at waterline intersections (at tees and crosses) shall have no joints between the valve and fitting.

d) Dead Ends: Only as allowed by the Water Resources Department, all MJ cap and plug fittings, including tapped caps, shall be restrained with approved wedge action retainer glands. The adjacent pipe shall be restrained the distances specified above (or on the sealed pipe restraint plan). Reaction blocking shall not be used to restrain caps and plugs.

e) All pipe restraint systems shall be factory produced by the manufacturer. Approved wedge action retainer glands or bell restraints may be used for pipe/fittings up to (but not including) 16" in diameter. Restraint on mains 16" and larger shall be factory produced by the manufacturer.

f) Restraining systems not included within this Specification shall require written approval prior to utilization. All joint restraint products that include the means of restraint within the joint gasket shall be prohibited in the Town of Apex water system.

4. Depth of Installation:

Public Utility Easements: All water mains shall have a minimum cover of 3 feet measured from the top of the pipe to the finished grade. Water mains shall have a maximum cover of 8 feet measured from the top of the pipe to the finished grade. Installations requiring greater than 8 feet of cover due to road crossings, stream/wetland crossings, or other conflicts must have prior approval from the Water Resources Department.

Right-of-Way: When water mains are installed along an existing right-of way, future right-of-way, or under the roadway they shall be installed at sufficient depth to maintain three (3) feet of cover to the subgrade, including any future road widening/improvements and potential vertical alignment changes based on the Comprehensive Transportation Plan, Capital Improvement Plan, and/or at the discretion of Water Resources Department. Water mains shall have a maximum cover of 8 feet measured from the top of the pipe to the subgrade.

5. Relation to Sanitary and Storm Drains:

Separation between Potable Water Mains and Sanitary Sewer Mains or Storm Drains.

a) Parallel Installations: 10-feet lateral separation (pipe edge to pipe edge) or minimum 5-feet lateral separation and water main at least 18-inches above sanitary sewer/storm drain line measured vertically from top of sewer pipeline to bottom edge of water main.

Separation Requirements Summary*					
	Vertical**				
Utility Type	*Water Main (Over)*	*Water Main (Under)*	*Sanitary Sewer*	*Force Main*	*Storm Drain*
Water Main (Over)			18"	18"	18"
Water Main (Under)			18" (DIP)	18" (DIP)	18"
Sanitary Sewer	18"	18" (DIP)			24"
Force Main	18"	18" (DIP)			18"
Storm Drain	18"	18"	24"	18"	

*Minimum Requirements. Additional requirements may be required when vertical separation is not met.
**When horizontal separation requirement is not met
(DIP) - Material Requirement for Utility Crossing Over Water Main

b) Crossings (Water Main Over Sanitary Sewer or Storm Drain): All water main crossings of sanitary sewer lines shall be constructed over the sewer line in conformance with Town of Apex Specifications. At a minimum, 18-inches of clearance shall be maintained between the bottom edge of the water main and the top edge of the sanitary sewer main or storm drain. If 18-inches of clearance is not maintained the water main and sanitary sewer main shall both be constructed of ductile iron pipe with joints in conformance with water main construction standards. The sanitary sewer pipe shall be ductile iron the entire run from manhole to manhole. When the separation between pipelines is less than 18-inches, the void space between the pipes shall be filled with minimum 500-psi, quick setting, non-excavatable flowable fill extending 3 feet on both sides of the crossing. Regardless of pipe material, at least 12-inches of vertical separation is required for both sanitary and/or storm drain crossings of potable water mains.

c) Crossings (Water Main Under Sanitary or Storm Drain): Allowed only as approved by Town of Apex, when it is not possible to cross the water main above the sanitary or storm drain line. At a minimum, 18-inches of separation shall be maintained, (measured from pipe edge to pipe edge) and both the water main and sanitary sewer shall be constructed of ductile iron in conformance with water main construction standards. The sanitary sewer pipe shall be ductile iron the entire run from manhole to manhole. If local conditions prevent providing 18-inches of clearance, then at least 12-inches of clearance shall be provided and the void space between the pipes shall be filled with minimum 500-psi, quick setting, non-excavatable flowable fill extending at least 3-ft on both sides of the crossing.

6. A secondary connection to the distribution system is required for any development proposing 100 or more service connections, or at the discretion of the Water Resources Department.

7. Construction activities involving existing Water Mains:

   a) The existing water main must remain active and protected during all phases of construction. The contractor must provide a plan for the structural protection of the existing water main.

   b) A proposed construction sequence must be submitted for any demolition of a portion of existing water main. The plan must be reviewed and approved by the Water Resources Department.

   c) Any approved disruption to water service requires advance notice and coordination. Coordination with Water Resources staff is required no later than 14-business days prior to any disruption to allow adequate time for planning and public notification.

B. Materials

1. Water Main Distribution Pipe:

All water main distribution pipe shall be Ductile Iron Pipe (DIP) and manufactured in accordance with AWWA C150 and C151 and provided in nominal 20-foot lengths. The minimum required pressure ratings for ductile iron pipe and required laying conditions are tabulated below. For all other installations other than specified, the laying condition, bedding requirements or the minimum pressure class rating and/or thickness class shall be increased in accordance with AWWA C151. A pipe thickness design shall be submitted for external loading in all cases where the pipe depth exceeds the specified range of depths outlined in the following table.

Pressure Class, Max. Depth and Laying Condition for DI Water Mains

Pipe Diameter	AWWA C-150, Laying Condition	Pressure Class	Maximum Depth of Cover
6-8 -inch	type 1	350 psi	3-16 feet
6-8 -inch	type 4	350 psi	16-20 feet
10-12 -inch	type 1	350 psi	3-10 feet
10-12 -inch	type 4	350 psi	10-20 feet
14-20 -inch	type 4	250 psi	3-20 feet
24-30 -inch	type 4	250 psi	3-20 feet
36-42 -inch	type 4	300 psi	3-20 feet

*Any installation deeper than 20 feet must obtain approval from the Water Resources Department and no practical alternative must be proven.

Note: For cases not specified, a ductile iron pipe and bedding design certified by a Professional Engineer licensed in the State of North Carolina shall be required in compliance with AWWA C150 and the Ductile Iron Pipe Research Association.

a) Pipe joints shall be mechanical joint or push-on type as per AWWA C111. Pipe lining shall be cement mortar with a seal coat of bituminous material in accordance with AWWA C104. All buried ductile iron pipe shall have a bituminous exterior coating in accordance with AWWA C151.
b) Pipe manufacturer must have a supplier within 200 miles of the Town of Apex.

2. Fittings:

All fittings shall be ductile iron and provided in conformance with AWWA C110 for standard ductile iron fittings and AWWA C153 for compact ductile iron fittings. All fittings shall be pressure rated for a minimum 350-psi through 24-inches in diameter and 250-psi for fittings greater than 24-inches in diameter. In cases where minimum pressure standards are less than the pipe specification, fittings shall always be pressured rated to meet or exceed the pressure ratings for the specified pipe. All fittings for potable water service shall be provided with cement mortar linings and asphaltic seal coats in accordance with AWWA C104. All ductile iron fittings shall have an asphaltic exterior coating in accordance with AWWA C151. All ductile iron fittings shall be provided with mechanical joint end connections or proprietary restrained joints from an approved manufacturer. Gaskets shall be provided in conformance with AWWA C111 with EPDM rubber gaskets preferred over SBR. Two 45 degree fittings shall be used in lieu of 90 degree fittings in all horizontal and vertical installations, with exception of reverse taps.

3. Restrained Joint Pipe:

All restrained joint pipe shall be ductile iron and unless otherwise specified shall be of the boltless restrained joint type. For installations requiring welded locking rings, the rings shall be factory welded.

All proprietary pipe restraint systems shall be approved by the Town of Apex and provided in compliance with all standards for coatings, linings, pressure classes, etc. as required for ductile iron pipe. All restrained joint pipe shall be installed based on laying conditions, pressure class, etc. as required for typical ductile iron pipe.

Restraining systems not included within this Specification shall require written approval prior to utilization. All joint restraint products that include the means of restraint within the joint gasket shall be prohibited in the Town of Apex water system

C. Installation

1. Ductile iron pipe shall be installed in accordance with the requirements of AWWA C600 and the Ductile Iron Pipe Handbook published by the Ductile Iron Pipe Research Association. Materials at all times shall be handled with mechanical equipment or in such a manner to protect them from damage. At no time shall pipe and fittings be dropped or pushed into ditches.

2. Pipe and fitting interiors shall be protected from foreign matter and shall be inspected for damage and defects prior to installation. In the event foreign matter is present in pipe and fittings, it shall be removed before installation. Open ends of pipe shall be plugged or capped when pipe laying is not in progress.

3. All pipe shall be constructed with at least 36 inches of cover below the finished surface grade or road subgrade. Pipe shall be laid on true lines as directed by the Engineer. Trenches shall be sufficiently wide to adjust the alignment. Bell holes shall be dug at each joint to permit proper joint assembly. The pipe shall be laid and adjusted so that the alignment with the next succeeding joint will be centered in the joint and the entire pipeline will be in continuous alignment both horizontally and vertically. Pipe joints shall be fitted so that a thoroughly watertight joint will result. All joints will be made in conformance with the manufacturer's recommendations for the type of joint selected. All transition joints between different types of pipe shall be made with transition couplings approved on shop drawings showing the complete assembly to scale.

4. Prior to beginning construction, the Contractor shall contact local utility companies and verify the location of existing utilities. The Contractor shall be completely and solely responsible for locating all existing buried utilities inside the construction zone before beginning excavation. The Contractor shall be solely responsible for scheduling and coordinating the utility location work. When an existing utility is in conflict with construction, it shall be exposed prior to beginning construction to prevent damage to the existing utility.

5. All valves that are under the ownership and acceptance of the Town of Apex municipal water system shall be operated only by trained personnel of the Town of Apex. Existing valves in the Town of Apex water system will not be operated without a minimum notice of 24 hours. Contractor’s personnel shall only be responsible for operating valves within new construction areas that are not directly connected with the existing municipal water supply. At such time when the valves in new construction areas are connected with the municipal water supply, the valves shall only be operated by Town of Apex personnel or in limited circumstances by Contractor’s personnel after receiving written authorization from the Operator in Responsible Charge of the water distribution system.

6. The unloading and loading of pipe, fittings, valves, and related accessories shall be performed with care so as to avoid any damage to these materials. All such materials shall not be stored directly on the ground, but shall be on pallets, or other suitable supports, so as to prevent the entry of mud and debris into the pipe or other materials. Contractor shall also endeavor to store these materials in accordance with any special practices as required by the manufacturer.

7. Fittings shall be installed at the location indicated on the drawings with care taken to insure that joints are fully homed and fully and property supported.

8. Water mains shall not be installed within roundabouts or alleys.

602 Fire Protection

A. Fire Hydrants

1. Location

   All fire hydrants shall be installed on a minimum 6-inch water main. Only one fire hydrant may be installed when the line is served by a 6-inch tap and is not looped to another main.

   There shall be at least one fire hydrant at each street intersection. Hydrants at intersections shall be located in accordance with the Standard Details. Valves provided on the fire hydrant branch supply line shall be located within 5 feet of the main line. The maximum length of a fire hydrant leg shall not exceed 50 feet.

   In residential zoning districts, the maximum distance between hydrants, measured along street centerlines, shall be 500 feet. When residential intersections are less than 700 feet apart, a hydrant is not required between the intersections. For single-family residential projects, a hydrant shall be located at the end of all cul-de-sacs, or other terminus not planned to be extended, and shall not include any bends within the radius of the cul-de-sac.

   For residential developments which do not meet minimum fire flow requirements, water main extensions and improvements shall be installed to meet minimum fire flow requirements. If additional improvements are not an option due to proximity to existing utilities, at the approval of the Water Resources Department and Fire Marshal, all residential units shall have individual fire protection systems designed and installed at each residence. Residential fire systems must comply with the required backflow prevention based on the hazard as provided in Section 620.

   In non-residential and multi-family zoning districts, the maximum distance between hydrants, measured along street centerline, shall be in accordance with the latest version of the NC Fire Code. If a building is completely equipped with a fire sprinkler system and the project is developed with a private water distribution

system, all parts of the building shall be within 300 feet of a hydrant. Hydrants positioned greater than 50 feet from the public water main shall occur on a looped water main.

All premises where buildings or portions of the building are located at distances from a fire hydrant that exceed those specified by the NC Fire Code shall be provided with approved on-site fire hydrants and water mains capable of supplying the fire flow required by the Fire Department.

On thoroughfares and collector streets with access points only at street intersections, hydrants shall be located at each street intersection and at 1000 foot intervals along the street. Where these intersections are less than 1200 feet apart, no hydrant is required between the intersections. Fire hydrants shall be placed in a staggered arrangement on both sides of any roadway classified as a major or minor thoroughfare with the hydrant spacing as referenced above.

Where sprinkler systems are used, a fire department connection shall be within 50 feet of an accessible fire hydrant, unless otherwise permitted by the Fire Department.

Any proposed, relocated, or replaced water main that includes new fire hydrants shall require submittal of fire flow calculations.

Fire hydrant legs shall not be tapped from domestic water service connections, they shall be tapped directly from the main line, or dedicated fire line.

No domestic water service connection shall be made from a fire hydrant leg, or dedicated fire line.

2. Specifications

Hydrants shall conform to AWWA C502 with a minimum valve opening of 4 1/2 inches. Hydrants shall be furnished with a 5 inch Storz connection coupling on the steamer outlet. The Storz connection shall be manufactured by the hydrant manufacturer and only come as part of the hydrant assembly. No adaptors for the Storz connection are allowed.

Hydrants shall be also be furnished with: caps with chains for all connections, National Standard Threads, mechanical joint, 1 1/2 inch pentagon operating nut, open left, painted fire hydrant red, bronze to bronze seating, a minimum 4 feet bury depth with a break away ground line flange and break away rod coupling.

The hydrant bonnet will be designed with a sealed oil or grease reservoir with O-ring seals and a Teflon thrust bearing. Fire hydrant caps shall be attached to the body of the hydrant with a minimum 2/0 twist link, heavy duty, non-kinking,

machine chain. All fire hydrants shall be designed and rated for a working pressure of 250-psi or greater.

3. Installation

Hydrants shall be set plumb, properly located with the pumper nozzle facing the closest curb of a fire lane or street, but not a parking space. The back of the hydrant opposite the pipe connection shall be firmly blocked against the vertical face of the trench with 1/3 cubic yard of concrete. Double bridle rods and collars shall be connected from the tee to the hydrant. All joints between the tee and the hydrant shall be mechanical joints restrained with wedge action retainer glands. Stainless steel rods not less than 3/4 inch diameter may also be used to restrain the assembly. A minimum of 8 cubic feet of stone shall be placed around the drains. The backfill around the hydrants shall be thoroughly compacted and closely match the elevation on the approved plans.

Hydrant extensions will not be allowed on new or retrofit installations. Hydrant installation shall be in accordance with the Details. Hydrant tees may be used upon approval of the Water Resources Department.

A clear level space within the right-of way or public utility easement of at least 10 feet shall be provided and maintained on all sides of a fire hydrant for immediate access. Clearance from the ground surface to the center of the 5-inch Storz cap shall be between eighteen (18) inches and twenty-four (24) inches and shall be installed with positive drainage.

4. Depth of Bury:

Typical 90-Degree Hydrant Shoe Installations:
The maximum depth of bury for all new fire hydrants with 90-degree hydrant shoes shall be 5 feet from the breakaway flange connection. The breakaway flange or safety coupling shall be oriented vertically just above finished grading and bolted directly to the fire hydrant in compliance with manufacturer standards. The breakaway flange or safety coupling shall not be buried.

Vertical Shoe Hydrant Installations:
For installations requiring depth of bury greater than 5-ft, the fire hydrant shall be equipped with a vertical shoe arrangement that provides for full extension of the lower valve plate against a stopping mechanism located inside the vertical shoe to maximize hydraulic flow conditions through the hydrant. The vertical shoe shall be equipped with flanged connections. The maximum depth of bury for vertical shoe installations shall not exceed 4-ft measured from the breakaway flange to the bottom of the vertical hydrant shoe. The vertical shoe and all piping included in the hydrant supply line shall be restrained with blocking and rodding or blocking with wedge action retainer glands or standard Aquagrip, Grip Ring, or Romac connections.

5. Hydrant Relocations:

   For installations where hydrants will be relocated, all hydrants with greater than 20-years of operational service, as indicated by the date of manufacture provided on the hydrant, shall be replaced with new fire hydrants. The existing fire hydrant shall be returned to the Town of Apex Water Resources Department.

   For installations where the hydrant to be relocated has less than 20-years of operational service, the existing hydrant may be relocated at the discretion of the Water Resources Department. The existing hydrant shall still be disinfected, flushed and pressure tested.

   All fire hydrants shall be initially tagged and/or bagged “NOT IN SERVICE”. This tag or bag shall not be removed until approved by the Inspector.

C. Fire Flow Requirements

All water main extensions shall provide water pressures and fire flows at a standard acceptable value for the applicable zoning district requirements.

1. One- and two-family dwellings:

   The minimum fire-flow and flow duration of one- and two-family dwellings having a fire-flow calculation area, as defined by the NC Fire Code, not exceeding 3,600 square feet shall be 1,000 gpm at 20 psi for 1 hour.

   For fire-flow calculation areas greater than 3,600 square feet, the minimum fire-flow and flow duration shall be specified by the NC Fire Code, but no less than 1,500 gpm at 20 psi.

2. Non-Residential, Multi-Family, and all other buildings:

   The minimum fire-flow and flow duration for non-residential, multi family, and buildings other than one- and two-family dwellings shall be specified by the NC Fire Code, but no less than 1,500 gpm at 20 psi.

D. Automatic Fire Sprinkler Systems

1. General: Four (4) complete sets of working plans and calculations for all fire sprinkler systems and standpipe systems shall be submitted as required by the Inspections and Permits Department for review and approval. If 20 sprinkler heads or more are modified or added to an existing sprinkler system, if any modifications occur in the hydraulically calculated remote area, or the hazard classification changes, a plan submittal including complete calculations and a permit will be required. All fire sprinkler systems shall be installed with an alarm check valve

installed in each riser with all required appurtenances (example: retard chamber, water motor gong, pressure gauges, etc.). Exception: NFPA 13 D and 13 R residential sprinklers when approved by a fire official. All installations, minor repairs, or minor replacements shall be performed by a licensed fire sprinkler contractor. Contact the Inspections and Permits Department for a permit application.

2. Design: Approved working plans shall be in complete compliance with NFPA No. 13, 13D, 13R, 14, 231, 231C, 231D, 231F and Town Specifications. An NFPA above ground material and test certificate and NFPA underground material and test certificate are required after completion of designated, approved work.

3. Hydraulic Design: If a system is hydraulically designed, the following design criteria must be followed:

   a) Safety Margin: In all cases, a fixed minimum safety margin of at least 10-psi shall be applied to the design calculations. (Example: Demand = 70 psi, Supply $\geq$ 80 psi)

   b) Hose Allowances: Both exterior and interior hose allowances shall comply with NFPA 13 requirements.

   c) Water Supply Pressure: The sprinkler system designer shall be responsible for verifying system pressure. Refer to Town of Apex Policy Statement 129 regarding Minimum Water Supply Pressure.

   d) Backflow Prevention: When a fire protection system is proposed, with a Fire Department. connection or as otherwise required by the Cross Connection Ordinance a reduced pressure principle detector assembly (RPDA), two and one half inch or greater, shall be installed on the supply side of the sprinkler fire protection line inside the riser room. A two inch or less reduced pressure principle assembly may be allowed if the site is designed for that size. At no time shall any fire backflow preventer outlet be smaller than the water pipe inlet. These backflow prevention devices must be UL listed and/or listed by Factory Mutual Research Corporation. Reduced pressure principle detector assemblies shall not be arranged vertically. For indoor installations of RPDA's, follow Section 620.O. Relief Valve Piping.

4. Fire Department Connection: Where automatic fire sprinkler systems or standpipe systems are used, a fire department connection with National Standard threads shall be provided at distances specified within the NC Fire Code. When a sprinkler system serves only part of a large structure, the fire department connection shall be labeled, with minimum 2 inch letters on a permanent sign, as to which section of the structure that sprinkler riser serves.

5. Dedicated Riser Room: A dedicated sprinkler riser room is required providing an entry door to the room from the exterior of the building. All dedicated riser rooms shall be equipped with a floor drain sized appropriately to prevent flooding. The floor drain shall be piped to storm system or main building drain. The floor drain shall be provided with a circular raised ring/hub around the floor drain to prevent debris and/or chemicals from entering the drain during an emergency spill. The hub shall be fabricated of cast iron or other corrosion resistant material and extend at least 3-inches above floor elevation. All BFPs located inside of a building must have direct access to that room from the building exterior.

6. Alarm Communication: All sprinkler systems are to have alarm communication equipment to fully comply with NFPA 72. Equipment must be fully functional and reporting to a UL listed central receiving station before a Certificate of Occupancy is issued for the facility.

7. Access: All buildings which have an elevator, a fire alarm system monitored by a central receiving station, or a fire sprinkler protection system shall provide a “Knox Box” key entry system. This “Knox Box” shall be mounted on the exterior entrance to the dedicated riser room or at the normal fire department entrance when no fire sprinkler system is provided and there is no dedicated riser room. Mount “Knox Box” on wall at 5 feet A.F.F. on door handle side of dedicated riser room door or entrance door. This “Knox Box” shall be ordered through the Town Fire Department and shall be in place before a Certificate of Occupancy is issued. Keys to access the facility shall be provided to the Fire Department by the owner/manager. An access door directly to the mechanical room or mechanical storage area shall be provided.

8. Identification: The exterior door leading to the dedicated sprinkler riser room shall be labeled with minimum 2 inch lettering designating “SPRINKLER RISER ROOM” in a contrasting color. Durable vinyl lettering is suggested.

9. Fire Alarm Panel Location: When a building is protected by an automatic sprinkler system and has a fire alarm system, the fire alarm control panel or a remote annunciation of the fire alarm control panel shall be placed in the sprinkler riser room. This control panel shall have the capacity of silencing and resetting. Adjacent to the fire alarm control panel shall be a framed zone map. Nomenclature shall correspond with the zone map. Submit four complete sets of plans and specifications to the Inspections and Permits Department for approval prior to installation of equipment or wiring. When there is no sprinkler system in a building, the fire alarm control panel or remote annunciator shall be located at the normal fire department entrance.

E. Fire Protection During Construction

The fire protection water supply system, including fire hydrants, shall be installed and be in at least functional status prior to placing combustible materials on the

project site. If phased construction is planned, coordinated installation of the fire protection water system is permitted. Coordination of the water system will be done through the Water Resources Department.

603 Valves and Appurtenances

A. Valves

1. General

a) Valves shall be installed on all branches from feeder mains and hydrants according to the following schedule: 4 valves at crosses; 3 valves at tees; one valve on each hydrant branch and elsewhere as directed by the Water Resources Department. When a loop section of water main is connected back into the feeder main within a distance of 200 feet or less, only one valve will be required in the feeder main. In all cases where new water mains are connected to an existing water distribution line, valves shall be located at all end points and at intermediate points throughout the new system extension to assure testing requirements can be met without interfering with the operation of the existing system. Valves are required regardless of whether tee connection is cut-in or made by tapping sleeve and valve.

b) Where no water main intersections with valves are existing or proposed, a main line valve shall be installed at every 100 feet per 1 inch diameter main up to a maximum distance of 2000 feet between valves.

c) Valves shall be properly located, operable and at the correct elevation. The maximum depth of the valve nut shall be 5 feet without an extension kit. When valve extension kits are used, they must be manufactured by the same company which manufactured the valve.

d) Valves shall be set at locations shown on the plans with care being taken to support the valve properly and to accurately position the valve box over the operating nut of the valve. When valves are located in street right-of-way, but out of pavement, the boxes shall be adjusted to finish grade and a concrete collar 2-feet square and 6-inches thick shall be poured around the box ½-inch from the top of the casting, in lieu of the poured in place concrete a pre-cast concrete collar may be used such as manufactured by Brooks, Inc. or Buckhorn Products. Valve boxes located in the pavement shall be set flush with the current pavement. If the pavement requires a future final lift, the valve boxes shall be adjusted no more than 60 days prior to completion of the final lift. Stem extensions are allowed so that nut is within 30” of final grade.

Valves shall not be installed within the curb and/or gutter.

When valves are located outside of street right-of-way, the boxes shall be

adjusted 6 inches above the finished grade, and a concrete collar 2-feet square and 6-inches thick shall be poured around the casting or approved concrete donut with marker.

2. Combination Air Valves

a) Combination air valves shall be provided to purge air from the system at startup, vent small pockets of air while the system is being pressurized and running, and prevent critical vacuum conditions during draining. Combination air valves rated for potable water use shall be installed at all high points of water mains 8 inches in diameter or larger and at other locations such as major changes in grade as directed by the Town. A high point shall be determined as any high location where the difference between the high elevation and adjacent low elevation (either side) exceeds 25-feet, unless otherwise determined by the Water Resources Department based on special circumstances.

All combination air valves shall be provided in conformance with AWWA C-512. The water main shall be installed at a grade which will allow the air to migrate to a high point where the air can be released through an air valve. A minimum pipe slope of 1 foot in 500 feet should be maintained.

b) The combination air valve shall be sized by the Engineer, and approved by the Town. Combination air valves shall be of the single housing style with Type 304 or 316 stainless steel body that combines the operation of both an air/vacuum and air release valve. The valve shall be rated for minimum 230 PSI working pressure. The combination air valve shall be provided with cylindrical shaped floats and anti-shock orifice made of high density polyethylene. Combination air valves with spherical floats shall not be accepted. All combination air valves shall be installed in accordance with the Details.

c) 2 inch combination air valves shall be installed in a standard 4-foot diameter eccentric manhole. The 2 inch valve shall have a 2 inch male NPT inlet. Connection to the main shall be with a saddle tap in the same sizing as the combination air valve assembly and isolated with a gate valve also of the same size. The isolation gate valve shall be provided with NPT threads and connected with “no lead” brass (meeting UNS C89833 as per ASTM B584) or bronze piping. Brass or bronze ball valves may be used in lieu of gate valves for 2-inch installations. The isolation valve shall be rated for 200-psi service or greater.

d) Combination air valves 3-inches and greater shall be installed in a flat top manhole sized according to the water main diameter. Mains less than or equal to 20” shall utilize a 5 foot diameter manhole and larger mains shall utilize a minimum 6 foot diameter manhole. All connections shall be by flange joints. Connection to the main shall be by an MJ x FLG tee with the branch diameter equal to at least half of the main diameter. If needed due to larger diameters, a

flanged reducer shall be provided prior to the flanged gate valve sized equally to the flanged combination air valve.

Precast concrete manholes shall meet the requirements of the Standard Details.

3. Gate Valves, Less than 4-inches for Blowoff Assemblies

Gate valves for blowoff installations sized smaller than 4-inches, shall be resilient seated wedge type with a non-rising stem and a 2 inch operating nut in compliance with AWWA C509. The smaller diameter gate valves shall be provided with triple O-ring seals and threaded end connections in compliance with ANSI B2.1. Gate valves smaller than 2-inches shall be identified “no lead” and consist of brass components designated under UNS C89833 as per ASTM B584. The small diameter gate valves shall be rated for a minimum pressure rating of 200-psi.

4. Gate Valves, 6-inches to 12-inches

All valves for potable water applications, 6-inches in diameter to 12-inches in diameter shall be resilient seated wedge gate valves in conformance with the requirements of AWWA C509, (grey or ductile iron body) or AWWA C515, (reduced wall ductile iron body). All coating materials used in the construction of gate valves for potable water applications must comply with NSF 61 to assure lead free construction. All gate valves shall be designed for a working pressure of 250-psi with a minimum UL listing and FM approval rating of 200-psi. Gate valves shall be fusion bonded epoxy (FBE) coated both interior and exterior at a minimum of 10-mils and the FBE coating shall be provided in conformance with AWWA C550. All gate valves shall be assembled with stainless steel bolts.

All gate valves 6-inches in diameter to 12-inches in diameter shall be installed in the vertical position and shall be provided with mechanical joint fittings. Gate valves shall be restrained by wedge action retainer glands or other approved manufacturer provided restraining systems. All gate valves shall open left with a non-rising stem (NRS) and be provided with a 2-inch square operating nut. All gate valves shall be constructed with triple o-ring seals in which 2 o-rings are located above the thrust collar and 1 o-ring is located below the thrust collar. The two upper o-rings shall be replaceable with the valve fully open and subjected to full rated working pressure.

The gate valve wedge shall be fully encapsulated in rubber. All valves shall be rated for bi-directional flow. All sealing gaskets shall be made of EPDM rubber materials.

Valves shall be Mueller or approved equal.

5. Gate Valves, 14-inches through 48-inches

Gate valves 14-inches through 48-inches shall be resilient seated wedge gate valves in conformance with the requirements of AWWA C515, (reduced wall ductile iron body) and shall comply with all Specifications outlined for gate valves 6 through 12 inches. Gate valves installed vertically shall be provided with a minimum of 2 feet of overhead clearance between the top of the operator nut and the finished grade. All gate valves 18-inches and greater shall be provided with a geared actuator. Vertical gate valve installations shall have spur gear actuators and horizontal installations shall have bevel gears.

Gate valves 18 inches in diameter shall be provided with a gear operator at a minimum 2:1 ratio and larger valves through 24-inches shall be provided with a gear operator at a minimum 3:1 ratio.

Gate valves installed in a horizontal position shall only be provided as permitted by the Water Resources Department for special circumstances where vertical alignment is not possible. All horizontal gate valves shall meet or exceed the Specifications outlined herein for vertical gate valves including the 250-psi pressure rating. All horizontal gate valves shall be equipped with bevel gears resulting in a minimum 4:1 turn ratio for valves 30 through 48-inches in diameter.

6. Insertion Valves, 12-inches and under: Insertion valves shall only be used as permitted by the Water Resources Department. Insertion valves shall meet the requirements of AWWAC515, seat on the valve body and be rated for a working pressure of 250-psi or greater. All insertion valves shall be made of ductile iron in conformance with ASTM A-536 Grade 65-45-12 and epoxy coated at a minimum of 10-mils. Insertion valves may be required, as directed by the Water Resources Department to minimize disruption to water service required to perform a cut-in-tee.

   Insertion valves under this section are available for pipe sizes through 12-inches in diameter. Larger insertion valves shall meet requirements for Insertion Valves, 16-inches through 24-inches, below. In cases where insertion valves are being installed to shut down water to a work zone area, the insertion valve shall be located a minimum of 100 feet from the work zone or greater as determined by the Engineer of Record to assure the insertion valve can safely operate as a dead end without dislodging from the pipeline or otherwise causing the existing pipeline to shift.

   Disinfection – During installation of any insertion valve, positive pressure in the distribution system shall be maintained at all times. Once the water main is exposed and the trench is adequately dewatered, the exterior of the main and all insertion valves and equipment, including the cutter head and valve gate shall be cleaned and disinfected pursuant to AWWA C651-14 by spraying or swabbing with a minimum 1% chlorine solution.

Insertion Valves shall be Resilient Wedge Gate Valves, designed for use in potable water systems and be listed on Apex's Approved Products List. The body, bonnet and wedge shall be ductile iron meeting or exceeding AWWA C515. Insertion Valves shall be ductile iron construction meeting ASTM A536 Grade 65-45-12. The pressure rating markings must be cast into the body of the insertion valve.

Chemical and modularity tests shall be performed as recommended by the Ductile Iron Society, on a per ladle basis. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.

Sizes 12" and smaller must be capable of working on Cast/Grey Iron or Ductile Iron Class A, B, C and D, IPS PVC, C900 and C909 PVC, Steel, AC pipe diameters without changing either top or bottom portion of split valve body.

After the installation of the insertion valve body on to the existing pipe a pressure test of 1.1 times that of the contents shall sustained for 15 minutes. Once the pressure test is effectively achieved the insertion valve body must not be moved in accordance with AWWA Standards. If the insertion valve is moved the pressure test must be completed again. The insertion valve must not be moved or repositioned once the pressure test is achieved.

The construction of the Resilient Wedge shall comply with AWWA C509 requirements. The ductile iron wedge shall be fully encapsulated with EPDM rubber by a high pressure and high temperature compression or injection mold process. The ductile gate shall be fully coated with molded rubber with no exposed iron.

The resilient wedge shall seat on the valve body and not the pipe to obtain the optimum seating and flow control results. The resilient wedge shall be totally independent of the carrier pipe. The resilient wedge shall not meet the carrier pipe or depend on the carrier pipe to create a seal. Pressure equalization on the down or upstream side of the closed wedge shall not be necessary to open the valve. The wedge shall be symmetrical and seal equally well with flow in either direction.

The Resilient wedge must ride inside the body channels to maintain wedge alignment throughout its travel to achieve maximum fluid control regardless of high or low flow pressure or velocity. Insertion valve shall provide an unobstructed flow way.

The insertion valve shall be fully epoxy coated with minimum of 8 mils of epoxy on the interior and the exterior, including bolt holes and body-to-bonnet flange surfaces, prior to assembly, in compliance with AWWA C550 and certified to ANSI/NSF-61.

The insertion valve shall include triple O-Ring stem seals with two O-Rings located above, and one O-Ring below the thrust collar. Side flange seals shall be of the ORing type of either round, oval, or rectangular cross-sectional shape.

The gate valve stem and wedge nut shall be copper alloy in accordance with Section 4.4.5.1 of the AWWA C515 Standard. The stem shall be NRS with AWWA standard turns and must have an integral thrust collar in accordance with Section 4.4.5.3 of AWWA C515 Standard. Two-piece stem collars are not acceptable. Operated by 2" square wrench nut according to ASTM A126 CL.B and open left.

The wedge nut shall be independent of the wedge and held in place on three sides by the wedge to prevent possible misalignment. Two thrust washers are required. One shall be located above, and one located below the stem thrust collar.

All parts and components to be exclusively and completely assembled, manufactured, machined, and coated in the United States. All physical and chemical test results shall be recorded such that they can be accessed via the identification number on the casting. These Material Traceability Records (MTR's) are to be made available to the purchaser that requests such documentation. All components shall be manufactured and assembled in the United States. The purchaser shall, with reasonable notice, have the right to plant visitation at his/her expense.

Bolting materials shall meet the requirements of ASTM A307 with dimensions conforming to ANSI B18.2.1.

The stuffing box, operating stem, and resilient wedge (complete bonnet and all moving parts) shall be removable, repairable and or replaceable under pressure without additional pipe penetration taps or foreign methods. While the valve is fully pressurized in the system all moving components shall be fully removable under pressure. In the event the valve stem is broken or damaged the bonnet shall be removable under pressure.

Restraint devices shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10 Restraint devices shall have a working water pressure rating of 350 psi for 4-12 inch and must include a minimum safety factor of 2 to 1 in all sizes and be approved by the Town. Gland body wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536. Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly. Proper actuation of the gripping wedges shall be ensured with torque limiting twist off nuts. Set screw pressure point type hardware shall not be used. Restraint devices shall be listed by Underwriters Laboratories and Approved by Factory Mutual (3-inch through 12-inch size).

Manufacturer's installation procedures shall be strictly adhered to, including the installation of vacuum flange, checking, removing and confirmation of removal of shavings in the valve body. Installation procedures shall be approved by the Town prior to installation of insertion valve.

Prior to installation, the operating pressure shall be confirmed with the Water Resources Department. Valve pressure testing procedures shall be approved by Water Resources Department and Manufacturer prior to installing.

Contractor shall confirm existing pipe outside diameter prior to purchasing insertion valve.

7. Insertion Valves, 16-inches through 24-inches: Insertion valves shall only be used as permitted by the Water Resources Department. Disinfection procedure listed in item 6 above shall be required.

8. Butterfly Valves: Butterfly Valves shall not be used in the Town of Apex water system unless permitted by the Water Resources Department in unique cases where a gate valve cannot be installed. All butterfly valves shall meet the requirements of AWWA C504 with mechanical joints, 2 inch open left operating nut. Valves greater than 12-inches shall be installed in a manhole with the 2-inch nut accessible from above grade. Valves designated by the Town to potentially have a remote actuator shall also be installed in a manhole regardless of size. All butterfly valves shall be rated for a working pressure of 200-psi or greater. Butterfly valves shall be provided with a fusion bonded epoxy coating on both interior and exterior surfaces at a minimum of 10-mils with an NSF 61 approved epoxy. All rubber seals and gaskets shall be made of EPDM rubber.

9. Valve boxes

   a) Valve Boxes shall be cast iron, screw type, with a 5 inch opening and "water" stamped on the cover. The cover shall be 6-inches in depth. All valve box assemblies and covers shall be cast from Class 35 gray iron and domestically made and manufactured in the USA. Boxes shall be painted prior to shipment with a coat of protecting asphaltic paint.

   b) Valve box ring adjustments will not be allowed. The valve box shall be centered over the wrench nut and seated on compacted backfill without touching the valve assembly. All valve boxes in pavement shall be flush with the top of the pavement or flush with the finished grade. Outside of paved areas precast concrete valve box encasements or a trowel finished 2' x 2' x 6" pad of 3000-psi concrete may be used for valve box encasement provided the assembly is buried flush with the surface grade and compacted properly to prevent movement of the precast encasement.

10. Actuators: All valves shall be provided with standard 2-inch operating nuts. Unless otherwise specified, the direction of rotation to open the valves shall be to the left, (counterclockwise), when viewed from the top. Each valve body or actuator shall have cast thereon the word “OPEN” and an arrow indicating the direction to open.

B. Appurtenances

1. Blowoffs:

   a) Blowoffs shall be the same size as the water main installed on and installed at the end of all dead-end water mains.

   b) Blowoff Assemblies shall be constructed as shown in the Details. The valves shall be gate type with a non-rising stem and a 2 inch operating nut, O-ring seals and screwed ends. A full size gate valve is required on water mains that are planned to be extended.

2. Reaction Blocking:

   Reaction blocking for all fittings and components subject to hydrostatic thrust shall be securely anchored by the use of thrust restraints. Material for reaction blocking shall be 3000 psi concrete, poured in place. The reaction areas are shown in the standard details. A minimum 6 mil plastic shall cover the fitting to ensure that no concrete will interfere with removal of the fitting. Blocking shall be installed in addition to pipe restraint. Blocking shall be installed against solid, undisturbed earth.

3. Rodding: All rodding shall be constructed with type 304 stainless steel rods at the number and sizing specified in the following table. Rod coupling shall not be allowed. All hardware shall also be stainless steel type 304.

   Stainless Steel Rod Requirements are as follows**:**

6-inch branch	2, ¾-inch stainless steel rods
8-inch branch	4, ¾-inch stainless steel rods
12-inch branch	6, ¾-inch stainless steel rods
16-inch branch	8, ¾-inch stainless steel rods

4. Wedge Action Retainer Glands:
   All wedge action retainer glands shall be manufactured as a one piece retainer gland for use with mechanical joints and shall be rated to provide restraint up to 350-psi pressure rating for sizes through 16-inches. For sizing above 16-inches, the wedge action retainer gland shall be rated to provide restraint up to 250-psi. Approved wedge action retainer glands shall be made of ductile iron, coated with a manufacturer applied epoxy coating or polyester powder coating.

In cases where wedge action retainer glands are approved for pipe restraint of fire hydrant supply lines or other applications, the entire hydrant supply line shall be restrained.

Wedge action retainer gland connections to push on pipe are not approved.

5. Sampling Stations:

Sampling Stations shall be provided at all new development projects at the following rates:

a) One (1) for every 200 residential units
b) One (1) for every 10 acres of non-residential
c) One (1) per institutional facility with more than 100,000 square feet
d) One (1) for every 100 residential units **and** 5 acres of non-residential in projects with multiple uses.
e) As otherwise required by the Water Resources Department.

For phased development projects, sampling stations are calculated based on the total number of units, acreage, or square footage (as applicable) at total build-out. At least one sampling station shall be installed within the first phase of a phased development, with subsequent stations installed with the phase of which the next sampling station is warranted based on the rates listed above.

Padlocks for sampling stations shall be provided by the Town of Apex Water Resources Department. The sampling station requirement may be waived in cases where area sampling is already deemed sufficient by the Town.

Sampling stations shall be installed per the standard detail and provided as a self-contained manufactured assembly with locking aluminum housing, stainless steel tube and unthreaded spigot. Sampling stations shall not be connected to a service line.

6. Gaskets for Contaminated Installations

a) Installation within contaminated areas should be avoided. If not possible or practical, and with prior approval from the Water Resources Department, water mains may be installed within some areas of contamination.

b) The common type of gasket used for DIP is made of a synthetic rubber, which is a copolymer of styrene and butadiene (SBR). It is generally suitable for applications in fresh water, salt water and sanitary sewage environments. All gaskets for DIP shall meet the minimum requirements of AWWA C111/A21.11. Gaskets for all PVC sewer pipes shall meet the requirements of ASTM F477.

c) Nitrile (NBR) or Buna-N gasket is another type of gasket made of synthetic rubber, which is a copolymer of butadiene and acrylonitrile. In general, this type of synthetic rubber has good resistance to refined petroleum products like gasoline, kerosene, jet fuel and lubricating oils. It may not be effective for use with aromatic hydrocarbons like benzene and toluene or chlorinated hydrocarbons like chloromethane and chlorobenzene.

7. Polyethylene Wrapping

When soils and/or field conditions require polyethylene wrapping of water mains, wrap shall be provided and installed in accordance with ANSI/AWWA C105/A21.5. When installed with restrained joint pipe, calculations for length of restrain must factor in the use of wrapping.

8. Marker Posts

Water main shall be marked with a plastic marker at every valve, every horizontal fitting, and spaced every 1,000 feet along the water main. The post shall having a minimum diameter of four inches and a minimum bury of thirty inches with a minimum of four feet exposed. The exposed portion shall be painted blue and label “Apex Water”. Marker posts shall be installed through easements, all non-residential areas, and as directed by the Water Resources Department. Valves shall have marker posts only when they are installed outside of paved areas.

604 Water Main Taps and Services

A. Design

1. Individual water services shall be provided from the main to each water meter for single family residences in accordance with the Details. Gang meters are prohibited, with exception to installations at apartment buildings or multiple commercial units within a single building where metering individual dwelling units may be impractical. All connections shall be made by wet taps. Service connections shall be made perpendicular to the main and shall run straight to the meter. Any deviation from this standard must be approved by the Water Resources Department prior to implementing the change.

2. All water service lines shall be installed with a minimum depth of cover of 24-inches or greater.

3. All water meter boxes and vaults shall be located at the edge of the serviced lot’s right of way or easement. Water meter boxes shall not be placed in streets, sidewalks, parking areas or obstructed by fencing or buildings. A 5-foot clear zone shall be maintained around meter boxes and vaults, measured from the outer

edge. If a 5-foot clear zone is not feasible, a public utility easement shall be required.

4. Provisions for backflow prevention shall be in accordance with existing Town standards and specifications as well as the NC Plumbing Code.

5. The water meter shall be sized based on water demand. All water service lines shall be minimum 3/4 inch diameter. Multiple branches up to a maximum of 2 potable water services per multiple branch assembly for a single residential use shall be sized by the Engineer of Record in accordance with AWWA M22, but shall not be less than 1.5-inches in diameter.

6. Service taps to new water mains shall be made by the Contractor/Developer in accordance with the Specifications after obtaining applicable permits and paying applicable fees.

7. No taps shall be made within 3-feet of the bell or spigot end of the pipe or within 20 feet of a dead end.

8. Water service supply lines shall be continuous from the water main to the meter, no connections or joints are allowed, for services up to and including 2-inch. No services shall be tapped on water transmission mains.

9. Multiple meters on branched services are acceptable for multi-family projects. Multiple meters and water services greater than ¾" in size used in gang meter installations shall require design calculations certified by a professional engineer licensed in North Carolina and submitted to the Town prior to construction approval.

   All multiple meter installations shall conform to the Standard Detail and shall contain a curb stop on the feeder line. The curb stop shall be buried and shall be equipped with a curb box.

10. Meter Installation - The Town of Apex shall provide and install (¾" – 2") water meters subject to the following conditions (if applicable):
    - The Town has received a copy of the waterline purity test results and the Engineer's water and sewer certification of completion
    - The Developer (or property owner) has paid all Capital Reimbursement Fees.
    - The Developer (or property owner) has paid any pending fee-in-lieu of construction fees.
    - The Developer (or property owner) has paid prescribed meter fee.
    - The backflow preventer(s) are installed.
    - Applicable Building Inspections have passed.
    - The Developer has installed all specified improvements or guaranteed their installation as prescribed in the Town Code.

11. No services shall be made directly to water mains that are 18” or larger. These connections must utilize a cut-in tee and appropriate reducers/fittings.

12. Service connections larger than 2” shall be made by means of a tapping sleeve and valve or cut in tee.

13. All new water services shall be equipped with a dual check valve which shall be located immediately downstream of the meter.

14. All meters shall register in gallons.

15. Multiple meters may be installed in accordance with the Standard Detail.

16. Taps shall be made only on lines under pressure, and after mains have been tested and chlorinated. No taps on dry lines shall be allowed.

17. Taps shall be made in accordance with the Standard Detail and shall be a continuous run from the main line to the metering point without intermediate connections and/or joints.

18. Each service shall be flushed and disinfected after installation, abiding to the same requirements as water mains.

19. There shall be no size-on-size taps allowed. All taps must be at least one size smaller than the main being tapped.

B. Materials

The Water Resources Department maintains a list of approved products and manufacturers for all water distribution products. Requests to use alternative products or manufacturers shall submit an exception request with supporting documentation for the request with the Construction Plan submittal.

1. Full Body Tapping Sleeves: Mechanical Joint tapping sleeves shall be fabricated of ductile iron construction in a two-piece assembly with mechanical joint connections to the main line and flanged connection to the tapping valve. All MJ tapping sleeves shall be rated for a working pressure of 200-psi or greater and provided with a ¾-inch test plug for testing. All tapping sleeves shall be hydrostatically tested up to 200-psi before a tap is made. Tapping sleeves shall not be air tested.

   All mechanical joint tapping sleeves shall be manufacturer fabricated and approved for installation on the specific main line pipe material, whether ductile iron, plastic, cast iron or asbestos cement.

Full body tapping sleeves must be used when the main line is greater than 24-inches. Tapping sleeves fabricated of carbon steel in a two-piece assembly with mechanical joint connections to the main line and flanged connection to the tapping valve will be considered for approval on a case by case basis for mains that are greater than 24-inches. Carbon steel sleeves should be rated for a working pressure of 250-psi or greater and be provided with a ¾-inch test plug. A fusion bonded epoxy coating shall be applied to all carbon steel sleeves.

2. Stainless Steel Tapping Sleeves, 6-inch through 12-inch main lines:
   Stainless steel tapping sleeves may be used in lieu of mechanical joint tapping sleeves for ductile iron or asbestos cement water mains through 12-inches in diameter with branch sizing as shown in the following table. All stainless steel tapping sleeves shall be manufactured in conformance with AWWA C223. All stainless steel tapping sleeves shall have a stainless steel flange and be provided in a two piece assembly with a full circumferential gasket with tabbed gasket holding assembly and ¾-inch test plug. The back band shall be a minimum 14 gauge stainless steel and the front band (where the outlet is located) shall be a minimum 12 gauge stainless steel. The bolt bars shall be a minimum 7 gauge stainless steel. All stainless steel tapping sleeves shall be manufacturer rated for a working pressure of 200-psi or greater and hydrostatically tested to 200-psi before a tap is made. Stainless steel tapping sleeves shall not be air tested.

Stainless Steel Tapping Sleeve Sizes Allowed

Nominal Main Size (inches)	Nominal Branch Size (inches)
6	4
8	4
10	4
10	6
12	4
12	6
12	8

3. Stainless Steel Tapping Sleeves, 14-inch through 24-inch main lines:
   For larger diameter water mains, stainless steel tapping sleeves approved by the Town may be used in lieu of a mechanical joint tapping sleeve for cases where the branch line is 50% or less in diameter than the main line diameter. All of the previous Specifications described for tapping sleeves from 6 to 12 inches shall be met for stainless steel tapping sleeves for larger diameter water mains. Additionally, the outlet band for stainless steel tapping sleeves 14-inches through 24-inches shall be a minimum 7 gauge stainless steel. The back half of the sleeve shall be a minimum 12 gauge stainless steel.

4. Tapping Saddles, 14-inch through 24-inch main lines:

Tapping Saddles may be used in lieu of mechanical joint tapping sleeves to tap mains 14 inches through 24-inches when the branch line is 50% or less in diameter than the main line diameter. Saddles shall be made of ductile iron providing a factor of safety of 2.5 with a working pressure of 250-psi. Saddles shall be equipped with an AWWA C110 flange connection on the branch. Sealing gaskets shall be O-ring type, high quality molded rubber having an approximate 70 durometer hardness, placed into a groove on the curved surface of the saddles. Straps shall be alloy steel. The minimum strap count for branch sizing from 4-12 inches is shown below.

Strap Requirements for Tapping Saddles

Nominal Saddle Outlet (inches)	Number of Straps
4	3
6	3
8	4
12	7

5. Corporation Stops:

   a) Corporation Stops shall be ball type, made of “no lead” brass (meeting UNS C89833 as per ASTM B584). Corp stops shall be complete with a compression coupling and AWWA Standard threads as per AWWA C800. Taps shall be located at 10:00 or 2:00 o'clock on the circumference of the pipe. Service taps shall be staggered alternating from one side of the water main to the other and at least 12 inches apart. The taps must be a minimum of 24 inches apart if they are on the same side of the pipe. All corporation stops shall be rated for a working pressure of 300-psi.

   b) No burned taps will be allowed and each corporation stop will be wrapped with Teflon tape for ductile iron pipe water mains. No taps are allowed on a fire hydrant line. No tapping shall be made where rodding is placed.

6. Service Saddles:
   Service Saddles shall be used for service taps larger than 1-inch on all ductile iron water mains 14-inches and greater, or when direct taps cannot be made. Service saddles shall also be used for all taps on existing water mains other than ductile iron, such as asbestos cement, PVC, etc. Service Saddles shall be provided with brass body and fasteners (85-5-5-5 waterworks brass or “no lead” brass meeting UNS C89833 as per ASTM B584) conforming to AWWA C800 and double straps made of silicon bronze conforming to ASTM A98 and factory installed grade 60 rubber gaskets. Service saddles shall be provided with AWWA standard threads per AWWA C800.

7. Copper Service Tubing: Copper service tubing shall be type K soft copper tubing per ASTM B88. No union shall be used in the installation of the service connection

of 100-feet or less. Service lines more than 100 feet shall use a three (3) piece compression coupling. Only one (1) compression coupling shall be used for each 100 feet or fraction thereof.

8. Meter boxes for ¾ and 1 inch services: ¾ and 1-inch meter boxes shall be high density polyethylene (black). Meter boxes shall provide a cover opening of at least 7.5 X 13 inches and boxes shall measure at least 18 inches in depth. Lids shall be provided with a recessed 4-1/8 inch diameter hole to accommodate a transmitter. All meter boxes and lids shall be installed as shown in the Details and shall meet AASHTO HS20 load bearing capacity.

   There shall be a lockable ball valve inside the box on the inlet side. Meter boxes shall also be provided with an ASSE 1024 approved inline, dual check valve located behind the meter. All fittings and connections shall be "no lead" brass conforming to UNS C89833 as per ASTM B584.

   A "no lead" brass curb stop with compression connections shall be installed within 2 feet of the inlet connection. The curb stop may be buried without a box above it.

   One 2 inch or 6 inch grade adjuster may be used when needed to meet final grade, however, no grade adjusters are permitted on new construction projects. Grade adjusters shall be cast iron. Grade adjuster and box shall be by the same manufacturer.

9. 1 ½ and 2 inch Water Services: 1 1/2" and 2" meter boxes shall be concrete or light weight polymer concrete as indicated on the Standard Detail 600.02. Meter boxes for 1 ½ and 2 inch water services shall provide a cover opening of 24 X 36 inches and boxes shall measure at least 30-inches in depth and provid a straight wall arrangement. Standard meter box covers shall bolt down to the box, and all polymer cement covers shall be provided in solid configuration with a **recessed** 4-1/8 inch diameter transmitter hole, and with the words, "Water Meter" cast into the lid. The meter box covers shall be provided with 2 stainless steel bolts in penta-head configuration for security. To ensure positive discharge, the box should be tied into the existing storm drain system, or shall have an open bottom to allow drainage through a 6-inch stone base. All meter box covers for potable water service shall be provided in standard concrete gray or black color.

   Meter setters shall be installed per Standard Detail 600.02 meeting UNS C89833 as per ASTMB584. Copper setter shall be no lead with a high by-pass and a lockable flanged angle meter ball valve on the inlet and bypass. All applications shall have a separate above ground backflow preventer.

10. Water services greater than 2-inches: Water services greater than 2-inches shall have the meter and bypass line located within a precast concrete vault. All piping and valves shall have flanged connections. There shall be isolation gate valves on both sides of the meter as well as one on the bypass line. Gate valves within the

vault shall meet the above requirements of AWWA C509 for non-rising stem gate valves, but shall be provided with hand wheel operators. A standard buried gate valve with 2-inch nut shall be provided between the main and the vault. Link seals shall be used where the pipe enters and exits the vault.

11. Meter Vaults: Meter vaults and access doors shall meet HS-20 loading requirements and shall be located outside of travel areas. Pedestrian rated covers shall not be used regardless of where they are located. The access double doors shall be aluminum with a flush drop lift handle, stainless steel hinges and bolts, a stainless steel slam lock, an automatic hold open arm, and compression springs to allow for easy opening. Vaults shall be approximately 9-feet by 12-feet. To ensure positive drainage, the vault shall be tied into the existing storm drainage system. If positive drainage is unobtainable, a sump pump shall be located and operated in the vault.

605 Irrigation Systems

1. All irrigation systems shall be provided with privately maintained lead-free reduced pressure principle backflow prevention installed in accordance with the NC Plumbing Code and the Foundation for Cross Connection Control and Hydraulic Research. Reduced pressure zone backflow preventers shall be installed above ground in an insulated box as shown by the details.

2. All irrigation systems within public street right of way require an encroachment agreement from the Town or NCDOT prior to installation. Plans designating the location, size, material, and depth shall be submitted with the agreement application to the Inspection & Permits Department. If there is an approved site plan, it shall be referenced with the encroachment submittal to the State.

3. Pipe material for the mainline proposed to be used within the public right of way shall be Schedule 40 PVC or greater. A distance of at least 3-feet shall be provided from the back of curb or edge of asphalt in a ditch section. A minimum depth of 2-feet of cover shall be provided and all heads shall spray away from the street.

4. All street crossings of irrigation systems shall be encased in ductile iron or steel conduit. Irrigation systems installed in the medians of Town maintained roadways must also have French drains installed behind the curb and gutter which are piped to a storm system.

5. There shall be no interconnections between the Town's water system and any private water sources (wells).

606 Testing and Inspections

A. General

1. All materials must be approved by the Infrastructure Inspector prior to installation. Materials rejected by the Infrastructure Inspector shall be immediately removed from the job site.

2. The Contractor shall furnish all materials, labor, and equipment to perform all testing and inspections to the satisfaction of the Infrastructure Inspector or Water Quality representative. The Town shall provide water for testing purposes on water mains in accordance with Town Standard Procedure 4, Control and Monitoring of Water System Flow Activity.

B. Testing

1. Pigging of Water Mains

   a) All new water mains shall be pigged as a part of the testing procedure. Pigging shall take place at the conclusion of pipe installation utilizing the initial water fill or loading of the pipe. Pigging shall take place prior to any introduction of chlorine solution to the pipe. The Contractor shall use a 5 pounds/cubic foot density polyethylene pig and shall write their company name and the street name where the work is taking place in a permanent manor on the pig. A minimum velocity of 2 feet per second shall be maintained during pigging operations. In larger water mains, a swab may be utilized with prior approval from the Water Resources Department.

2. <u>Hydrostatic Testing</u>

   a) No valve in the Town water system shall be operated without authorization in accordance with the Town and by a Town employee. Advance notice of at least 24 hours shall be provided prior to testing. A section of line that is to be hydrostatically tested, shall be slowly filled with water at a rate which will allow complete evacuation of air from the line. Hand pumps shall not be used for the pressure testing of water mains. Taps used for testing purposes shall be removed after testing and repaired using a “no lead” brass plug.

   b) When filling the pipeline, it is very important to fill the line slowly to avoid undue impacts associated with surge and to allow air to evacuate the pipeline. After all air has been expelled from the water main, the line shall be tested to a pressure of 200 psi as measured at the lowest elevation of the line for a duration of 2 hours. The testing period shall not commence until all air has been evacuated and the pressure has stabilized. The pressure gauge used in the hydrostatic test shall be calibrated in increments of 20-psi or less. The pressure gauge shall be liquid-filled and indexed for an operating range of 300-psi or

less with a minimum dial size of 4 inches. At the end of the test period, the leakage shall be measured with an accurate water meter.

c) No leakage shall be allowed. If leakage is present, repair of the water main and additional testing shall be conducted until the standards are met.

d) Once testing and sampling have been completed, Contractor shall verify with Town that all valves have been opened.

3. Disinfection

a) All additions or replacements to the water system shall be disinfected with chlorine in conformance with AWWA C651 before being placed in service under the supervision of the Town's Infrastructure Inspector in the following manner:

1) Taps shall be made at the control valve at the upstream end of the line and at all extremities of the line including valves.

2) A solution of water containing 70% High Test Hypochlorite (HTH) available chlorine shall be introduced into the line by regulated pumping at the control-valve tap. The solution shall be of such a concentration that the line shall have a uniform concentration of not less than 50-ppm and not more than 100-ppm total chlorine immediately after chlorination. The chart below shows the required quantity of 70% HTH compound to be contained in solution in each 1000 feet section of line to produce the desired concentration from 50-ppm to 100 ppm.

Required Hypochlorite Concentration

Pipe Size (inches)	Pounds of High Test Hypochlorite (70%) to reach 50-ppm *per 1,000 feet of line*	Pounds High Test Hypochlorite (70%) to reach 100-ppm *per 1000 feet of line*
6	0.88	1.76
8	1.56	3.12
10	2.42	4.84
12	3.50	7.00
14	4.76	9.52
16	6.22	12.44
20	9.76	19.52
24	14.00	28.00
30	21.86	43.72
36	31.47	62.94
42	42.85	85.70

3) The HTH Solution shall be circulated in the main by opening the control valve and systematically manipulating hydrants and taps at the line extremities. The HTH solution must be pumped in at a constant rate for each discharge rate so a uniform concentration will be produced in mains.

4) HTH solution shall remain in lines for no less than 24 hours or as directed by the Town's Infrastructure Inspector.

5) Extreme care shall be exercised at all times to prevent the HTH solution from entering existing mains.

6) Free residual chlorine after 24 hours shall be at least 10 ppm or the Infrastructure Inspector will require that the lines be re-chlorinated.

4. Flushing

a) Flushing of lines may only proceed after 24 hours of disinfection contact time and as directed by Town staff, provided the free residual chlorine analysis is satisfactory.

b) At the completion of disinfection, chlorinated water flushed from the water main shall be disposed of in conformance with all Federal, State and local regulations.

c) In accordance with all applicable regulations, a neutralizing chemical shall be applied to minimize chlorine residual in the flushing water before discharging from the water main, unless an alternate plan is submitted in writing and approved by the Town.

d) Water used for disinfection shall be flushed from the water main until the chlorine residual concentration is below 5-ppm before initiating sampling.

5. Bacteriological and Turbidity Sampling

a) Bacteriological sampling shall be utilized to verify disinfection prior to placing a newly constructed water main in operational service. Bacteriological sampling shall consist of 2 consecutive sets of acceptable samples taken at least 24-hours apart and collected from each 1,200-foot section of water main and all dead ends and branches as outlined by ANSI/AWWA C651.

b) For the first round of sampling, the requested laboratory analysis shall be specified as follows: "Bacteriological Test and Turbidity." For the second round of testing, the laboratory analysis shall be specified as, "Bacteriological Test Only."

c) Samples for laboratory analysis shall be collected by a Town Representative after flushing is completed. The Contractor shall set up sampling stations. A Town Seal sticker shall be placed on the sample bottle. The Town is responsible for the delivery of the sample(s) to a testing laboratory certified by the North Carolina Department of Human Resources, Division of Health Services. The testing lab will document the condition of the seal upon receipt. The Town shall furnish the Contractor with a copy of the results prior to tapping any services. All costs for laboratory testing shall be borne by the Contractor. Samples shall be taken at 2000 feet intervals, at the end of the main, at each branch connection, and each side of all cut-in connections.

d) The laboratory secured for testing shall be certified by the State Laboratory of Public Health. All sample bottles for bacteriological sampling provided by the laboratory shall be sterilized and treated with a dechlorinating agent, such as sodium thiosulfate. Samples for turbidity shall be taken in plain sterilized bottles from the lab, which are separate from the bottles provided for bacteriological testing. The sample bottles shall be provided with tamper proof seals that will be adhered to the bottles by the Town's Infrastructure Inspector. The Infrastructure Inspector shall provide a sample identification number, job title and an identification of Phase 1 or Phase 2 sampling that will be provided on the tamper proof custody seal. The bottles and tamper proof custody seals shall be accompanied by a chain of custody form provided by the certified laboratory conducting the testing. All sample identification numbers, job titles, and Phase 1 or Phase 2 testing identification from the custody seal shall be recorded on the chain of custody forms by the Infrastructure Inspector.

e) All samples shall be collected in compliance with the sampling protocols provided by the certified laboratory. The samples shall be kept in a cooler provided by the Contractor at approximately 40-degrees Fahrenheit or 4-degrees Celsius and delivered to the certified lab for testing as soon as possible. The time at which the sample is taken shall be recorded on the chain of custody form by the Infrastructure Inspector. Any samples processed at the laboratory more than 30-hours following collection shall be declared invalid, i.e. samples shall be submitted to the lab within 24-hours of collecting them.

f) All first round samples shall be tested for bacteriological quality and turbidity in accordance with standards established by NCDEQ and AWWA. If turbidity exceeds 1.0 NTU, the sample shall fail and the system shall be re-flushed before initiating a new round of testing.

g) If the phase 1 sample results for bacteriological quality and turbidity are acceptable, then a second set of samples can be collected at least 24-hours following the first sample collection. No additional flushing other than required to obtain a representative sample will be allowed prior to collecting the second set of samples.

h) The second set of samples shall be tested for bacteriological quality only. All custody seals and chain of custody forms shall identify the second round samples as “Phase 2” testing to notify the lab that the first set of samples have already been evaluated and received a satisfactory laboratory analysis.

i) At the completion of sampling, the total chlorine concentration shall be at least 2-mg/L and no higher than 4-mg/L before the system can be made operational.

j) If three successive test results are unsatisfactory, the Contractor shall immediately re-chlorinate lines and proceed with such measures as are necessary to properly disinfect the lines.

k) The new water system shall be valved off from the existing system until a satisfactory bacteriological laboratory analysis has been obtained and the Infrastructure Inspector has authorized the use of the new water system.

l) Water mains shall be placed into service within 72 hours of passing bacteriological analysis requirements. If no activity is anticipated on a water main after it is placed into service, the contractor shall notify the Town’s Operations Manager.

m) If the Inspector or any Town representative does not approve of the sampling location, equipment, or setup then the sample shall not be taken. Contractor shall only take samples when approved by the Inspector or Town Representative.

6. Tracer Wire and Marker Tape Testing

   Testing of the tracer wire and tape shall be performed by the Contractor at the completion of the project to assure they are all working properly. It is the Contractor’s responsibility to provide the necessary equipment to test the markers. Any defective, missing, or otherwise non-locatable units shall be replaced. The Contractor shall submit a report of all tracer wire and marker tape testing. The Town reserves the right to require a third-party testing company at any time, at the expense of the Contractor.

607 Repair and Abandonment

1. Joint leaks of Ductile Iron Pipe shall be repaired by using a bell joint leak repair clamp approved by the Town or otherwise replacing the damaged pipe and reconnecting with a mechanical joint sleeve connection.

2. Line Breaks or Punctures shall be repaired by a full circle repair clamp as approved by the Town or otherwise replacing the damaged pipe and reconnecting with a mechanical joint sleeve connection.

3. Line Splits or Blow Outs shall be repaired by replacing the damaged section with ductile iron pipe with a restrained sleeve connection at each end.

4. Asbestos Cement Pipe to PVC or Ductile Iron Pipe transitions shall use a Krausz Hymax or Romac Macro HP coupling with different end diameters sized specifically for the pipe materials and pipe outside diameter at each end.

5. All water main point repairs shall be replaced with DIP in accordance with these Specifications and backfilled with crush and run stone compacted to 95% maximum dry density as specified elsewhere in the Standard Specifications.

6. Water Service Line Repairs

   a) A water service line severed between the water main and the water meter shall be repaired using new type K copper tubing and bronze or “no lead” brass 3 piece compression unions.

   b) A corporation stop pulled out of a pipe water main shall have a new service saddle and a new “no lead” brass corporation stop installed on the water main.

   c) A corporation stop pulled out of a ductile iron pipe shall have a full circle repair clamp placed over the old tap hole. A new tap shall be made and a new “no lead” brass corporation stop installed on the water main.

7. Abandonment of Existing Water Mains

   a) Water distribution pipe abandonment involves removing the pipe and any related appurtenances from service and leaving them in such a manner that no risk is posed to public health and safety.

   b) Existing water mains located outside of road sections shall be removed, unless otherwise directed by the Town. All materials and labor shall be provided by the contractor.

   c) Grout filling and abandoning in place may be allowed with prior approval from the Water Resources Department.

   d) Pipe and appurtenances that are to be removed due to a conflict with the proposed work shall be drained of all contents, removed, and disposed as part of the excavation process.

   e) Water distribution pipe shall be physically disconnected and the active water distribution pipe capped and thrust restrained. Once separated from the active pipe, the pipe specified for abandonment shall be drained and pumped entirely full with cement grout. The cement grout shall have a compressive strength of

500-psi and shall be of an appropriate consistency to completely fill the water distribution pipe.

f) Gate valves shall be completely closed, the valve box removed and disposed of, the resultant void space backfilled with a minimum 500-psi compressive strength, quick setting, non-excavatable flowable fill, and a standard asphalt repair patch installed.

8. Abandonment of Existing Water Services

Contractors abandoning water services shall remove the entire service stub. When available, a mechanical plug shall be used to abandon the corporation stop. If equipment necessary to plug the main is not available, the corporation stop shall be turned off and capped. A ½" PVC pipe shall extend a minimum of 12" above the capped corporation stop, wrapped at least 3 times with caution tape to identify an abandoned tap. All remaining portions of the service stub shall be removed from the main to the right of way line and shall be disposed of properly.

9. Fire Hydrant Assembly Abandonment

The fire hydrant assembly specified for abandonment shall have the associated gate valve completely closed, the valve box removed and disposed of, the resultant void space backfilled with a minimum 500-psi compressive strength, quick setting, non-excavatable flowable fill, and a standard asphalt repair patch installed. The hydrant shall then be removed, salvaged and returned to the Water Resources Department and the existing water main capped and thrust blocked. The void space shall be backfilled with flowable fill and the final 2 feet below ground level backfilled with topsoil and restored.

10. Blowoff Assembly Abandonment

The blowoff assembly specified for abandonment shall have the associated gate valve completely closed, the blowoff assembly removed and disposed of, the resultant void space backfilled with a minimum 500-psi compressive strength, quick setting, non-excavatable flowable fill, and a standard asphalt repair patch installed.

11. Combination Air Valve Abandonment

Paved Area: The air valve specified for abandonment in a paved area or within 5 feet of a roadway shall have the valve completely closed and the associated manhole ring, cover, and chimney removed and disposed of. The barrel of the manhole shall then be filled with non-excavatable flowable fill from the bottom of the manhole to within 8 inches of the surface of the roadway. The pavement shall be replaced as specified elsewhere in the Contract Documents.

Unpaved Area: The air valve specified for abandonment in an unpaved area more than 5 feet from a roadway shall have the valve completely closed and the associated manhole ring, cover, and chimney removed and disposed of. The uppermost barrel sections of the manhole shall be removed up to a depth of at least 6 feet from the ground surface. The manhole barrel shall be filled with aggregate base course to within 12 inches of the ground surface. The manhole barrel shall be filled and tamped in 8 inch lifts with aggregate base course and compacted to a minimum of ninety percent (90%) Standard Proctor density. The upper 12 inches shall be filled with screened topsoil and graded uniformly with the surrounding area. The area shall be seeded and mulched as specified elsewhere in the Standards.

SECTION 620
CROSS CONNECTION CONTROL

621 Preliminary Considerations

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624 Drainage Requirements for Backflow Prevention Assemblies
- **A. Reduced Pressure and Reduced Pressure Detectors**
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621 Preliminary Considerations

Cross Connection Control is the use of in-line testable backflow prevention assemblies, non in-line testable backflow prevention devices, methods and procedures to prevent contamination of a potable water supply. A cross-connection is any physical connection between two otherwise separate piping systems, one of which contains potable water and the other, water of unknown or questionable quality.

622 General Installation Requirements

A. Permits

Any person planning to install, remove, or relocate a backflow prevention assembly shall first obtain a <u>Plumbing Permit</u> from the *Building Inspections & Permitting Department*. As part of the application for the plumbing permit, a completed Town of Apex Right-of-Way encroachment agreement shall be attached to allow placement of any portion of an irrigation system in the Town's Right-of-Way. (All irrigation system installations in the Right-of-Way of the Town of Apex, NCDOT, or in any other utility easement is prohibited without prior written consent.) The backflow preventer shall be tested by a certified tester when first placed in service. A current list of Town approved certified backflow testers is available on the Water Resources Cross Connection Control webpage.

B. Inspections

1) Any backflow preventer assembly that is installed, removed, or relocated shall be inspected by a Town of Apex Code Enforcement Officer. It is the responsibility of the installer of a backflow preventer assembly to secure the inspection or re-inspection by the Code Enforcement Officer. Certified test reports must be <u>completed and submitted by the approved certified backflow tester via the Town's</u>

designated electronic reporting system AquaResource, before the system is approved or put into use and within 10 days of the completed test.

2) Trenches for water lines, from their connection at the water service to the irrigation backflow assembly, must be left open until the inspection is completed. **Refer to the Town of Apex *Building Inspections & Permitting Department* publication "Installation Requirements for Privately Owned Irrigation Systems". All other connections not related to irrigation shall meet the current North Carolina State Plumbing Code and Town of Apex Standard Specifications.**

C. Testing of Backflow Prevention Assemblies

The list below identifies the backflow preventer assemblies that require annual backflow testing:

1) Pressure & Spill Resistant Vacuum Breaker Assemblies (PVB or SVB)
2) Double Check Valve Assemblies (DCVA)
3) Double Check Detector Type 1 and Type II Assemblies (DCDA I and II)
4) Reduced Pressure Assemblies (RPA)
5) Reduced Pressure Detector Type I and Type II Assemblies (RPDA I and II)

The Town of Apex requires that an approved certified backflow tester perform testing of backflow preventer assemblies. *Certified backflow tester* means a person who has proven their competency to the satisfaction of the Town by successful completion of an approved Cross-Connection Control (CCC) ORC or Backflow Tester Certification school.

Town of Apex accepts CCC ORC and Backflow Tester Certifications from the following approved schools:

- Charlotte Mecklenburg Utilities Department
- Greenville Utilities Commission
- City of Durham
- City of Raleigh
- NC Rural Water
- Training Research and Education for Environmental Occupations (TREEO)
- University of Southern California (US FCCCHR)
- NC American Water Works Association (AWWA)

Certified Backflow Testers must register on the Town's designated electronic reporting system, AquaResource. The tester must upload the school certificate and pressure gauge calibration certificate to their profile on AquaResource for review and approval by the Town's CCC ORC. Certified Backflow Testers that do not complete these steps will be prohibited to test in the Town and access to the electronic reporting system will not be approved.

Only passing backflow preventer tests may be submitted to the Town's designated electronic reporting system. The tester is responsible for notifying the consumer regarding any failed test and a quote to make the repair shall be provided to the consumer for approval.

Backflow preventer test reports must be submitted to the Town's designated electronic reporting system within 10 days of the completed report.

D. Authorized Installers

Any assembly required to be installed or repaired by the provision of this article or by a corrective order issued by the Town of Apex Code Enforcement Officer shall be installed by a licensed plumbing contractor in the State of North Carolina or current home owner.

The contractor shall only be allowed to install backflow preventers on applications covered under their license. Homeowners shall only be allowed to install backflow(s) pertaining to their property. All fire backflow preventers shall be tested and installed by an approved/certified fire contractor.

E. Backflow Preventer Approvals

All in-line testable backflow prevention assemblies shall be LEAD FREE by the definition stated under Section 622 (G) and meet or exceed standards set forth by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USCFCCHR) and the American Society of Sanitary Engineering (ASSE) by being on both agencies' approval list. All in-line testable fire backflow prevention assemblies must meet or exceed standards set forth by the ASSE. Backflow prevention assemblies to be used in fire suppression systems must have the additional approval of Factory Mutual (FM) and comply with the National Fire Protection Association (NFPA) Code. To determine whether a particular size and model is approved by the above agencies, contact the Town of Apex Water Resources department.

F. Facilities and Applications Requiring Backflow Prevention

The Town of Apex has identified the following types of facilities or services as having a potential for backflow of non-potable water into the public water supply system. Therefore, an approved backflow prevention assembly may be required on all such services according to the degree of hazard present. Other types of facilities or services not listed below may also be required to install approved backflow prevention assemblies if determined necessary by the Town of Apex. As a minimum requirement, all commercial services will be required to install a double-check valve assembly, unless otherwise listed below.

Abbreviations used below:
DCVA = Double-Check Valve Assembly
RDC = Residential Dual Check
RPA = Reduced Pressure Assembly
DCDA = Double-Check Detector Assembly

RPDA = Reduced Pressure Detector Assembly
AG = Air Gap
PVB = Pressure Vacuum Breaker

1) Automotive Services Stations, Dealerships, etc.:
   a. Non-Health Hazard: DCVA
   b. Health Hazard: RPA
2) Auxiliary Water Systems:
   a. Approved/Un-approved Public/Private Water Supply: RPA
3) Used Water and Industrial Fluids: RPA
4) Bakeries: RPA
5) Beauty Shops/Barber Shops
   a. Non-Health Hazard: DCVA
   b. Health Hazard: RPA
6) Beverage Bottling Plants: RPA
7) Breweries, Wineries, Distilleries: RPA
8) Buildings - Hotels, apartment houses, public and private buildings, or other structures having unprotected cross connections.
   a. (Under five stories) Non-Health Hazard: DCVA
   b. (Under five stories) Health Hazard: RPA
   c. (Over five stories) All: RPA
9) Bulk Water: AG / RPA
10) Canneries, packing houses, and rendering plants: RPA
11) Commercial car wash facilities: RPA
12) Commercial greenhouses: RPA
13) Commercial sales establishments (Division stores, malls, etc.)
   a. Non-Health Hazard: DCVA
   b. Health Hazard: RPA
14) Concrete/asphalt plants: RPA
15) Dairies and cold storage plants: RPA
16) Dye works: RPA
17) Film laboratories: RPA
18) Fire Systems 2-$^{1}/_{2}$-inch or larger
   a. Non-Health Hazard (No FDC): DCDA
   b. Health Hazard: (Booster Pumps, Foam, Antifreeze Solution, FDC, etc.): RPDA
19) Fire Trucks: RPA
20) Hospitals, medical buildings, sanitariums, morgues, mortuaries, autopsy facilities, nursing and convalescent homes, medical clinics, and veterinary hospitals: RPA
21) Laundries:
   a. Non-Health Hazard: DCVA
   b. Health Hazard: (i.e.: Dry Cleaners): RPA
22) Lawn irrigation systems: RPA
23) Metal manufacturing, cleaning, processing, and fabricating- plants: RPA
24) Mobile home parks:
   a. Non-Health Hazard: DCVA

b. Health Hazard: RPA

25) Oil and gas sales (bulk wholesale, or retail) distribution, production, storage or transmission properties: RPA
26) Pest control (exterminating and fumigating): RPA
27) Electrical power plants: RPA
28) Restaurants:
    a. Non-Health Hazard (no cooking / kitchen facilities): DCVA
    b. Health Hazard: RPA
29) Residential (single family homes; individually metered duplexes, triplexes, multiplexes, apartments, Townhouses, condominiums, etc.): RDC
30) Restricted, classified, or other closed facilities: RPA
31) Sand and gravel plants: RPA
32) Schools and colleges: RPA
33) Sewage and storm drain facilities: RPA
34) Swimming Pools – pools connected to Town water system: RPA
35) Waterfront facilities and industries: RPA
36) Reclaim Water:
    a. Residential domestic connections: RPA
    b. Commercial domestic connections: RPA
    c. Irrigation connections / potable water: RPA
37) Temporary construction connections: RPA
38) Yard Hydrants: RPA

All assemblies and installations shall be subject to inspection and approval by the Town of Apex.

Notes:

1) Under no circumstances may a potable water line be directly or indirectly connected to any unapproved water source and piping or equipment that conveys sewage.
2) An approved double check detector assembly (DCDA) is required on a low hazard fire system and an approved reduced pressure detector assembly (RPDA) is required on a high hazard fire system. A high hazard fire system is any system that is boosted (fire department connection (FDC)), fire truck, booster pump, processed, or chemical. No commercial or industrial fire system shall have less than a 2.5-inch supply line and backflow preventer into the intended site or structure from the Town's water main.
3) This is not an exhaustive list.

G. Definitions

Atmospheric Vacuum Breaker - (AVB) (ASSE Approval #1001) – This device may be used at the discharge of the control valve when located at least six inches above the flood rim of the container. It shall not be subject to continuous pressure or backpressure backflow and shall not include contact with toxic chemicals or liquids that may be a health hazard.

Continuous Pressure – 12 or more hours of water usage in any 24-hour period.

Double Check Valve Assembly - (DCVA) (ASSE Approval #1015) – This assembly may be used singly or in parallel with any flow requirements. It shall not include contact with toxic chemicals or liquids that may be a health hazard.

Double Check Detector Assembly Type I - (DCDA I) (ASSE Approval #1048) – This assembly may be used singly or in parallel with any flow requirements. It shall not include contact with toxic chemicals or liquids that may be a health hazard. This device will have a water meter and an in-line double-check bypass.

Double Check Detector Assembly Type II (DCDA II) (ASSE Approval #1048) – This assembly may be used singly or in parallel with any flow requirements. It shall not include contact with toxic chemicals or liquids that may be a health hazard. This assembly will have a water meter and an in-line single check valve bypass.

Hose Bibb Vacuum Breaker - (HBVB) (ASSE Approval #1011) – May be used on hose bibbs and hose hydrants except when usage would be at a point 6 inches higher than the vacuum breaker and when usage would include contact with toxic chemicals or liquids which may be a health hazard.

Lead Free Backflow Preventer - The maximum lead content (weight) in the backflow preventer shall be less than 0.25% and meet the current EPA Lead Free Amendment 1417 enacted on January 4, 2014; under the current EPA “Safe Drinking Water Act”.

Low Hazard (Non-Health Hazard) – One that presents foreseeable and significant potential for pollution, nuisance, aesthetically objectionable or other undesirable alterations of the drinking water supply.

Pressure Vacuum Breaker - (PVB) (ASSE Approval # 1020) – This assembly must be installed at a minimum of 12 inches above all downstream piping and shall not be subjected to backpressure backflow. It may be used under continuous pressure applications.

Ready-accessible – Having direct access to a backflow preventer without the need of removing any panel, door, or similar covering of the item described, and without requiring the use of portable ladders, chairs, etc.

Reduced Pressure Assembly (RPA) (ASSE Approval #1013) – This assembly may be used singly or in parallel with any flow requirements.

Reduced Pressure Detector Assembly (RPDA Type I) (ASSE Approval #1047) – This assembly may be used singly or in parallel with any flow requirements. It shall have a water meter and an in-line reduced pressure bypass.

Reduced Pressure Detector Assembly (RPDA Type II) (ASSE Approval #1047) – This assembly may be used singly or in parallel with any flow requirements. It shall have a water meter and an in-line single check valve bypass.

High Hazard (Health Hazard) – Actual or potential threat of contamination that presents an imminent danger to the public health with consequence of serious illness or death.

University of Southern California Foundation for Cross Connection Control and Hydraulic Research (USCFCCCHR) – An educational and research facility.

Irrigation System – A mechanical apparatus or piping installed below ground to provide an artificial application of water to land or vegetation.

623 Backflow Prevention Assembly Installation Requirements

A. Support

Backflow preventers shall be properly supported so that stress on surrounding piping does not occur. Mount enclosures such as concrete or a fiberglass pad shall be installed per current Town of Apex cross connection details.

B. Location

Backflow preventer installations are not allowed in public rights-of-way (Town or NCDOT), under structures or within foundations.

Backflow preventers cannot exceed 50-feet from the potable water main.

Backflow preventers for irrigation must be within 25-feet of the meter and not exceed 10-feet past the front corner of the permanent structure.

All backflow preventers are considered private and shall be located outside of the Town's utility easements.

C. Materials

All materials used in conjunction with a backflow preventer installation shall conform to the specifications of the North Carolina State Plumbing Code, section 605.3 and ASSE 1013, and AWWA C511.

D. Accessibility

All backflow preventers must be installed where the Water Resources staff, Inspector, or Code Enforcement Officer deems them to be ready-accessible. All RPA, RPDA, DCVA and DCDA backflow preventers are required to be installed at least 12 inches and no more than 60 inches above the floor (the vertical distance measured from the lowest point of the backflow preventer to the floor or grade). Approved minimum clearance above and around the backflow preventer must also be provided (refer to Town Standard Details for minimum installation clearance). Lawn irrigation backflow preventers must be installed

outside any building, structures, or foundation crawl space and must meet clearance requirements as shown in the Town Standard Details.

E. Orientation

All RPA, RPDA, DCVA, and DCDA backflow preventers shall be installed in the approved USCFCCHR position..

F. Freeze Protection

The NC Plumbing Code prohibits the installation of RPAs where they may be exposed "to freezing except where they can be removed by means of unions or are protected from freezing by heat, insulation, or both." Backflow preventers installed outside, require an ASSE 1060 insulated enclosure. The enclosures are rated to maintain 40ºF in as low as -30ºF weather, (a minimum R value of 8.0 (unless the backflow preventer is designed to be removed each winter and the enclosure is understood to be for decorative purposes only). For fire protection installed outside, the NFPA requires the ASSE 1060 enclosure to include permanent, hard piped electrical service, and a thermostatically controlled heater or heat trace. Freeze protection is not required for lawn irrigation where RPAs are installed outside and can be removed with unions and an upstream SOV not subject to freezing. All underground piping must be installed a minimum of 12 inches below grade and must meet the requirements of underground water service piping.

G. Alterations

No backflow preventer shall be modified from its approved factory configuration.

H. Shut-Off Valves

All backflow prevention assemblies with in-line testing capabilities shall include approved shut-off valves attached to both the inlet and outlet side of the backflow preventer. Shut-off valves are broken into the following categories:

1) Assemblies ≤ 2 inches (Non-Fire System Use):
   Backflow prevention assemblies are required including quarter turn, full port, and resilient seated, bronze ball shut-off valves.

2) Assemblies ≤ 2 inches (Residential Townhome Fire System Use):
   These systems shall use quarter turn, full port, and resilient seated, bronze ball shut-off valves with the additional requirement that the valve handles be locked in the fully open position using a pad lock and aviation cable as approved by the Fire Marshal's office.

3) Assemblies ≥ 2½ inches (Non-Fire System Use):
   Backflow prevention devices are required to include "resilient wedge" gate valves.

4) Assemblies ≥ 2½ inches (Fire System Use):
Backflow prevention devices used on fire suppression systems are required to include Factory Mutual approved resilient wedge OS&Y (outside stem and yoke) gate valves.

I. Wye Strainers

Wye Strainers shall not be allowed on fire protection systems. Wye strainers are required on all other backflow preventer assemblies (RPA, DCVA, PVB). Wye strainers specified by the manufacturer are required to be installed immediately upstream of the backflow preventer's number one shut-off valve (SOV) and after the isolation SOV. All internal or confinement (isolation) backflow preventer assemblies will have a wye strainer upstream of the assembly with the exception of fire protection systems.

J. Water Hammer

All backflow preventers subject to water hammer (hydraulic shock) shall be protected by adequate water hammer arrestors.

K. Backflow Preventer Sizing

In no case shall a backflow preventer be smaller in line size than its outlet or downstream piping.

L. Identification Tag

No one shall remove any manufacturers tag or stamp that bears pertinent information about the unit.

Property addresses shall be displayed on the outside of the approved enclosure or inside on the backflow preventer with 6 mm or ¼ inch lettering. The properties / sites affected are townhomes, multifamily, commercial, and industrial uses / applications.

M. Labeling of Non-Potable Piping

Where non-potable water systems are installed, the piping conveying the non-potable water shall be identified either by color marking, metal tags or tape. Non-potable water outlets, such as hose connections, open ended pipes and faucets, shall be identified with signage in accordance with NC Plumbing Code 608.8.1 through 608.8.2.3. that reads

Non-potable distribution piping shall be purple in color and shall be embossed, or integrally stamped or marked, with the words: "CAUTION NONPOTABLE WATER – DO NOT DRINK" or the piping shall be installed with a purple identification tape or wrap. Pipe identification shall include the contents of the piping system and an arrow indicating the direction of flow in accordance with Plumbing Code 608.8.1 through 608.8.2

N. Bypasses

Facilities that by the nature of their business cannot shut down their water systems to provide for backflow preventer testing, repairs, etc. shall be required to install a bypass backflow preventer of the same hazard level as the main-line unit. The bypass unit must be properly sized to keep critical building services online while the main-line unit is shut down for annual maintenance.

Bypasses are broken into the following categories:

1) Unapproved
   No backflow prevention assembly shall be installed in a manner as to allow the assembly to be looped around or bypassed either temporarily or permanently (except when in compliance with the section below).

2) Approved
   All backflow preventers in bypasses shall be equal in hazard level (not necessarily in size) to the unit on the main line. All assemblies in the bypass shall meet all of the requirements of an assembly that is installed in a main line.

O. Relief Outlet Piping

When RPA and RPDA assemblies are installed inside buildings they shall be in accordance with NC Plumbing code. RPAs and RPDAs capable of experiencing a full port discharge that are installed inside shall flow by gravity to a sanitary waste floor drain designed to handle a full port discharge from these assemblies or be routed outside so long as the discharge does not create a hazard or nuisance in accordane with NC Plumbing Code. When drains from the relief valve outlets are utilized they must include the following:

1. An approved, prefabricated, appropriately sized Air Gap drain (factory Air Gap adapters are generally available from the manufacturer).

2. Drain lines to direct flow towards indirect waste floor drains.

3. All relief port drain lines shall be piped, full size, to their point of termination.

4. When run horizontally, install the drain line with a slope conforming with the NC Plumbing code 704.1.

P. Pressure Protection

All backflow preventers shall be protected by a pressure reducing valve when water pressure exceeds the maximum design pressure. The pressure reducing valve shall be installed downstream of the backflow preventer unless waterline pressure exceeds the

maximum rated capacity of the backflow preventer (this capacity will be listed on the backflow preventer). In this situation, the pressure reducing valve (PRV) must be installed upstream of the backflow preventer to protect the unit.

Q. Test Cocks

All backflow prevention assemblies with in-line testing capabilities shall have bronze test cocks of the ball valve type. All Reduced Pressure, Double Check Valve, Reduced Pressure Detector, and Double Check Detector assemblies shall have a number one test cock located on the supply side of the number one shut-off valve. When installed in this manner, the number one test cock can be utilized even when the number one shutoff valve is closed.

R. Culinary Use

Backflow preventers and wye strainers used for culinary purposes such as canned food preparation or in dairies shall have an FDA (Food and Drug Administration) approved coating and shall be stamped with the appropriate seal.

624 Drainage Requirements for Backflow Prevention Assemblies

A. Reduced Pressure and Reduced Pressure Detector

No RPA or RPDA assemblies will be allowed to be installed below ground. The assemblies installed in above ground enclosures or inside buildings shall be installed so that the relief outlet of the assembly does not become submerged.

1) Above Ground Installation:
   All above ground protective enclosures shall incorporate or be equipped with drains that are sized to handle a full port discharge from the assembly.

2) Building Installation:

   An approved, prefabricated, appropriately sized Air Gap drain (factory Air Gap adapter generally available from the manufacturer).

   Drain lines to direct flow towards indirect waste floor drains.

   All relief port drain lines shall be piped, full size, to their point of termination.

When run horizontally, install the drain line with a slope conforming with the NC Plumbing code 704.1.

3) Below Ground Installation:
   All existing assemblies shall be raised above ground at the time the assembly can no longer be repaired and requires replacement to meet Town of Apex

Cross-Connection Standards and Ordinance.

B. Double Check and Double Check Detector

Existing DCVA and DCDA backflow prevention assemblies that are subject to flooding conditions must have adequate drainage. However, a permanent sump pump with a hard-piped electrical service may be allowed on an existing DCVA or DCDA assembly if the installation preempted the Town of Apex's Cross Connection Control Ordinance and a gravity drain is not obtainable.

625 Backflow Prevention Assembly Enclosures

No backflow prevention assembly shall be installed in a traffic area or public right of way.

A. Above Ground Enclosures

All backflow prevention assemblies installed above ground in a location where freezing conditions could occur shall be protected by an approved insulated protective enclosure. All enclosures must have ASSE standard 1060 “Freeze Retardant” with a minimum R value of 8.0 (unless the backflow preventer is designed to be removed each winter and the enclosure is understood to be for decorative purposes only). For fire protection assemblies installed outside, the NFPA requires the ASSE 1060 enclosure to include permanent, hard piped electrical service, and a thermostatically control heater or heat trace.

626 Fire Protection Backflow Preventer Requirements

There shall not be any unprotected interconnection between potable water and fire lines. All backflow prevention assemblies installed on fire suppression systems shall be either a Double Check Detector Assembly Type I or Type II (DCDA I or II) for low hazard installations or a Reduced Pressure Detector Assembly Type I or Type II (RPDA I or II) for high hazard installations. All meters on the detector by-pass must read in gallons per minute. Backflow prevention assemblies on fire lines shall be installed as received from the manufacturer with no modifications. All assemblies used in fire protection systems must have USCFCCCHR, ASSE, and FM approvals.

A. High Hazard Systems (Health) requiring RPDA

1) Systems with booster pumps
2) Systems with transfer pumps
3) Systems with storage tanks
4) Systems with compressors
5) Systems with antifreeze solutions
6) Systems serving 5 or more stories above ground level
7) Fire Department Connections–FDC

8) Line extensions greater than 50’ to serve a fire hydrant

B. Low Hazard Systems (Non-Health) requiring DCDA

1) Systems that do not have a fire department connection (FDC)
2) Dry pipe systems
3) Less than 5 stories above ground level
4) Without booster pumps
5) Without chemical additives
6) Line extension less than 50 feet from a potable water line for the purpose of serving a fire hydrant.

C. Dead End Lines

All fire systems and fire hydrant lines extending **more than 50 feet** from the Town water main are considered to be dead end systems. To avoid accumulation of stagnant water in the Town main, an approved reduced pressure detector backflow prevention assembly shall be installed within 50 feet of the Town water main. Each change of direction greater than 45 degrees shall reduce the maximum allowed unprotected footage by 25 percent.

D. Modification of DCDA/RPDA Units

When the DCDA / RPDA bypass needs replacement, the defective parts must be replaced with factory approved parts (i.e. the bypass backflow preventer or bypass meter must be replaced with a unit of the same size, manufacturer, and model number) since the detector assembly and main line unit are a matched set from the factory.

E. Fire System Shutdown Protocol

1) Have facility owner contact their monitoring agency to inform them that the supervisory switches on backflow preventer shut-off valves will be tripped.
2) Owner or tester must contact Apex Emergency Communications at (919) 249-3441 to advise them that the system will temporarily be out of service. Relay the following information:
    a) Street address and business name.
    b) Time and date system will be taken out of service.
    c) Time and date system will be put back in service.
3) Contact both Emergency Communications and the monitoring company to confirm that the system is back in service.

627 Lawn Irrigation Backflow Preventer Requirements

A. Irrigation Meter Fed Systems

Lawn irrigation systems have the potential to allow contaminated water to backflow into the potable water system. The Town of Apex requires the installation of an approved RPA (ASSE 1013). On properties platted after July 1, 2009, all new lawn irrigation systems are required to install a separate water meter per NCAC §143-355.4. All backflow

preventers shall be installed per Town of Apex Standard Details. To obtain information for purchasing an “irrigation only” meter, contact the *Building Inspections & Permitting Department*.

B. Irrigation Systems Tied to Outside Hose Bibbs

Irrigation systems, piping, fittings, sprinklers, drip tubing, valve, timers, and all associated components installed for the delivery and application of water for the purpose of irrigation that are connected to outside hose bibbs shall be prohibited and are in violation of the CCC Ordinance.

The only approved method for watering from an outside hose bibb with an approved AVB or hose bibb vacuum breaker (HBVB) is an open-ended water source above grade, without valves.

C. Location and Accessibility

The location of the installed RPA shall meet the following criteria:

RPA shall be installed between the meter and the first sprinkler head (or yard hydrant).
Distance from the water main to the RPA shall not exceed 50 feet
Distance from the water meter to the RPA shall not exceed 25 feet
RPA shall not be located more than 10 feet from the front corner of the home.
RPA shall not be installed behind a fence, under a deck, crawl space, or other structure accessory.
Installation within Town right-of-way or Town easement is prohibited. The RPA must be located outside the 5-foot utility easement.
RPA must be located with a minimum clearance of 12 inches from lowest part of the assembly above final grade.

D. Backflow Preventer Orientation

All reduced pressure assemblies shall be installed in the horizontal position or per the current USCFCCHR manual.

E. Freeze Protection

All underground piping must be installed a minimum of 12 inches below grade and must meet the requirements of underground water service piping.

All enclosures must meet ASSE 1060 “Freeze Retardant” with a minimum R value of 8.0,unless the backflow preventer is designed to be removed each winter (lawn irrigation installed with unions and an upstream shut off valve not subject to freezing) and the enclosure is understood to be for decorative purposes only.

F. Inspections

Water Tap Inspection is required for contractor installed taps.

The Irrigation Rough-in Inspection is an open trench inspection from the water meter to the RPA. The trench must remain open until the inspection has passed.

Final Irrigation Inspection verifies that the concrete pad, rain sensor (if applicable), and backflow enclosure is installed and meets the requirement based on installation of the system.

G. Accessories

Rain sensor installation is required for all automatically controlled irrigation installations. The device must be set to ¼ inch or less per Town of Apex Ordinance.

628 Backflow Preventer Inspections and Repairs

Backflow prevention devices shall be retested and recertified on a yearly basis, and maintenance on all rubber parts is to be performed every 5 years. All testing and maintenance must be performed by a certified professional. Recertification is also required after any maintenance is performed on the reduced pressure assembly. Backflow preventers are required to be repaired or replaced within 10 days once they are determined to be failing. Backflow preventers are required to be brought up to current installation standards when the backflow preventer failure occurs. This section also applies to backflow preventers that are installed in a manner that can create a health risk to the water system. Since the *Water Resources Department* regulations are primarily health code based, existing backflow preventers are not grandfathered as they are subject to the plumbing code. Any backflow preventer that cannot be repaired and cannot pass the annual test certification shall be replaced with a lead-free assembly. Contact the *Water Resources Department, Water & Sewer Utility Operations Division* to determine if an installation meets present cross connection control specifications. If the installation does not meet requirements, the INSPECTOR will inform the property owner or their agent of any deficiencies and discuss options available for remedy.

Current code requires that backflow preventers are:

1) ready-accessible
2) installed so that they are not submerged in liquid or soil,
3) equipped with a wye strainer installed immediately before the #1 shutoff valve of the backflow preventer (on every application except fire system use), and
4) installed according to their listing in USCFCCHR manual.

Refer to the Standard Details for strainer location and installation clearances.

629 Certified Backflow Prevention Assembly Tester

Certified backflow prevention assembly tester (tester) means a person who has proven

their competency to the satisfaction of the Town of Apex. Each person who is certified to conduct tests, complete repairs, and produce reports on backflow prevention assemblies shall:

1) Be knowledgeable of applicable laws, rules, and regulations applying to backflow prevention assemblies in the State of North Carolina and in the Town of Apex;
2) Be a licensed plumber or have at least two years experience under and be employed by a North Carolina licensed plumber or plumbing contractor, or have equivalent qualifications acceptable to the Town;
3) Hold a certificate of completion from a Town-approved North Carolina Cross Connection School in the testing of backflow prevention assemblies.
4) Meet all State requirements for testing backflow preventers.

When employed by the consumer to test, repair, overhaul, or maintain backflow prevention assemblies, a tester will have the following responsibilities:

1) Each person wishing to test, repair, overhaul, or maintain backflow prevention assemblies shall provide a certificate to the Town which sets forth that he/she has met the minimum qualification standards established by the Town for certification as a backflow preventer assembly tester.

   The tester will be responsible for making competent inspections, repairing or overhauling backflow prevention assemblies, and making reports of such repair to the consumer and the Town via the designated electronic reporting system. The tester shall include the list of materials or replacement parts used. The tester shall be equipped with and be competent to use all the necessary tools, gauges, manometers, and other equipment necessary to properly test, repair, and maintain backflow preventer assemblies. It will be the tester's responsibility to ensure that original manufactured parts are used in the repair of or replacement of parts in a backflow prevention assembly. It will be the tester's further responsibility not to change the design, material, or operational characteristics of an assembly during repair or maintenance without prior approval of the Town. A tester shall perform the work and be responsible for the competency and accuracy of all tests and reports. The tester shall provide a copy of all test and repair reports to the consumer and to the Town within 10 business days of any completed test or repair work. Testers shall maintain such records for a minimum period of 3 years.
2) All certified backflow prevention assembly testers must obtain and employ backflow prevention assembly test equipment that has been evaluated and/or approved by the Town. All test equipment shall be registered with the Town. All test equipment shall be checked for accuracy annually (at a minimum), calibrated, if necessary, and certified to the Town as to such calibration, employing an accuracy/calibration method acceptable to the Town.

Contact the *Water Resources Department* for a list of approved testers and for tester information forms, or access the Town website.

630 Summary of Backflow Prevention Methods

METHOD⇨	AVB	PVB	SVB	DCVA	RPA	AIR GAP
HAZARD (HIGH / LOW)	HIGH	HIGH	HIGH	LOW	HIGH	HIGH
BACKPRESSURE (Bp) / BACKSIPHONAGE (Bs)	Bs	Bs	Bs	Bp / Bs	Bp / Bs	Bp / Bs
PRESSURE LOSS SIGNIFICANT	NO	NO	NO	NO[1]	NO[1]	YES
CONTINUOUS PRESSURE ALLOWED	NO	YES	YES	YES	YES	N/A
VENTS TO ATMOSPHERE	YES	YES	YES	NO	YES	YES
PIT / VAULT INSTALLATION ALLOWED	NO	NO	NO	NO	NO	NO
VERTICAL INSTALLATIONS ALLOWED	YES	YES	YES	YES/ NO[2]	YES/ NO[2]	N/A
ISOLATION / CONTAINMENT	I	I	I	C	C	I
PARALLEL INSTALLATION COMMON	NO	NO	NO	YES	YES	N/A

N/A = Not Applicable

1. The maximum allowable pressure loss through a DCVA is 10.0 psi. The pressure loss through an RPA is 7.0 to 14.0 psi.
2. Refer to approval manual (USCFCCHR).

SECTION 700
WASTEWATER COLLECTION SYSTEMS

701 Gravity Sewer

A. Design

1. Main Location

a) All public sanitary sewer mains shall be installed in dedicated street right of way or in dedicated utility easements. Mains within easements shall be centered within the easement. Mains located along NCDOT roads shall be placed outside of NCDOT right of way. In preparing engineering design plans, all elevations shall be tied to NC grid system and the benchmark shall be described on the plans. A field survey of all waterways and waterbodies within project area must be performed, including but not limited to: creeks, streams, rivers, lakes, ponds, ditches, and culverts. Survey must include adequate points to accurately represent the cross section of the waterway/waterbody, i.e. top of bank, toe, centerline, etc.

b) Construction Drawings shall be prepared by or under the direct supervision of a professional engineer, licensed in North Carolina. Design shall conform to all standards and guidelines established by the Town and NCDEQ. Any design that does not meet minimum requirements set forth by NCDEQ and 15A NCAC 02T rules shall require a variance approval from NCDEQ. Plans shall indicate deflection angles at all manholes.

c) All private sewer collection mains inside the Town service area that will connect or are planning to discharge into the Apex sewer system shall comply with all Town of Apex design, siting and installation criteria outlined herein. The Owner of the private sewer collection system shall meet all State design requirements and obtain a State permit to operate the private system. A magnetic flow meter and manhole shall be required prior to connection to the Town's system.

d) Gravity mains shall be installed in dedicated public right of way (not alleys or roundabouts) or in dedicated utility easements as follows:

Pipe Size (D)	Pipe Depth*	Easement Width	Town Road R/W
≤ 12-inches	≤ 8-ft	20-ft	Allowed
≤ 12-inches	8-ft – 15-ft	30-ft	Exception Required
≤ 12-inches	15-ft – 20-ft	40-ft	Not Allowed
>12-inches to ≤ 24-inches	≤ 15-ft	30-ft	Exception Required
>12-inches to ≤ 24-inches	15-ft to 20-ft	40-ft	Not Allowed
≥ 24-inches	Any Depth	As Specified by the WR Department	Not Allowed
Any Size	Deeper than 20 ft		

*Depth of the sewer main shall be measured from the top of the pipe to the final grade or road subgrade at the deepest point between manholes.

Dedicated easements for sewer mains and appurtenances shall be recorded as “Town of Apex Public Sanitary Sewer Easement”. Town of Apex sewer easements shall contain only Town of Apex utilities unless otherwise approved by the site plan or an encroachment agreement. Sewer mains shall be centered in the easement. Easements shall be acquired by the Developer (unless utility is designed as part of a Capital Improvement Project) prior to construction plan approval. See Section 215 for utility easement requirements.

If the sewer main is located within the road right-of-way, a clear width equal to or greater than the easement width required must be available. If adequate width is not available within the right-of-way, additional easement outside of the right-of-way must be maintained. For example, if a sewer main normally requiring a 20-foot easement is installed 5 feet inside of the right-of-way, an additional 5 feet of easement must be obtained outside of the right-of-way to provide a clear total width of 10 feet on each side of the pipe.

e) The minimum width of a permanent easement that contains sanitary sewer and storm drain shall be at least 10 feet in addition to the easement width required in the table above. There must be a separation of 10 feet between the outside of each pipe and 10 feet from the centerline of the pipe to the easement line. Additional easement width may be required based on the depth and combination of utility and/or storm drain within the shared easement.

f) The minimum width of a permanent easement that contains sanitary sewer and public greenway shall be 15 feet in addition to the width required in the table above. There must be a separation of 10 feet between the sewer main and the edge of pavement and at least 10 feet from the centerline of the pipe to the easement line.

g) Where public sanitary sewer mains are installed within easements crossing private property, the Town's Water Resources Department shall have the right to enter upon the easement for purposes of inspecting, repairing, or replacing the sewer main and appurtenances. Where paved private streets, driveways, parking lots, etc. have been installed over public sewer mains, the Town of Apex shall not be responsible for the repair or replacement of pavement, curbing, landscaping, etc. which must be removed to facilitate repairs. The Water Resources Department shall excavate as necessary to make the repair, and shall backfill the disturbed area to approximately the original grade. Replacement of privately-owned pavement, curbing, walkways, etc. shall be the responsibility of the property owner and/or

Homeowner's Association.

h) Mains paralleling a creek shall be of sufficient depth to allow lateral connections below the stream bed elevation. The top of the sewer main and laterals shall be at least three feet below the stream bed. Concrete encasement and ductile iron pipe shall be required when the cover between the top of the pipe and the stream bed is less than 3 feet.

i) Mains shall not be installed under any part of water impoundments or area to be impounded. Sewer mains shall not be installed through, above, or below any retained earth structure. Sewer main location and depth shall not be within the theoretical 1:1 slope of any impoundment dam or structure, or shall maintain a minimum of 10' horizontal separation from the toe of slope, whichever is greater. The entire easement shall be outside of the toe of slope, unless prior approval is obtained from the Water Resources Department.

j) Sewer profile shall follow natural topography and road grade. Sewer designed against natural grade or road grade shall only be allowed if approved by the Water Resources Department and no practical alternative is available.

k) The following minimum horizontal separations shall be maintained:

    1. 100 feet from any private or public water supply source, including wells, WS-1 waters or Class I, Class II, or Class III impounded reservoirs used as a source of drinking water (except as noted below)

    2. 50 feet from wetlands and any waters (from normal high water) classified WS-II, WS-III, WS-IV, B, SA, ORW, HQW or SB (except as noted below)

    3. 20 feet from waters classified as C, any other stream, lake, or impoundment (except as noted below)

    4. The following separations may be acceptable when water main standards are implemented:

        a. All appurtenances shall be outside the 100 foot radius of wells.

        b. 50 feet from private wells (with no exceptions)

        c. 50 feet from public water wells (with no exceptions)

d. Where the required minimum separations cannot be obtained, ductile iron pipe shall be used with joints constructed and tested to water main standards.

l) Sanitary Sewer mains shall be extended to adjacent upstream property lines in order to serve all upstream properties. Additionally, Sanitary Sewer shall always be extended along any and all-natural drainage courses/draws that are located within the property line boundaries of the proposed development, based on the original topography.

1) Sewer design shall account for future upstream development based on the current land use plan, or approved developments (whichever results in larger flow).

2) The most upstream manhole shall be designed and located so that all upstream properties will have access to connect with future sewer mains without the need for a pump station. Depths shall be evaluated so that streams, roads, culverts, and any other features that must be crossed by future upstream sewer mains can do so and still achieve the required minimum cover on top of the sewer main.

m) Gravity sewer mains shall be deep enough to serve the adjoining properties and allow for sufficient slope in lateral lines. Gravity sewer pipe shall have the following minimum covers:

1) 3 feet from the top of pipe to finished subgrade in roadways.

2) 3 feet from the top of pipe to finished grade outside roadways.

n) Sewer mains that do not meet minimum cover stated are required to be ductile iron for the entire run between manholes. Steel casing and/or concrete may also be required for protection, at the direction of the Water Resources Department.

o) In all cases where fill material is added above existing sewer mains, the Engineer of Record shall prepare a structural analysis of the existing pipeline and determine if it is capable of supporting additional loading. If the additional fill material exceeds AWWA, DIPRA, UNIBELL and/or manufacturer standards for loading, the pipeline shall either be reinforced to adequately support the additional loading or replaced with a ductile iron pipe rated to support the added loading.

p) Separation Between Sanitary Sewer and Storm Water Pipes:
Sewer mains shall have a minimum vertical separation of 24 inches between storm pipes when the horizontal separation is 3 feet or less.

Where sanitary and storm sewers cross with a vertical separation of less than 24 inches, the entire leg of sanitary sewer shall be made of standard ductile iron pipe with joints rated for water main service and the void space between the pipe crossing shall be backfilled with 3000-psi concrete or quick setting, minimum 500-psi, non-excavatable flowable fill that meets or exceeds NCDOT Specifications.

q) Separation Between Sanitary Sewer and Sewer Force Main:
There shall be a minimum 7-foot horizontal separation between parallel gravity and force mains when the depth of installation is 8-ft or less. Otherwise, the minimum horizontal separation between pipelines shall be 10-ft up to 10-ft depth of installation.

r) Separation Between Sanitary Sewer and Water Main

1) Parallel Installations: 10-ft lateral separation (pipe edge to pipe edge) or minimum 5-ft lateral separation, and water line at least 18-inches above sanitary sewer line measured vertically from top of sewer pipeline to bottom edge of water main.

Separation Requirements Summary*					
	Vertical**				
Utility Type	*Water Main (Over)*	*Water Main (Under)*	*Sanitary Sewer*	*Force Main*	*Storm Drain*
Water Main (Over)			18"	18"	18"
Water Main (Under)			18" (DIP)	18" (DIP)	18"
Sanitary Sewer	18"	18" (DIP)			24"
Force Main	18"	18" (DIP)			18"
Storm Drain	18"	18"	24"	18"	
*Minimum Requirements. Additional requirements may be required when vertical separation is not met. **When horizontal separation requirement is not met (DIP) - Material Requirement for Utility Crossing Over Water Main					

2) Crossings (Water Main Over Sewer): All water main crossings of sewer lines shall be constructed over the sewer line in conformance with Town of Apex Specifications. At a minimum, 18-inches of clearance shall be maintained between the bottom edge of the water main and the top edge of the sewer main. If 18-inches of clearance is not maintained, the water main and sanitary sewer main shall:

a. Both lines shall be constructed of ductile iron pipe (ferrous material) with joints in conformance with water main construction standards.

b. The sanitary sewer pipe shall be ductile iron the entire run from manhole to manhole.
c. The void space between the pipes shall be filled with minimum 500-psi, quick setting non-excavatable flowable fill extending 3-ft on both sides of the crossing. Regardless of pipe material, at least 12-inches of vertical separation is required for sanitary sewer crossings of potable water mains.

3) Crossings (Water Main Under Sewer Line): Allowed only as approved by Town of Apex, when it is not possible to cross the water main above the sewer line. At a minimum, 18-inches of separation shall be maintained, (measured from pipe edge to pipe edge) and the sanitary sewer shall be constructed of ductile iron in conformance with water main construction standards the entire run from manhole to manhole. If local conditions prevent providing 18-inches of clearance, then at least 12-inches of clearance shall be provided and the void space between the pipes shall be filled with minimum 500-psi, quick setting, non-excavatable flowable fill extending at least 3-ft on both sides of the crossing.

2. Main Size, Slope and Design Criteria

a) Public gravity mains shall be a minimum of 8 inches in diameter.

b) Major interceptors shall be sized in accordance with the "Town of Apex Sewer Master Plan". In areas not included in the master plan, interceptors shall be designed based on the proposed land use (according to the Town's Comprehensive Plan), using the following flow factors. At a minimum, all gravity sewer mains shall be designed and sized to serve the ultimate tributary buildout of the entire drainage basin.

Residential flow rates:

Land Use	**Flow Factor**
Single Family Residential	300 gpd per dwelling unit
Multi-Family Residential	250 gpd per dwelling unit

Non-residential flow rates:

Use flow factors as required by the North Carolina Department of Environmental Quality (at the time of this Specification revision, these flow rates are contained in 15A NCAC 02T .0114).

For all other flow rates not listed in Section above, use:

Land Use	Flow Factor
Office and Institutional	0.09 gpd/sq.ft bldg. space
Commercial	0.12 gpd/sq.ft bldg. space
Industrial	0.20 gpd/sq.ft bldg. space

c) The ratio of peak to average daily flow shall be 2.5.

d) Sanitary sewers shall be designed to carry the projected average daily flow at no more than 1/2 full. The minimum velocity for sanitary sewer lines shall be 2.5-fps.

e) Sanitary sewers shall be sized based on the Manning's Equation with Manning's roughness coefficient "n" = 0.013 or greater. Pipe diameter sizes used in the calculation of Manning's Equation shall be nominal pipe sizes.

f) Downstream Sewer Analysis: All projects shall perform evaluation of existing downstream sewer capacity to demonstrate there are no negative impacts on the existing sewer system. The limits of the downstream sewer capacity study will be determined by the Water Resources Department. The sewer capacity analysis shall be stamped and signed by the Professional Civil Engineer in the State of North Carolina. This evaluation shall address the capacity of all sewer collection and trunk sewer systems that will be impacted downstream of the new development and/or redevelopment.

If any downstream segments of the sewer system have previously been identified as critical, or sub-critical in a monitoring report or previous analysis, additional field monitoring or data collection may be required, as determined by the Water Resources Department.

The sewer capacity analysis shall incorporate the potential sewage generated within the entire natural drainage basin in which the development is located based on the Comprehensive Plan Land Use Map, or previous development approvals, whichever is higher. Topographic maps of the entire drainage basin and any and all adjacent previously approved developments and any subsequent improvements shall be included in the analysis. The maps shall also incorporate sewage routes included in the Town's Sewer Master Plan and demonstrate no adjacent development, including existing pumped lands outside of the drainage basin, will be precluded from obtaining sewer service. The sewer capacity analysis shall include all proposed sanitary sewer alignments and potential points of entry of sewage from surrounding lands, not included in the sewer master plan.

The sewer capacity analysis shall assume standard minimum depth for all upstream sewer mains and clearly identify any proposed facilities which will exclude standard depths. Anticipated flows for undeveloped land shall be determined using the 2T rules at the rates for zoning classification as determined by the Comprehensive Plan Land Use Map.

If any downstream sewer segments exceed 50 percent full, but are less than 65% full, the Water Resources Department will evaluate and determine if upsizing is required. If any downstream sewer segments exceed 65 percent full, the sewer main must be upsized or re-installed at a greater slope to allow for greater flow through the pipe. All improvements must be made the full length, from manhole to manhole.

g) The minimum grades for public sanitary sewers shall be as follows:

Minimum Slopes for Gravity Sewer Mains

Main Size *(diameter in inches)*	Minimum Slope V=2.5ft/s, depth 1/2 full *(feet per 100 feet)* *{standard required velocity}*
8	0.61
10	0.46
12	0.36
14	0.29
15	0.27
16	0.25
18	0.21
21	0.17
24	0.14
27	0.13
30	0.11
36	0.09
42	0.06
48	0.05

Note1: All minimum slopes based on Manning's Equation
Note2: Manning's coefficient n = 0.013 used for all computations

h) The minimum grade for the uppermost reach of a sanitary sewer line shall be 1% regardless of sewer line size.

i) The maximum grade for sanitary sewers is 10%. The maximum velocity in sanitary sewers is 15 ft/sec. These limits may only be exceeded with the approval of the Water Resources Department and the incorporation of the following provisions, which apply to all sewers either designed or installed at grades equal to or exceeding 10%:

1) All sewers with a grade of 10% or higher must have the downstream run of pipe installed with ductile iron pipe.

2) High velocity manholes shall be used on all sewers with a grade of 10% or higher. High velocity lines cannot tie directly to an existing line and must proceed 180° through the invert into the downstream line.

3) Concrete thrust collars shall be installed on all sewers designed at grades of 10% or higher. The anchors shall be installed at the following spacing:

    a. Not over 36' center to center on grades from 10% to 25%
    b. Not over 24' center to center on grades from 25% to 40%
    c. Not over 16' center to center on grades exceeding 40%

4) The Town reserves the right to require all high velocity requirements outlined herein for sewer lines either designed or installed at grades of 10% or greater, regardless of the flow velocity. In cases where the design grade established on the sewer design plan is exceeded during construction and the 10% threshold is exceeded, all high velocity requirements shall apply without waiver.

j) Sewer extensions shall be designed for projected flows, even when the diameter of the receiving sewer is less than the diameter of the proposed extension.

k) All pipe diameter changes shall occur only in manholes, with the invert of the larger pipe lowered sufficiently to maintain the same energy gradient. An approximate method of obtaining this result is to place the crown of the incoming pipes may be designed for an elevation at or above the crown of the outgoing pipe.

l) All transitions of pipe material, pipe separations, grade changes, pipe thicknesses and all angular deflection changes shall occur only at manholes.

m) Pipe trench excavation and backfilling shall be performed in accordance with Section 0450 of these Specifications.

n) Gravity sewer downstream from a connection point with a force main shall be lined with 401-type ceramic epoxy for a minimum of 1,200 linear feet.

o) The minimum angle between inlet and outlet pipes in a manhole shall be 90 degrees.

p) <u>Construction Involving Existing Mains:</u>

i. The existing sewer main must remain active and protected during all phases of construction. The contractor must provide a plan for the structural protection of the existing sewer main.

ii. A proposed construction sequence and bypass pumping plan must be submitted for any demolition of any portion of existing sewer main. The plan must be reviewed and approved by the Water Resources Department.

B. Materials

The Water Resources Department maintains a list of approved products and manufacturers for all waste water collection system products. Requests to use alternative products or manufacturers shall submit an exception request with supporting documentation for the request with the Construction Plan submittal.

Materials specified herein are acceptable for sewer service as described. Sanitary sewer mains shall conform to the following criteria:

Diameter (in)	Depth (ft)*	Material
Any	≤ 4	DIP
8 – 15	4 ≤ 13	PVC SDR 35 or C900 DR 18
8 – 20	4 < D ≤ 20	PVC C900 DR 18 or DIP
> 20	Any	DIP
Any	> 20	DIP

*Depth of the sewer main shall be measured from the top of the pipe to the final grade or road subgrade at the deepest point between manholes.

1. Ductile Iron Pipe

Material Specifications

Ductile Iron Pipe shall be designed and manufactured in accordance with AWWA C150 and C151 and provided in nominal 20-ft lengths. The minimum requirements for ductile iron pipe and required laying conditions are tabulated below. For all other installations other than specified, the laying condition, bedding requirements or the minimum pressure class rating and/or thickness class shall be increased in accordance with AWWA C151. A pipe thickness design shall be submitted for external loading in all cases where the pipe depth exceeds the specified range of depths outlined in the following table.

Pressure Class, Max. Depth and Laying Condition for DIP Sewer Mains

Pipe Diameter	AWWA C-150, Laying Condition	Pressure Class	Maximum Depth of Cover
8 -inch	type 1	350 psi	3-16 feet
8 -inch	type 4	350 psi	> 16 feet
10-12 -inch	type 1	350 psi	3-16 feet
10-12 -inch	type 4	350 psi	16-20 feet
10-12 -inch	type 5	350 psi	> 20 feet
14-20 -inch	type 4	250 psi	3-20 feet
14-20 -inch	type 5	250 psi	> 20 feet
14-20 -inch	type 5	350 psi	As Directed
24-30 -inch	type 4	250 psi	3-20 feet
24-30 -inch	type 5	300 psi	> 20 feet
24-30 -inch	type 5	350 psi	As Directed
36-42 -inch	type 4	300 psi	3-20 feet
36-42 -inch	type 5	350 psi	> 20 feet

Note: For cases not specified, a ductile iron pipe and bedding design certified by a Professional Engineer licensed in the State of North Carolina shall be required in compliance with AWWA C150 and the Ductile Iron Pipe Research Association.

Ductile Iron Pipe Thickness Class

Pipe Diameter	Pressure Class	Nominal Thickness (inches)	Minimum Corresponding Thickness Class
8	350	0.25	50
10	350	0.26	50
12	350	0.28	50
14	250	0.28	50
16	250	0.30	50
18	250	0.31	50
20	250	0.33	50
24	250	0.37	50
24	300	0.40	51
30	250	0.42	51
30	300	0.45	52
36	300	0.51	52
36	350	0.56	53
42	300	0.57	52
42	350	0.63	53

Pipe joints shall be of the push-on type as per AWWA C111.

For 10-inch diameter and smaller gravity sewer mains, pipe lining shall be cement mortar with a seal coat of bituminous material, all in accordance with AWWA C104.

For 12-inch diameter and larger gravity sewer mains, all ductile iron pipe and fittings for sewer construction shall receive an interior ceramic epoxy coating, consisting of an amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment, as manufactured by Protecto 401. The interior coating shall be applied at a nominal dry film interior thickness of 40-mils. All DIP bells and spigots shall be lined with 8-mils of joint compound by Protecto 401 or approved equal applied by brush to ensure full coverage. All pipe supplied with Protecto 401 interior lining shall be provided free of holidays. Pipe installed with defects in the lining will be rejected and required to be replaced. Patching of Protecto 401 coating defects after installation shall not be approved. Protecto 401 lined pipe must be installed within one year of the application date on the pipe.

All buried DIP and fittings shall have bituminous coating on the exterior surface in accordance with AWWA C151/ANSI A21.51. The seal coat shall be a coal tar epoxy lining and shall be Indurall Coating, Inc. “Ruff-Stuff”, Kopper’s Company, Inc. “Bitumastic No. 300-M” or approved equal. Pipe shall be supplied in minimum 20-ft lengths.

All ductile iron pipes shall be marked in conformance with ASTM A-746.

Pipe material and manufacturer must have a supplier within 200 miles of the Town of Apex.

2. Solid Wall PVC Pipe

Material Specifications

PVC Pipe shall be solid wall and made of PVC plastic having a cell classification of 12454 or 12364 (with minimum tensile modulus of 400,000 psi) as defined in Specification D1784. PVC pipe shall have integral wall bell and spigot joints for the conveyance of domestic sewage and shall be supplied in 20 ft lengths. Fittings shall be made of PVC plastic having a cell classification of 12454-B, as defined in ASTM D1784.

All PVC gravity sewer pipe and PVC fittings up to 15-inches in diameter shall be manufactured in accordance with the latest version of ASTM

D3034. All solid wall PVC pipe installed at diameters from 18-inches to 27-inches in diameter shall be manufactured in conformance with ASTM F679 and provided at minimum pipe stiffness of 115-psi. Fittings must be manufactured by pipe supplier or approved equal, and have bell and/or spigot configurations compatible with that of the pipe. PVC pipe shall be installed in accordance with the requirements of this Specifications manual and ASTM D2321.

All PVC pipe up to and including 15 inches in diameter shall have a maximum Standard Dimension Ratio (SDR) of 35 for depth of installation no shallower than 4-ft of cover from the pipe crown and no deeper than 13-ft measured from the bottom of the pipe. All solid wall PVC pipe for depth of installation greater than 13-ft shall be C900 DR18. Solid wall PVC pipe shall not be approved for depths of installation greater than 20-ft. All solid wall PVC pipe shall be marked and certified in conformance with ASTM D3034 or ASTM F679 and all AWWA standards.

C. Sewer Main Installation

1. General Requirements

a) Pipe trench excavation and backfilling shall be performed in accordance with Section 0450 of these Specifications.

b) Transitions of pipe material, pipe separations, grade changes and all angular deflection changes shall occur only at manholes. Pipe crowns shall be matched for changes in pipe sizes.

c) All sewer mains installed with less than 4 ft of cover or deeper than 20-ft shall be ductile iron pipe.

d) Pipe and fitting interiors shall be protected from foreign matter and shall be inspected for damage and defects prior to installation. In the event foreign matter is present in pipe and fittings, it shall be removed before installation. Open ends of pipe shall be covered and protected when pipe laying is not in progress to prevent debris from entering the pipe.

e) Pipe shall be laid on true lines as directed by the Town. Trenches shall be sufficiently wide to adjust the alignment. Bell holes shall be dug at each joint to permit proper joint assembly. The pipe shall be laid and adjusted so that the alignment with the next succeeding joint will be centered in the joint and the entire pipeline will be in continuous alignment both horizontally and vertically. Pipe joints shall be fitted so that a thoroughly watertight joint will result. All joints will be made in

conformance with the manufacturer's recommendations for the type of joint selected.

f) Prior to beginning construction, the Contractor shall contact local utility companies and verify the location of existing utilities. The Contractor shall be completely and solely responsible for locating all existing buried utilities inside the construction zone before beginning excavation. The Contractor shall be solely responsible for scheduling and coordinating the utility location work. When an existing utility is in conflict with construction, it shall be exposed prior to beginning construction to prevent damage to the existing utility.

g) No bells or connections shall be within any waterway crossing area.

h) Sewer mains shall not be installed within roundabouts.

702 Manholes

A. Design

1. Manhole Location, Siting and Design

a) Manholes shall be spaced at a maximum distance of 400 feet.

b) Manholes shall be installed at each deflection of line and/or grade. The flow channel through manholes shall have a uniform and smooth finish free of irregularities or obstructions. The invert channel shall conform to the shape and slope of the entering/exiting sewer line. Either pre-cast or brick and mortar inverts may be used. Mortar shall be mixed in a clean, tight mortar box, or in an approved mechanical mixer and used within 45 minutes of mixing.

c) A minimum drop of 0.2 feet must be maintained between the invert into and out of the manhole. The benches shall be sloped so as to prevent sedimentation. The inverts from intercepted cross lines shall be tied into the main flow line wherever possible, so as to provide a smooth transition. Wherever such cross lines tie-in at a substantially higher elevation than that of the downstream invert, the connecting line shall extend into the manhole a sufficient distance to enable the flow to spill into the flow line rather than onto the invert bench.

d) On dead-end manholes receiving service connections, the invert must be constructed and the invert flow line shall extend through the manhole so that all flow entering the manhole shall be readily conveyed downstream.

e) Free falls of wastewater flow into the manhole invert from incoming sewer mains shall not be allowed, except under limited circumstances.

f) In certain isolated circumstances standard free drops may be allowed, not exceeding 24-inches. If different size pipes, the smaller diameter pipe crown shall be positioned no higher than the larger diameter pipe crown to limit the drop. When free drops are necessary due to pipe size changes, the Contractor shall take preventive measures to prevent free drops into the manhole invert, such as building a flume or trough up to the incoming invert, or piping the flow to the primary invert flow channel.

g) Drop manholes are not allowed without the written approval of the Water Resources Department. While certain physical constraints may dictate the need for drop manholes, they may not be used merely to decrease trenching depth. Upstream slope changes shall be used to avoid the need for drop manholes.

h) Manholes shall not be obstructed from view or access. It is illegal to bury or obstruct access to manholes. Manholes shall not be installed within roundabouts.

i) Manhole covers shall be elevated as follows:

1) Roadways: Manholes installed in roadways and road shoulders shall be installed with the cover flush with the top of pavement.

2) Outside of Roadways: Manholes installed outside of roadways shall be elevated at least 12 inches above the surface grade and/or at the same elevation of the road travel lane unless otherwise approved by the Water Resources Department.

3) Wooded Outfalls: All manholes installed in wooded, forested or brushy areas shall be elevated at least 24 inches above the surface elevation.

4) 100-Year Flood Zone: All manholes located within the 100-year flood elevation shall be elevated at least 24 inches above the 100-year flood elevation or specify watertight covers and vents that extend at least 24 inches above the 100-year flood elevation.

5) 100-Year Culvert Headwater Depth: All manholes located within a 100-year culvert headwater staging area shall be elevated at least 24 inches above the 100-year flood elevation or specify watertight covers and vents that extend at least 24 inches above the 100-year flood elevation.

6) Well Maintained Areas: All manholes installed in well maintained areas, such as yards, sidewalks or otherwise inside an improved right-of-way shall be installed flush with the finished surface.

j) Manholes used in outfalls and other non-traffic bearing areas shall be constructed with a flat top and outside steps.

k) Manholes shall be provided without interior steps.

l) When connecting a new sewer main to an existing main, the connection shall be established with a "Doghouse" type of manhole inserted over the existing main. Doghouse manholes shall only be installed on existing DIP or PVC mains.

m) Grade rings shall not exceed 6 inches.

2. Manhole Sizing

Manholes shall be sized as shown in the following table. The next larger size shall be required if the pipe size, depth, or number of main line connections warrants a larger size. In consideration of main line connections, all will be considered regardless of type, whether inside drop, outside drop, force main or standard connection.

Manhole Sizing Guide

Manhole Size	**Maximum Allowable Pipe Size, Single In**	**Maximum Allowable Pipe Size, Multiple In**	**Maximum Depth**
(diameter)	*(diameter)*	*(diameter)*	*(invert to rim)*
4-ft	8-12 inches		12-ft[1]
5-ft[4]	14-24 inches	8-12 inches	12-ft to 18-ft
6-ft[4]	30-36 inches	14-24 inches	18-ft to 24-ft
8-ft[4]	≥42 inches	30-36 inches	24-ft to 30-ft
10-ft[4]		≥42 inches	>30-ft

[1]Depths beyond 14-ft in roadways shall require a 5-ft diameter manhole with extended base.
[4]Due to the limited manhole wall area that could exist between the invert in and out, some manholes may require upsizing as directed by the Water Resources Department.

All manholes 5-ft in diameter shall be extended to surface elevation with no further reduction in diameter until the eccentric cone section.

Manhole transitions for 6-ft and larger diameter manholes are only allowed in the top 5-ft of the manhole. In no case shall the smallest barrel size be

less than 5-ft diameter. At least 5-ft of vertical clearance shall be maintained above the pipe crown before transitioning to a smaller diameter riser, or transition shall not be utilized. An eccentric flat slab reducer from 6-ft diameter or larger manhole base sections to 5-ft diameter risers (non-paved areas) or eccentric cones (paved areas) shall be used to make any transition.

Manholes outside of paved areas that are 6-ft in diameter and greater and are too shallow to maintain 5-ft of vertical clearance above the crown of the pipe shall maintain the full manhole diameter up to the design surface elevation and be provided with a flat top slab cover with eccentric hole.

Manholes inside of paved areas that are 6-ft in diameter and greater shall be constructed with an eccentric, flat top reducer to 5-ft diameter and provided with a 5-ft diameter eccentric, tapered cone at the finished grade. When the depth of the manhole is too shallow to maintain 5-ft of vertical clearance above the crown of the pipe a 3-ft tall eccentric, tapered cone shall be used without any additional 5-ft diameter risers.

B. Materials

1. Concrete Manholes

a) Manholes shall be precast concrete with a minimum compressive strength of 4000-psi and utilize minimum grade 60 rebar in compliance with ASTM C478. All 4-ft and 5-ft diameter manholes and all 6-ft diameter manholes in paved areas shall be provided with eccentric cone sections. Flat top manholes are required in outfall areas and for 6-ft and larger diameter manholes.

b) Precast concrete manholes shall meet all design and manufacturing requirements of ASTM C478 and all H-20 loading requirements. Minimum wall thickness shall be 5-inches and shall increase with depth and diameter in accordance with ASTM standards. The standard joint shall be sealed with a plastic cement putty meeting Federal Specification SS-S-00210, such as Ram-Nek or a butyl rubber sealant. All lift holes must be plugged with non-shrinking grout after installation.

c) All manholes greater than 5-ft diameter shall have minimum 8-inch (6-inch for 4-ft diameter manholes), 4,000-psi concrete bottoms resting on a minimum of 12 inches of #57 stone. Sewer mains shall enter and exit radially through the manhole. Inverts shall be constructed with a width equal to the effluent pipe and a height equal to 1/2 that of the effluent pipe. Inverts shall be so finished with sufficient drop across the manhole to compensate for all resulting energy loss across the invert. Flat invert channels shall not be allowed. At each inlet and outlet of 8 inches or

greater, resilient connectors or manhole boots shall be provided in conformance with ASTM C923. Rings and clamps are to meet standards of ASTM A167 and/or ASTM C923.

d) Precast manhole components shall not be installed, transported, or removed from the casting yard prior to reaching the minimum compressive strength of 4,000-psi and at least 7 days have elapsed since casting.

e) Manhole flat slab, eccentric reducers provided for 6-ft diameter and larger manholes shall be provided with minimum slab thickness of 12-inches. Flat slab, eccentric reducers shall not be allowed for manhole diameters less than 6-ft.

f) Manhole flat top slab covers for outfall manholes 6-ft diameter and greater shall be designed and manufactured for H-20 loading and provided in minimum slab thickness of 8-inches. Manhole flat top covers shall be provided with a minimum clear opening of 36-inches when utilized with a 36-inch clear span manhole frame and cover.

g) Manhole benches shall slope upwards from the spring line of the pipe to the projected level of the pipe crown at the manhole wall, or 8-inches above the spring line, whichever is less. Bowl type inverts recessed inside of precast benches shall not be accepted.

2. Manhole Frame and Cover Materials

a) Manhole Frames and Covers shall be Class 35 gray iron with "Sanitary Sewer" and the Town symbol forged into the cover as indicated in the details. Ring and cover shall be stamped with make and model. All manhole frames and covers shall be domestically made and manufactured in the USA from domestic iron.

b) Types

1) Manhole Frames and Covers in Paved Areas and some Unpaved Areas: For all installations in roadways or within the right of way, use Type 1 ring and cover, and place sufficient depth of concrete below the pavement around the ring to ensure contact with manhole. Type 1 covers shall be provided with 1 vent hole. Type 1 covers shall be designed for a proof load of 40,000 lbs. and be provided in Class 35B gray iron in conformance with ASTM A48. At a minimum, Type 1 manhole rings shall weigh 190 lbs. and the cover shall weigh 120 lbs.

2) Manhole Frames and Covers for Outfalls: For installation in outfall areas, with 4-ft and 5-ft diameter manholes use Type 2 ring and covers. Type 2 covers shall not be installed in areas subject to traffic loading. Type 2 covers shall be provided with an integrated frame and cover assembly in which the cover rotates away from the frame for access. The rotating assembly shall be provided with a cast in stainless steel rod assembly. Type 2 covers shall be provided with a minimum 24-inch clear span opening along the axis with the stainless steel rod assembly. Security shall be provided by 3 exterior cast lugs at ¾-inch thickness that allow padlock installation or bolting with 3 stainless steel bolts with stainless steel zinc plated nuts. Type 2 covers shall be made of Class 35B iron in conformance with ASTM A48 and designed for a proof load of 12,000 lbs. The frame and cover weight shall not be less than 60-lbs for the cover and 80-lbs for the ring. The Type 2 frame and cover assembly shall be provided with a gasket that makes the cover assembly watertight when bolted at all three lugs. Type 2 covers shall be provided inside the 100-year flood elevation or other areas subject to flooding.

c) All castings shall be machined to give even and continuous bearing on the full length of the frame. Castings shall be free of porosity and blow holes. All manhole frames shall be bolted to the manhole, except in paved streets.

d) Manhole ring and cover shall be made by East Jordan Iron Works, US Foundry, Neenah Foundry Company, or approved equal.

e) Where deemed necessary in low areas of streets, solid manhole covers may be required to prevent surface water inflow into the sewer.

C. Installation

1. General Requirements

a) The downstream side of the last manhole(s) of a sanitary sewer line extension under construction shall be plugged by constructing a brick/block wall to prevent the passage of groundwater, runoff and sediment into the sanitary sewer system. All water upstream of the wall shall be pumped out of the sanitary sewer line and all sediment and solids shall be removed and properly disposed of by the Contractor. Water, sediment, and solids shall be removed every 30 days, or sooner if necessary, for the duration of the project. The wall shall not be removed until the line has been inspected by the Town to ensure that all possible points of inflow or infiltration have been eliminated. Failure to

meet these requirements will be deemed a violation with fines up to $1,000.00 per day.

b) Manholes shall not be buried or hidden, which is a violation and subject to penalty by fines.

c) All manhole penetrations, whether sewer main or service lateral, shall be cored with a concrete coring machine. All pipe connections must be made with flexible watertight couplings or boots.

   For new manholes, there shall be a minimum of 9-inches or ½ the pipe outside diameter (OD), whichever is greater, between the pipe hole openings. (Pipe hole opening is typically 4" greater than the pipe OD.) When the adjacent pipes are different sizes, the OD of the smaller pipe shall be used to determine the spacing requirement, but shall never be less than 9-inches.

   For connections to existing manholes, there shall be a minimum of 9-inches or 3.5-inches plus ½ the OD of the existing pipe, whichever is greater, between the pipe hole openings.

d) All manhole sections shall be standard tongue and groove with rubber "O" ring or butyl rope sealant. All external manhole joints shall be wrapped with an approved joint seal material.

e) Each connection to a manhole shall be sealed watertight by means of a flexible sleeve or gasket type sealing system. The flexible sleeve type system, if used, shall be equal to Flexible Manhole Sleeve as manufactured by the Interpace Corporation. The gasket type system, if used, shall be equal to the PSX system as manufactured by the Press Seal Gasket Corporation. The sealing system shall be furnished by the manhole manufacturer.

f) Manholes shall be set on a base of 57 stone that is a minimum of eight (8) inches thick for four (4) foot diameter manholes and twelve (12) inches for five (5) foot diameter.

g) Backfill around manholes shall be placed uniformly in shallow layers and thoroughly compacted with mechanical tampers and with care taken to ensure against displacement of the structure.

h) All manhole rings shall be set in full mortar beds and bolted down. The rings with covers shall be set to the final grade indicated on the plans or as may be directed by the Town. Any rings and covers not conforming to the correct grade shall be adjusted by the Contractor as required. The exterior surface of all manholes shall be thoroughly cleaned of all

grease, dirt, etc. All lifting lugs shall be removed and holes patched thoroughly with non-shrink mortar, color to match that of the manhole where such patches are exposed.

2. Manholes Subject to Inundation

a) Manholes subject to flooding shall be watertight and vented 24 inches above the 100-YR flood elevation. In flood prone areas, the manholes shall be vented at least every 1000-ft or every other manhole, whichever is greater.

b) The exterior of all manholes within the 100-year flood elevation and in wetland areas shall receive an exterior coating of an approved bitumastic coal tar epoxy or an approved epoxy coating at 40-mils to prevent seepage or attack by acidic soils. Individual joints shall be wrapped with Conwrap, Conseal, or approved equal and approved by the Town prior to backfilling.

c) Anti-flotation design measures shall be implemented as required in flood prone areas.

3. Manholes Located on Large Collection Mains

The Town reserves the right to require all manholes located on interceptor or outfall mains 24-inches in diameter and larger to have the manhole interior and bench coated with an approved epoxy coating at 80-mils thickness. The epoxy coating shall be field applied and tested as described herein.

4. Force Main Discharge Manholes

All manholes located on gravity mains that serve or will serve as discharge points for sanitary sewer force mains shall receive an interior epoxy coating at 80-mils thickness. In addition to the receiver manhole, the Town reserves the right to require epoxy coating of the next two consecutive manholes downstream of the receiver manhole or all downstream manholes within 1200-lf of the receiver manhole,—See Section 800 for further information on force main discharge manholes.

5. Epoxy Coating

a) Surface Preparation: Concrete manholes must be well cured prior to application of the protective epoxy coating. Generally, 28 days is adequate cure time for standard Portland cement. If earlier application is desired, compressive or tensile strength of the concrete can be tested to determine if acceptable cure has occurred. (Note: Bond strength of

the coating to the concrete surface is generally limited to the tensile strength of the concrete itself. An Elcometer pull test to determine suitability of concrete for coating may be required).

Surface preparation shall be based on the requirements of the manufacturer of the epoxy coating and applicable NACE International standards.

b) Installation: A minimum 80-mils thickness shall be field applied to new manholes (120-mils for existing manholes). During application a wet film thickness gage, meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, shall be used to ensure a monolithic coating and uniform thickness during application.

Temperature of the surface to be coated should be maintained between 40° F and 120° F during application. Prior to and during application, care should be taken to avoid exposure of direct sunlight or other intense heat source to the structure being coated. Where varying surface temperatures do exist, care should be taken to apply the coating when the temperature is falling versus rising or in the early morning. The humidity should also be observed to ensure compliance with the epoxy manufacturers' recommendations.

Manufacturer approved heated plural component spray equipment shall be used in the application of the specified protective epoxy coating. The spray equipment shall be specifically designed to accurately ratio and apply the specified protective coating materials and shall be regularly maintained and in proper working order.

If necessary, subsequent top coating or additional coats of the protective coating should occur as soon as the basecoat becomes tack free, ideally within 12 hours but no later than the recoat window for the specified products. Additional surface preparation procedures will be required if this recoat window is exceeded.

c) Manholes manufactured by Armorock (or approved equal) may be used as an approved alternate to manholes that require epoxy coatings

6. Labeling

a) The interior of each manhole shall be labeled during construction. Labels can be from the manufacturer (stencil, tag, etc.) or by the contractor (tag, permanent marker, paint pen, etc.). Label must include the manhole number according to the record drawings and must consist

of letters at least 3 inches tall and must be located approximately 12 inches above the shelf of the manhole.

703 Service Connections

A. Design

1. General Requirements

a) Direct sewer service taps shall not be allowed on sewer interceptor or outfall mains 15-inches in diameter or larger, except by manhole connection.

b) All residential subdivision lots shall be served by gravity unless otherwise approved. If a pump is approved, it shall be privately maintained and must pump into either a service connection placed on the lot. The private pump and force main (if needed) must have a note on the recorded plat indicating the following: "Privately maintained sewer pump and force main is required to serve this lot".

c) All non-residential development projects shall be serviced by gravity sewer and/or a public pump station, if permitted. The Town will not consider a private pump station serving more than one lot, regardless of ownership. If a private pump station and/or force main is recommended by the Water Resources Department, it must be formally approved by Town Council prior to final approval of construction documents. All private infrastructure must be located outside of the public right-of-way or utility easement and must be converted into gravity prior to entering the public sanitary sewer system. As directed by the Water Resources Department, a magnetic flow meter may be required prior to entering the public sanitary sewer system.

d) Service connections to the main lines shall be perpendicular to the main line and shall extend to the edge of the right of way or easement line. Direct taps shall be within the top quarter of the main, or within a manhole. All single-family residences and businesses shall have individual connections to the public sewer main. Sewer services may not cross private property if the Development is subject to UDO requirements.

e) Multiple service connections located outside public right of way or public easements are for private use only and will not be maintained by the Town. A private sewer permit from NCDEQ shall be required on all private collection systems prior to construction plan approval. A cleanout or manhole shall be installed within each serviced lot's right of

way or easement for the Town's use, and shall extend a minimum of 6 inches above the finished grade.

f) Cleanouts are required on all services with a maximum spacing of 50 feet for four (4) inch lines and 100 feet for six (6) inch lines. The first cleanout from the main/manhole shall be maintained by the Town and shall be installed one (1) foot inside the right of way line or edge of easement. All cleanouts shall extend a minimum of 6 inches above finished grade with brass caps or meet the optional cleanout method requirements in accordance with the Standard Details. Town maintenance of sewer services shall terminate at the first cleanout.

g) Only if approved by the Water Resources Department, sewer cleanouts located in paved areas, which bear vehicle loading, must have ductile iron risers, ductile iron fittings and a traffic rated cast iron cover assembly.

h) All 4-inch services shall connect directly into a public sewer main or manhole, in the fronting street or into an easement within the property. All services 6 inches or larger shall be into a manhole.

i) Service lines connected to manholes shall not be through the cone section or manhole joints. Service lines shall be installed so that the crown of the service line matches the crown of the invert line (or higher) or shall be installed with a standard drop. Multiple service connections shall not be maintained by the Town. For 6-ft diameter and larger manholes no service is allowed in the reduced diameter riser sections of the manhole. All services shall be made via a boot connection when at a manhole.

j) The use of in-line wyes for service connections shall be required for all new construction. When connecting to existing sewer mains, service saddle taps will be allowable. Taps shall be at the 10 or 2 o'clock position, and shall not be top taps.

k) Service connections to mains at depths of 14-ft and greater shall utilize ductile iron pipe between the main and the cleanout, including a ductile iron wye for the cleanout stack. Location and angle of fittings shall be as shown in the standard detail drawings.

l) Where the flood level rims of plumbing fixtures are below the elevation of the manhole cover of the next upstream manhole in the public sewer, such fixtures shall be protected by a backwater valve installed in the *building drain*, *branch of the building drain* or *horizontal branch* serving such fixtures. Plumbing fixtures having flood level rims above the

elevation of the manhole cover of the next upstream manhole in the public sewer shall not discharge through a backwater valve.

B. Materials

The Water Resources Department maintains a list of approved products and manufacturers for all waste water collection system products. Requests to use alternative products or manufacturers shall submit an exception request with supporting documentation for the request.

1. Pipe Materials

   a) PVC Pipe shall be C900, schedule 40, or greater supplied in minimum 20-ft lengths. Schedule 40 PVC pipe shall be manufactured with a cell classification of 12454 in conformance with ASTM D1784. Schedule 40 pipes shall be manufactured to dimensional tolerances as specified in ASTM D1785 and rated for service conditions up to temperatures of 140-degrees Fahrenheit. The pipe may be joined by solvent weld in conformance with ASTM D2564.

      Schedule 40 PVC pipe may be used for sewer services between 4 and 13 feet and shall require 4-inches of stone bedding extended to the spring line.

      PVC pipe and fittings for sewer laterals shall conform to ASTM D2665 “PVC Plastic Drain, Waste & Vent Piping” and shall be NSF approved. Laying lengths may be 10 or 20 feet with solvent weld type joints for Schedule 40 pipe or gasketed joint for PVC C900 DR18 pipe.

      PVC C900 pipe shall be used in depths between 13 and 20 feet and shall require 6-inches of stone bedding extended 6-inches above the pipe crown.

   b) Ductile Iron Pipe may be used for any depth sewer service but must be used for sanitary sewer services with less than 4 feet of cover or in excess of 20 feet of cover. Ductile iron services shall also be used in all cases where a well is located within 100-ft of the sewer service line. Ductile iron service piping shall be provided in conformance with the ductile iron piping standards outlined herein including cement mortar lining.

   c) Any sewer service lateral deeper than 20 feet shall be pre-approved by the Water Resources Department.

2. Sewer Service Fittings, New Construction

   a) DIP Main with DIP Service

In-line wye fittings for ductile iron main lines joined with ductile iron service lines shall be typical ductile iron mechanical joint fittings as specified herein. In this case all fitting sizes shall conform to AWWA C153. Wye fittings through 10-inches in diameter shall be provided with cement mortar lining in accordance with AWWA C104 and provided with exterior asphaltic coating per AWWA C151. Wye fittings for lines larger than 10-inches in diameter shall be provided with Protecto 401 lining as specified herein for ductile iron pipe of the same sizing.

b) DIP Main with PVC Service
For ductile iron sewer mains to be joined with PVC service lines, the in-line wye fittings shall be slip joint ductile iron with an IPS sized branch for PVC schedule 40 service lines. Ductile iron fittings for connecting PVC service lines shall be deep bell, gasketed joint and air test rated. Gasket grooves shall be machined. Bell depths shall meet the minimum socket depth requirements of ASTM D3034 and ASTM F1336. Wall thickness shall meet the requirements of AWWA C153. Ductile iron wye fittings through 10-inches in diameter with IPS connections shall be provided with cement mortar lining in accordance with AWWA C104 and provided with exterior asphaltic coating per AWWA C151. Ductile iron wye fittings for PVC lines larger than 10-inches in diameter shall be provided with Protecto 401 lining as specified herein.

c) PVC Main with PVC Service
For PVC sewer mains to be joined with PVC service lines, PVC in-line wye fittings shall be provided. Typical Schedule 40 PVC fittings shall be provided at the cleanout wye and stack.

d) PVC Main with DIP Service
A ductile iron tee/wye shall be provided when the service line is required to be ductile iron due to a crossing or other obstruction. The fitting shall be specifically manufactured for ASTM 3034 PVC pipe such that a smooth flow way exists on the main line through the fitting. The branch shall be gasketed to receive the 4-inch DIP service line without additional fittings. The ductile iron tee/wye fitting shall be Protecto 401 lined.

3. Service Saddle Connections, Existing Sewer Mains

a) PVC service saddles shall be of the same material as the main, 45 degree deflection, and shall be solvent welded and fastened with single stainless steel bands. The saddle service branch shall be stubbed slightly into the sewer main so that when installed, the saddle shall not slip or rotate.

b) For existing DIP main lines, ductile iron service saddles shall be used. The saddle assembly shall consist of a virgin SBR or NBR gasket compounded for sewer service, a ductile iron saddle casting, a 304 stainless steel adjustable strap for fastening the gasket and the saddle casting to the sewer main and a 304 stainless steel adjustable circle clamp for securing the service line into the rubber gasket. The saddle shall be furnished with adapters as required to properly receive the service pipe.

C. Installation

1. General Requirements

a) Sewer laterals shall not be located in easements when gravity service can be provided to the property frontage at the street.

b) Each separately owned structure requires a separate tap to a public sewer.

c) Four inch lines shall have a minimum slope of ¼ inch per foot and 6 inch lines shall have a minimum slope of 1/8 inch per foot.

d) Service connections to new mains shall include the use of wye (not tee) connections. Saddle taps onto new lines shall not be allowed.

e) Saddle taps into existing PVC mains shall be made at the 10 o'clock or 2 o'clock position of the main with the wye saddle angled 45-degrees towards the direction of flow in the main. Taps shall only be made by a mechanical circular cutting saw providing a smooth and uniform cut for the saddle installation.

f) Service connections shall be made using an approved sewer saddle when the existing sewer line is 8", 10", or 12" in diameter. This service connection shall not be used when the sewer main material is truss sewer pipe. The opening in the sewer main for the sewer saddle shall be cut with a hydraulically or pneumatically driven circular tapping saw of the same nominal diameter as the sewer service line.

g) Service laterals to be maintained by the Town shall not be located beneath a driveway or curb, nor shall a clean-out be located in a sidewalk area without prior written approval from the Water Resources Department.

h) Buoyancy shall be considered, and floatation of the manholes shall be prevented with appropriate construction where high groundwater

conditions are anticipated.

704 Testing and Inspections

A. General

The Contractor shall furnish all materials, labor, and equipment to perform all testing. The Contractor may arrange to obtain water for testing purposes from the Town. The Contractor shall reimburse the Town for all water used for construction at current inside utility rates.

B. Sewer Main and Service Connection Testing

1. Visual Testing and Observation

   a) All materials used must be approved by the Town prior to installation. Rejected materials shall be immediately removed from the job site.

   b) Gravity sanitary sewer lines shall be clean and free from obstructions, and shall be visually inspected from every manhole. Lines which do not exhibit a true line and grade or which have structural defects shall be corrected. Sanitary sewer service connections shall be visually inspected prior to backfilling.

      The Town may re-inspect the line at any time prior to final acceptance if any damage or displacement is suspected to have occurred subsequent to the initial inspection

2. Air Testing

   a) Low-pressure air testing in accordance with ASTM F1417 shall be performed on all sewer mains before the laterals or stubs are installed on the line, and after the trench has been backfilled to finished grade. Plugs shall be installed at each manhole to seal off the test section. Prior to testing, the sewer line shall be clear of debris and flushed with water as necessary. The line will be pressurized with a single hose and monitored by a separate hose connection from the plug. Air then shall be slowly introduced into the sealed line until the internal air pressure reaches 5.0 psig. The air pressure shall then be allowed to stabilize for a minimum of 2 minutes. The line shall be "acceptable" if the pressure does not drop in the time prescribed for the test in the table below.

Nominal Pipe Diameter (in)												
Length of Test Section (ft)			8	12	15	16	18	21	24	30	36	42
	50		7:33	11:20	14:10	15:11	17:00	19:48	22:40	28:19	34:00	39:40
	100		7:33	11:20	14:10	15:11	17:00	19:48	22:47	35:37	51:17	69:48
	150		7:33	11:20	14:10	15:12	19:14	26:10	34:11	53:25	76:55	104:42
	200		7:33	11:24	17:48	20:16	25:39	34:54	45:35	71:13	102:36	139:36
	250		7:33	14:15	22:16	25:20	32:03	43:37	56:58	89:02	128:12	174:30
	300		7:35	17:06	26:43	30:23	38:28	52:21	68:22	106:48	153:54	209:25
	350		8:52	19:57	31:10	35:27	44:52	61:05	79:46	124:42	179:30	244:19
	400		10:07	22:48	35:37	40:31	51:17	69:48	91:10	142:30	205:06	279:13
	450		11:23	25:39	40:04	45:35	57:42	78:31	102:36	160:18	230:48	314:07
	500		12:39	28:30	44:31	50:39	64:06	87:15	114:00	178:06	256:24	349:02

b) If the section fails to meet these requirements, the source of leakage shall be repaired and the pipe section re-inspected

c) The Contractor shall furnish all plugs, compressors, hoses, gauges, and any other equipment necessary to conduct the low-pressure test.

3. Infiltration Tests

a) Portions of the sewer lines, which exhibit a higher ground water table during construction, shall be tested for infiltration. The portions of the line to be infiltration tested shall be determined by the Town.

b) The portion of the sewer line designated by the Town shall be tested for infiltration by installing a V-notch measuring weir or other suitable measuring device in the downstream end of the pipe to be tested. When a steady flow occurs over the weir, the rate of flow (infiltration) shall be measured. The rate thus measured shall not exceed 100 gallons per 24 hours per inch of sewer pipe diameter per mile of pipe. The Contractor shall furnish weirs and other equipment required for infiltration tests and the tests shall be performed in the presence of the Town.

c) Should the infiltration tests reveal leakage in excess of the allowable, the leaking joints shall be re-laid if necessary or other remedial construction shall be performed by and at the expense of the Contractor. The section of sewer thus repaired shall then be retested to determine compliance with the Specifications.

4. Deflection Testing for Flexible Pipe

a) The mandrel (go/no-go) deflection test shall be performed on each line prior to acceptance and no sooner than 30 days after installation. The pipeline shall be thoroughly clean and free of debris and/or sediment prior to testing. The Contractor shall supply the mandrel used for this performance test. The mandrel device shall be cylindrical in shape having 9 or 10 possible contact points with the pipe. The mandrel's length and diameter (ID of proving ring) shall be in accordance with the following tables, and shall be subject to the Town's approval.

b) For flexible pipes (such as PVC), the following shall apply:

Nominal Diameter (inches)	Pipe Class	Average Inside Pipe Diameter (inches)	5% Deflection Mandrel Diameter (inches)	Length of Mandrel (inches)	Minimum Fins Included with Mandrel
8	C900	7.98	7.58	10	9
8	SDR 35	7.891	7.496	10	9
10	C900	9.79	9.30	10	9
10	SDR 35	9.864	9.371	10	9
12	C900	11.65	11.07	10	9
12	SDR 35	11.737	11.150	10	9
15	SDR 35	14.374	13.655	10	9
16	C900	15.35	14.58	10	9
18	C900	17.20	16.34	24	9
24	C900	22.76	21.62	24	9

Note: Calculated 5% deflection allowance does not include additional manufacturing tolerances provided by pipe manufacturers. For the purposes of testing, 5% deflection shall be calculated from standard pipe inside diameter as published in ASTM D3034 and ASTM F679.

c) The mandrel shall be advanced through the pipeline to determine if bedding and embedment has been provided in compliance with ASTM D2321 to assure joint deflection of less than 5%. If the mandrel becomes obstructed for any reason while being pulled through the line with less than 100-lbs of force, the location of the defect shall be noted and the mandrel shall be removed from the pipeline. Under no circumstances shall heavy equipment be utilized to force the mandrel through the pipeline. Deflection testing may be done concurrently with sewer televising inspections, provided the mandrel is kept within visible range of the camera. The mandrel diameter shall have a tolerance of +/- 0.01 inch. Contact length shall not be less than 2 inches.

Any lines not meeting this test shall be corrected by the Contractor and the test repeated. The Town shall approve the mandrel. The Contractor

shall furnish drawings of the mandrel with complete dimensions to the Town upon request.

5. Video Assessment and Cleaning

a) As a final measure required for acceptance, the Contractor shall clean and televise all newly installed sewer mains prior to acceptance by the Town. A 3rd party CCTV Contractor shall televise the sewer main and all lateral connections installed from the upstream to downstream manhole with no reverse setups or cutaways. This shall be done at the Contractor's expense. Throughout shooting, the camera shall be panned and tilted for a complete view of the main. Lighting shall be adequate to view the entire sewer main and service connections from beginning to end. The video inspection shall be submitted to the Town on a CD/DVD and formatted with software compatible and readable by the Town. The Town shall not be responsible for purchasing additional software necessary to view the CD/DVD.

b) The camera shall be advanced at a uniform rate not to exceed 20 feet per minute that allows a full and thorough inspection of the new sewer main. The camera shall be a color, pan and tilt camera capable of producing a five hundred line resolution picture. Lighting for the camera shall be sufficient to yield a clear picture of the entire periphery of the pipe. The picture quality shall be acceptable and sufficient to allow a complete inspection with no lapses in coverage. The length of the sewer main shall be measured and recorded on the video screen. The distance counter shall be calibrated before shooting the inspection video.

c) The Contractor shall clean the sewer mains ahead of video inspection with a high-velocity water jet. The video inspection shall take place within 2-hours of cleaning operations as witnessed by the Town. All construction debris shall be collected in the downstream manhole and shall not be released into the sewer system. No other work shall be performed on the Sewer lines after cleaning and prior to video inspection

d) The Town shall be present throughout the cleaning and televising of the sewer mains to verify that the video work complies with the Specifications. The camera operator shall stop, reverse, pan, and tilt the camera to view any area of interest during the inspection as directed from the Town. Dye may be required in order to see dips in the pipe and for approval by the Inspector.

e) It is recommended that all site grading and all utilities must be installed and complete prior to final inspection to ensure that damages to the

sewer main do not occur. Damages found after final inspection would requiring re-inspection by the Town.

f) CCTV inspection date must be acknowledged and approved by the Water Resources Department prior to inspection. All structures must be physically labeled by the contractor with number shown on the video. Punch list items from the inspection must be submitted on the Town's approved 3rd Party CCTV Report form and all vides files uploaded to

g) The contractor may not perform CCTV inspections on any utilities that they have installed.

6. Marker Tape Testing

Testing of the marker tape shall be performed by the Contractor at the completion of the project to assure it is working properly and completely detectable. It is the Contractor's responsibility to provide the necessary equipment to test the markers. Any defective, missing, or otherwise non-locatable segments shall be replaced.

C. Manhole Testing

1. Vacuum Testing

a) All newly installed manholes shall pass a vacuum test in accordance with ASTM C 1244. The Contractor shall supply all equipment and materials necessary to vacuum test the manholes.

b) Vacuum Testing shall be completed prior to any specified coating and lining materials being installed.

c) The Town shall be present and witness all vacuum testing.

d) The following vacuum testing criteria shall apply for compliance with the testing procedure.

1) A vacuum of 10-inches of mercury shall be drawn with an approved vacuum testing unit.

2) The testing time shall not be measured until after the vacuum pump has been shut off.

3) The time required for the vacuum to drop from 10-inches to 9-inches of mercury shall meet or exceed the values listed in the following table.

Manhole Vacuum Testing Time

Depth	Manhole Diameter (inches)		
(feet)	48	60	72
Time (seconds)			
8	20	26	33
10	25	33	41
12	30	39	49
14	35	48	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89
24	59	78	97
26	64	85	105
28	69	91	113
30	74	98	121

2. Holiday Testing of Lined Manholes

All manholes that require an epoxy coating shall undergo discontinuity testing. This shall be a high-voltage spark test conducted in accordance with NACE International Standard Practice 0188. All areas of the manhole coated shall be tested. The spark tester shall be set at a minimum of 100 volts per mil of coating thickness applied. The Contractor shall supply the spark tester and all testing equipment and labor needed to perform this test.

All holidays identified must be repaired. The epoxy coating must be abraded and cleaned prior to re-coating. All touch-up work shall be in accordance with the epoxy manufacturers guidelines.

705 Aerial Crossings

A. Design

Aerial crossings shall only be utilized in cases where buried crossings are not feasible due to stream crossings, compliance with riparian buffer standards, minimizing impacts to wetlands, preventing excessive depth of installation, or as otherwise directed by the Town of Apex. All aerial crossings shall have prior approval by the Water Resources Department and will only be considered if there are no practical alternatives available, cost shall not be considered justification for aerial crossings

In cases where aerial crossings are utilized to cross streams, the bottom of the pipe shall be installed above the 25-year flood elevation of the stream. Piers shall generally be located at a uniform spacing of 20-ft or 1 pier for every joint of pipe. Piers shall be provided in accordance with the standard details or as otherwise designed by a licensed NC Professional Engineer.

All pier footings shall be designed by a licensed NC Professional Engineer and the assumptions provided in the footing design shall be included on the plans. At a minimum, the footing design shall include: 1) the allowable soil bearing capacity, 2) design concrete compressive strength, 3) plan for reinforcing steel with sizing and location of bars, 4) force diagram including buoyant forces, stream velocity impacts 5) depth of installation to prevent frost heaving, 6) bedding design to prevent differential settlement and 7) factors of safety for unanticipated loads such as trees falling across the aerial crossing.

At a minimum all pier foundations shall be constructed on a base of 12-inches of washed stone. The soil conditions under the pier shall be evaluated by a licensed NC Geotechnical Engineer to determine if the allowable soil bearing capacity meets or exceeds the design assumptions included in the structural design. If the soil conditions fail to meet the specified bearing capacity requirements, a pile foundation shall be provided or the soils shall be undercut and replaced in conformance with the recommendations of the geotechnical engineer of record.

Piers installed in stream beds shall be avoided in lieu of spanned crossings. Spanned pipe crossings greater than 20-ft shall be provided in accordance with the pipe manufacturer's specifications and shall not exceed 40-ft for ductile iron pipe. Spanned pipe crossings shall be designed such that all flanges and exterior pipe connections are located above the 25-year flood elevation.

Spanned crossings greater than 40-ft without piers shall be provided in a steel encasement pipe and the entire crossing including piers, foundation, truss and/or beam supports and pipe thickness design shall be provided by a licensed NC Structural Engineer.

B. Pipe Materials

1. **Ductile iron pipe** for aerial crossings shall be interior lined with Protecto 401 at 40-mils regardless of pipe diameter from manhole to manhole. All joints for ductile iron pipe utilized in aerial crossings shall be restrained with a US Pipe Mech-Lok joint, American MJ Coupled joint, or other as approved by the pipe manufacturer, the Water Resources Department and the Engineer of Record. Ductile iron pipe utilized for spanned crossings greater than 20-ft without a pier shall typically be provided with flanged connections. All bolts and fasteners for flanged or bolt locking restraining systems shall be provided in stainless steel and installed in a manner to prevent seizing.

2. **PVC pipe** shall not be approved for aerial crossings.

3. **Steel pipe** provided for aerial crossings shall be fabricated with grade B steel that has minimum yield strength of 35 KSI in accordance with ASTM A139. Steel pipe for aerial crossings shall be provided with minimum wall thickness consistent with a pressure class of 200-psi or greater. Steel pipe for aerial sewer crossings shall be provided with 40-mils of interior ceramic

coating, such as Ceramaline and provided with an exterior tape wrap approved by the manufacturer. All steel pipe joints shall be welded in conformance with manufacturers' specifications.

C. Installation

Aerial crossings are often utilized to span sensitive environmental areas and installation shall be consistent with plans to preserve the sensitive areas.

Joints of bolt lock or coupled restrained pipe shall be located within 2-ft of each pier as outlined by the detail drawings. Contractor shall ensure the length of pipe joints allows for this spacing.

Pipe shall be secured to each pier with 1/4-inch by 2-inch width steel straps fastened to 4; ½-inch stainless steel lugs anchored and adhered with epoxy to the concrete pier. The steel straps shall receive a weather resistant painted finish to prevent long term corrosion.

Precast piers may be submitted for approval provided the footing and foundation designs are completed by licensed structural and geotechnical engineers.

In cases where soil conditions cannot be sufficiently stabilized to provide an adequate foundation for concrete piers, a pile foundation designed by a licensed NC structural engineer and approved by the Town shall be provided.

Reinforcing steel for concrete piers shall be grade 40 and shall be constructed in conformance with the latest edition of the "Recommended Practice for Placing Reinforcing Bars" or other documentation as published by the Concrete Reinforcing Steel Institute.

In cases where rock exists at the foundation elevation, the footing shall be drilled and connected with dowels into the rock layer.

706 Repairs, Modifications, and Abandonment

A. Sewer Main Repairs

1. Vitrified Clay Pipe - replace damaged section with PVC C900 and install a coupling at each end encased in concrete.
2. PVC Pipe - replace damaged section with PVC Pipe and install a coupling at each end encased in concrete.
3. ABS/PVC Truss Pipe - replace damaged section with DIP and install a coupling at each end encased in concrete.
4. Asbestos Cement Pipe - Replace damaged section with DIP and couplings encased in concrete.

B. Installation

1. All repairs to damaged sanitary sewer lines in paved areas shall be backfilled with ABC stone (crusher run) to a density of 95 percent Standard Proctor.

2. All repairs to damaged sanitary sewer lines shall be bedded with 6-inches of washed stone and compacted to a minimum of 95% Standard Proctor density before installing the new joint of ductile iron or PVC pipe.

C. Draining Sewer Mains

A detailed bypass pumping and emergency plan shall be required for any sewer line draining event.

All sanitary sewer mains and sewer force mains 20-inches and larger, active, inactive, or abandoned shall begin to be drained by tapping the bottom half of the pipe. A corporation stop or other valve shall be provided to control flow. All effluent shall be pumped to a downstream manhole (when available) or other containment tank utilizing continuous piping. The use of a sump pit on lines 20-inches and larger is not allowed.

In sensitive environmental areas and in other various scenarios the Water Resources Department may require lines less than 20-inches also be tapped in order to be drained.

D. Abandonment of Existing Sewer Mains

1. Existing sewer mains and casings located outside of road sections shall be removed, unless otherwise directed by the Town. All materials and labor shall be provided by the contractor.

2. Existing sewer mains and casings located within a road section shall be grout filled and abandoned in place.

3. In other locations, grout filling and abandonment in place may be allowed with prior approval from the Water Resources Department.

4. Sewer service laterals shall be abandoned by removing and replacing the saddle with a 360-degree stainless steel sleeve. At in-line wyes the service lateral shall be cut within 12 inches of the wye and a mechanical cap installed on DIP/cast services or glued to PVC services and the abandoned wye encased with 1 cubic foot of concrete.

SECTION 800
WASTEWATER PUMPING SYSTEMS & FORCE MAINS

801 General

A. Design Requirements

1. These Specifications apply to all pump stations and associated facilities that are to be owned, operated, and maintained by the Town of Apex. Designers of private pump stations and force mains and associated should look for guidance from the appropriate permitting agency (NCDEQ, NC Plumbing Code, etc.).

2. All aspects of the design of pump stations, and associated facilities shall, at a minimum, meet the requirements of the latest version of the NCDENR "Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains". Requirements presented in the Town of Apex Standard Specifications hereunder that are more restrictive or go above and beyond the requirements of the Minimum Design Criteria are required by the Town of Apex.

3. All aspects of the design of pump stations, and associated facilities shall be submitted for review and approval to the Town of Apex Water Resources Department. This review may be more extensive than the typical development site plan process. Materials necessary for the review and requiring approval include complete plans, Specifications, design reports, and specific equipment submittals for the specific pump station, as described hereunder.

4. Wastewater flow rates for the entire natural drainage basin must be accounted for as outlined in Specification 700, Wastewater Collection Systems. The receiving gravity sewer system that will accept flow from this pump station must also be evaluated to determine if additional flow can be accepted and if any improvements are required. All required improvements shall be incorporated as part of the pump station/force main project and shall be installed prior to the pump station becoming active.

5. Prior to approval of any pump station plan, a detailed economic analysis consisting of minimum 20-year present worth evaluation shall be submitted by the Engineer-of-Record comparing the extension of gravity sewer service with the construction of a pump station and force main alternative. Gravity sewer systems shall always be preferred over pump station and force main construction. The Town of Apex reserves its right to consider economic evaluations, service area configuration, operating costs and other external factors before approving pump station plan submittals in lieu of gravity sewer extensions.

6. All equipment, except for the generator, included in this Specification shall be designed for a sound rating of 55 dB(A) or less at a distance of 21 feet from the operating equipment. The generator shall include a sound attenuating enclosure and hospital grade silencer. The generator shall have a sound rating of less than 71 dbA for generators rated below 150KW and less than 73 dba for generators,

rated between 150KW and 250KW, at a distance of 21 feet from the operating equipment. Warning horns and sirens have no sound restrictions.

The pump station design shall incorporate ways to minimize the sound levels leaving the site property. Factors to consider include equipment layout, cumulative sound levels, and walls that reflect the sound. Equipment submittals that include the sound ratings for the major equipment to be installed at the pump station shall be supplied to and approved by the Water Resources Department prior to ordering the equipment.

The pump station shall not be approved for routine operation until sound testing has demonstrated that the noise levels are in accordance with the requirements of this section. All sound testing shall be performed by reputable personnel and testing equipment to assure accuracy. The Director reserves the right to require certified sound engineers in cases when the accuracy of the testing equipment is uncertain. The Director may also require sound testing to be redone prior to the end of the corrections period to further demonstrate that the pump station, including the generator, is performing as designed.

Generator testing and operation other than for urgent necessity in the interest of public health and safety shall be during the time periods of Monday through Friday between the hours of 9:00 a.m. and 4:00 p.m., not including holidays which are observed by the state.

7. All pump station facility design plans shall evaluate surge and water hammer, and incorporate sufficient surge suppression based on the range of flows, pressure and other variables included in the pump station design.

8. All pump station facility designs shall include emergency by-pass pumping capabilities and permit sufficient space to accommodate equipment staging.

9. All pumps shall perform a drawdown test to verify pump capacity flow rates. Town representatives shall be present during the test. Documentation of the test shall be provided to the Town for approval.

10. Antenna may not be installed directly on the sun shade. The antenna should be at least 10 feet higher than the sun shade, fencing, walls and any other nearby metallic objects that may cause signal interference.

11. The signal for the pump station's standard low gain antenna shall be tested over a period of time to verify that it is acceptable strength and consistency for the location. If the signal strength is found unacceptable by operations, the antenna will be upgraded to a high gain antenna or directional antenna. If signal issues continue, a pole extender will be added as well as any needed extra cable.

12. Pump station control design shall include a signal strength survey of the site. The design of the pump station shall incorporate any upgrades indicated necessary by the survey and approved by Water Resource Department.

13. Pump station control design shall include a signal strength survey of the site. The design of the pump station shall incorporate any upgrades indicated necessary by the survey and approved by Water Resource Department.

B. Warranty

All equipment, materials, and systems supplied under this Specification shall be provided with a warranty from the manufacturer to the Town that the subject equipment, materials, and systems shall be free of defects in workmanship and material, and shall operate as intended under the known conditions, for a minimum period of one year. The warranty shall be in printed form and made applicable to the Town (as Warrantee) at the time of acceptance for maintenance by the Town.

C. Submittals

1. Design Report

a) A design report signed and sealed by a North Carolina Professional Engineer is required with the submittal of plans and Specifications for any facilities covered under this section that are proposed for construction. This design report shall contain, at a minimum, the following design criteria:

1) Total dynamic head calculations for all applicable pumping situations.
2) System curve and pump curve analysis used to determine pump selection and operating point.
3) Pump station cycle and pump run times covering the high, low and average flows over the entire expected operating period of the pump station.
4) Response time available in event of an emergency (time between the high water alarm and the first system overflow at average design flow and peak design flow).
5) Pump station flotation/buoyancy calculations.
6) Minimum velocity within the force main, including an analysis of the capabilities of the pumps to completely flush any depressed sections of the force main in a single pumping cycle.
7) Maximum detention times within the pump station and force main covering the low flows over the entire expected operating period of the pump station.
8) An evaluation of the capability of the receiving sewer to handle the peak flow discharge from the proposed facility in addition to the existing or planned peak flows currently handled by the receiving sewer or sewage facility.

9) Airflow calculations and chemical dosing calculations for the odor control facilities (if applicable).
10) Flow capacity and headloss calculations for the grinder unit.
11) Calculations for the sizing of the backup power generator.
12) If jockey pumps are being proposed calculations much show how the pump can meet all design criteria.
13) Total number of lots or parcels serviced, off-site drainage area and zoning, average daily flow, and peak daily flow.

2. Project Review Submittals

a) Project Review Submittals shall be submitted to the Town of Apex Water Resources Department for review and approval prior to application for a permit for the pump station or force main, and prior to entering into construction contracts or purchasing any equipment for the pump station or force main. Obtaining permits, entering into construction contracts, or purchasing any equipment in no way obligates the Town of Apex to accepting designs or equipment that do not meet the specified standards or other requirements the Town may have.

b) The Project Review Submittals shall include, at a minimum, complete plans and Specifications, a design report as described above, and manufacturer's information on specific major equipment listed in this Specification section. The information submitted on equipment shall include, at a minimum, the name of the manufacturer and the specific model being supplied, fabrication and assembly drawings, detailed specifications and data covering materials, parts, devices, and accessories forming a part of the equipment furnished. It shall also include any system hydraulic schematics, electrical wiring diagrams, and control panel schematics. Additional detailed information that may be required for submittal for specific equipment is listed in the appropriate equipment section.

3. Pre-Approved Equal Submittals

a) Equipment and systems of equal quality and efficiency may be available from manufacturers and suppliers other than those listed in this Section. No attempt is made to preclude the furnishing of similar quality items by other manufacturers. The use of alternate equipment and products will be considered if it can be demonstrated that these items have equal or superior construction performance, operating and maintenance costs, offer a present worth cost equal to or less than the specified items, and do not adversely affect other system components.

b) Equipment and systems other than those listed in this Section must receive approval from the Director of Water Resources prior to application for a permit for the pump station or force main, and prior to entering into construction

contracts or purchasing any equipment or systems for the pump station or force main. Purchasing equipment in no way obligates the Town of Apex to accepting equipment that does not meet the specified standards or other requirements the Town may have.

c) Pre-Approved Equal packages shall include the following information as a minimum:

    1) Current catalog data sheets and complete technical data to support Specification compliance.
    2) A point-by-point list clearly stating all differences between the named item and the proposed alternate and a separate list clearly stating all exceptions to the Specifications. If no exceptions are listed, then no exceptions to the Specifications will be allowed.
    3) Installation list with name, address and phone number of contact person for each of at least five (5) installations where the proposed equipment has been in similar service and satisfactory operation for at least two (2) years. The date of placing equipment in service at each listed installation shall be provided.
    4) Three (3) copies of Pre-Approved Equal information shall be submitted.

d) Equipment that meets the Pre-Approved Equal submittal requirements, the technical Specification requirements, and all other requirements of the Town of Apex, will be approved by the Director of Water Resources via letter within 14 calendar days of receipt of a complete package. Approval of Equal equipment or systems in no way eliminates the requirement for complete submittals at a later date.

4. Testing Results Submittals

a) The results of all testing shall be submitted to the Town of Apex Water Resources Department for review prior to continuing progress on the particular equipment. If shop testing is required, results shall be submitted prior to delivery of the equipment. If installation verification is required, results shall be submitted prior to start-up and testing of the equipment. If final start-up tests are required, results shall be submitted prior to final acceptance of the equipment.

b) Three printed copies of all test results are required to be submitted for review.

c) A final, compiled summary of all testing done on all equipment shall be provided to the Town of Apex upon completion of the project prior to project closeout and final acceptance. This final, compiled summary shall consist of a single bound printed copy, and an electronic copy (CD).

5. Operation and Maintenance Manuals (O&M)

   a) Operation and Maintenance (O&M) manuals are required for all equipment and systems furnished under this Specification section. **Three copies shall be supplied to the Town in printed format prior to startup of the subject equipment or systems.** The O&M manuals shall contain all of the necessary information for proper operation and maintenance of the subject equipment and systems. At a minimum, the O&M manuals shall contain the following:

      1) Final approved shop drawings.
      2) Design data including certified pump curves and system curves.
      3) Wiring diagrams and control schematics.
      4) Detailed inventory of installed equipment, including its functional description, and manufacturer name, address, and phone number (and the same for a local representative of the manufacturer).
      5) Operating instructions.
      6) Troubleshooting techniques.
      7) Maintenance schedules.
      8) Assembly and disassembly instructions.
      9) Instructions for start-up and shutdown, as well as calibration and adjustment.
      10) Annotated hard copy and downloadable electronic copy of application program for all field programmable equipment (eg PLCs, operator interfaces, etc.)

   b) A final, compiled Operation and Maintenance (O&M) manual covering all equipment and systems supplied, shall be provided to the Town of Apex upon completion of the project prior to project closeout and final acceptance. This final, compiled summary shall consist of a single bound printed copy, and an electronic copy (CD).
   c) Any spare parts listed in the O&M manuals and/or recommended by the manufacturer shall be provided to the Town with the O&M Manual submittal.

802 Pump Station Site and Structures

A. General

1. Pump stations shall be designed in accordance with these standard specifications, the Town's Standard Details, and NCDEQ's manual for the Minimum Design Criteria for the Permitting of Pump Stations and Force Mains.

2. Pump stations shall be located on a parcel or an easement that is dedicated to the Town of Apex. The site shall be directly connected to a dedicated public right-of-way or have a dedicated access easement to a public right-of-way.

3. The Town requires sewage grinders, on-site backup power, and odor control facilities at all pump stations. Sizing of these items will be based on expected flow volumes and characteristics.

4. All stations shall have a minimum of 2 pumps of equal capacity. The pumps shall be solids handling, grinder type, submersible, centrifugal pumps each capable of pumping flows equal to the expected peak hourly flow. The allowable peak flow can be found in Section 0700. The Director of Water Resources may require that higher peaking factors be used. The Director of Water Resources may require wet well/dry well pumping systems when peak flows exceed 1-MGD. Where 3 or more pumps are required, they should be of such capacity that with the largest unit out of service, the remaining units shall have capacity to handle the peak hourly flows. Pumps and force mains shall be sized to provide a minimum velocity in the force main of 2.5 fps and a maximum velocity of 10 fps.

5. Pump stations shall remain fully functional, operational, accessible and free from physical damage during a 100-year flood.

B. Site Work

1. The site shall be graded to drain and direct stormwater runoff away from the pump station, and to remove storm water runoff from the site in a non-erosive manner. Drainage swales shall be incorporated to direct drainage away from the site, if necessary.

2. The site shall be stabilized by a minimum of 12” crushed stone over 98% compacted subgrade, low maintenance vegetative ground cover or other suitable materials. Visual screening and landscaping shall be provided in accordance with the approved site plan.

3. The site shall be secured by an 8-ft high vinyl coated chain link fence. It shall have 3-wire vinyl coated barb arms, set at an outward facing 45 degree angle and located at the top of each post. Each wire to be 3 strand barb wire class III galvanized or aluminized. The outer barb wire shall hold a load of 250-lbs. The 8-ft height does not include the barb arms. The vinyl coating shall be black and provided with UV resistant vinyl. Fencing shall be provided around the entire perimeter of the pump station property maintaining an offset of 10-12 feet from the property boundary. All fence posts shall also be vinyl coated over the galvanized steel in black color to match fencing and privacy screening. Manual slide gates for smaller pump stations shall permit 180-degree opening and be provided in minimum width of 14-ft. Gates at larger pump stations receiving chemical deliveries shall be a minimum of 16-ft wide to accommodate tractor trailer accessibility and be provided with electrically operated slide gates. All gate posts and corner posts shall be provided with minimum 4-inch diameter fence posts. The fence shall be screened with a row of evergreen shrubs, in accordance with the Town’s UDO and Planning requirements, that are at least 5’ in height at the time

of planting. The fence gates shall be provided with black vinyl coated privacy slats rated for a minimum life span of 12-years. If site conditions do not allow for evergreen shrubs, then privacy slats shall be provided across the entire surface area of the fence including gates.

4. The pump station site shall permit the loading and removal of all equipment (pumps, grinders, generators, etc.) from the pump station site with an appropriately sized truck and/or crane.

5. The site shall feature adequate turn around areas for a WB-40 service vehicle and provide a minimum 16 foot wide all-weather access road to the site with grades not to exceed 10%. If chemical feed systems are included, additional turning radius may be required. The access road shall consist of a standard concrete curb tie and apron through the right-of-way and transition to an asphalt-concrete section with an 8-inch stone base and 3-inch surface course, or 12" of crushed stone over minimum 98% compacted subgrade. Shoulders and side ditches should be included, as applicable. The access road concrete or pavement shall not cover any piping between the wet well, valve vault, or bypass connection.

6. An **LED** light equivalent to a high pressure sodium vapor light with a minimum 600 watt capacity in compliance with Town of Apex standards, is required. The light shall be mounted on a suitable utility that retracts or pivots for bulb maintenance from ground level. The light shall be at a height of 30 feet and shall be controlled by an on/off switch mounted on the pole. All area lighting shall be provided in a downward projecting fixture, such as shoe box type light or approved equal. Open globe lighting shall be prohibited on all pump station sites.

7. Pump stations shall have a metered potable water supply from the Town of Apex public water distribution system at minimum sizing of 1-inch service, but provided with sufficient volume and pressure for operations including wash downs, etc. For larger stations a 2-inch service shall be provided to accommodate larger wash down and service needs. The supply shall have an approved lead free reduced pressure principle, RPA, backflow prevention assembly. A minimum of one (1) freeze proof yard hydrant is required within the fenced area. Emergency shower and eye washing basin shall be provided in pump stations with chemical odor control facilities. Separate reduced pressure principle assemblies, RPA, backflow preventers shall be required as necessary to protect eye wash and/or emergency shower stations from potential chemical contamination within the pump station site. As required by ANSI Z358.1, the shower and eye wash stations shall be provided with a tepid water system and be able to operate simultaneously. Pressure reducing valve shall be required for any static pressure over 80 PSI.

8. A grounding electrode system shall be provided for all pump station site wiring systems and shall be connected to the fence, generator, and electrical service.

C. Structures

1. General

   a) The submersible pump station structures shall consist, at a minimum, of a grinder manhole, a wet well, and a valve vault. Large, integrated structures are permissible, however, there shall be walls separating the portions of the structure listed above. Electric motor operated grinders will be required at all stations. Pump station structures other than the wet well shall be provided with a means to remove accumulated water and wastewater from the structure.

   b) Any portion of a pump station structure that is open and would allow floodwater entry into the wastewater system shall be built with a top elevation of 2 feet above the 100 year flood elevation. All structures not meeting the elevation requirement that could allow entry of floodwater into the wastewater system shall be sealed watertight with a vent elevated a minimum of 2 feet above the 100 year flood elevation.

   c) All pump station structures shall be designed to withstand hydrostatic forces that they will be subjected to, including uplift and shall be equipped with buoyancy collars.

   d) Refer to standard detail for stone base requirements under all structures.

   e) Fall protection grating shall be installed at all access hatches. Additional anchor posts shall be installed according to the Standard Detail.

   f) Structures manufactured by Armorock (or approved equal) may be used as an approved alternate for any structure that requires epoxy coating.

2. Wet Well

   a) The wet well shall have a minimum inside dimension of 6 feet, and shall be large enough to easily accommodate the removal of each pump and a basket strainer. The wet well shall be designed to have an operating volume sufficient to provide pump operating cycles to match the manufacturer's recommendations. The pump operating cycles must be between two and eight times per hour at design daily flow (without being excessively deep. All wet wells must be concentric.

   b) The wet well shall be constructed of precast concrete manhole sections or cast-in-place concrete. Extended bases or another foundation shall be used to provide adequate bearing surface and flotation protection, if needed. All concrete shall have a minimum 28 day compressive strength of 4000 psi. The Director of Water Resources may require a higher strength concrete.

c) Precast concrete manhole wet wells shall conform to ASTM C-478. Manhole section joints shall be of a durable mastic sealing material and be watertight in accordance with ASTM C-443. The exterior of manhole wet wells shall have a factory applied bitumastic or asphaltic coating. The exterior of wetwell joints shall be overlapped by an approved material such as Conwrap, Conseal, etc. The interior side of the joints shall be plastered smooth with portland cement grout.

d) Cast-in-place wet wells shall be properly designed by a NCPE and include appropriate structural support, waterproofing, exterior coating, structure covers, access hatches, etc.

e) At a minimum, wet wells shall have a vent made from stainless steel with flanged or welded joint pipe fittings. An insect screen shall be included at the exposed end of the vent pipe. The screen shall be bronze or aluminum insect screening. Forced air venting is also allowed and will be required on individual pump stations in conjunction with odor control measures, depending on circumstances.

f) Interior of wet wells, including the top, and wet well piping shall be coated with at least 80-mils of an approved monolithic epoxy coating system consisting of 100% solids, solvent-free, two-component epoxy resin for up to 100 mils of coating with a manufacturer approved set time of 6-hours or less. The epoxy coating system shall be Sherwin Williams Sher-Flex, Raven Lining Systems, or approved equal and installed in no more than 2 applications with no runs and no holidays. High voltage holiday testing shall be utilized to verify there are no voids in the coating. The joints of pre-cast structures shall receive three (3) coats of mortar so as to achieve a smooth surface at each joint. Epoxy coatings shall only be applied to adequately cured concrete structures that have been sufficiently washed and prepared for epoxy coating installation. Properly applied coating shall provide a smooth finish at 80-mils or greater and fill all pores in concrete substrate.

g) Care will be taken to ensure no epoxy coating is applied to the pump coupling face, the guide rails, or any other part that needs to allow movement or replacement on a regular basis.

h) Cover slabs for wet well and valve vaults shall be reinforced concrete with integral cast in place access hatch covers. Cover slabs shall be reinforced as per ACI Code and specially reinforced around openings. Access covers shall be double leaf or single leaf (as required) aluminum diamond pattern floor hatch of 1/4-inch (minimum) thickness capable of withstanding 150 psf without permanent damage. Each leaf shall open 90 degrees and be attached to the frame by steel hinges. The door shall have a lock in the open position and vinyl grip handle to release lock for closing.

i) Pre-cast structures shall have a Raven Lining Systems, or equivalent applied to the outside of all tongue and groove joints. Prior to backfilling the wet well structure, the entire surface shall receive 1 coat. The material used for exterior coating shall meet the requirements of Corps of Engineers Specification C-200. The exterior coating shall be applied as to achieve a total dry film thickness of 80-125 mils. The exterior surface shall be clean and dry prior to application of the coating.

j) All bolted connections, including pipe flanges, inside the wet well shall be made using stainless steel bolts, nuts, and washers.

k) A removable aluminum handrail shall be provided around the wet well opening of all submersible pumping stations. The handrail shall be closed on three sides, with the fourth side closed by a latching chain. The handrail shall be permanently attached to the concrete cover slab. The chained side of handrail shall face the chain link fence gates for access and pump maintenance. A minimum horizontal clearance of 10 feet between the chains and handrail is required. Hand rails shall be grounded to the primary ground on-site.

l) A fall-through prevention system, with appropriate tie-off, shall be provided with the wet well hatch doors. The system shall be a grate consisting of two leafs made of 6061-T6 aluminum hinged on the same side of the hatch. The grate shall be designed to withstand a minimum pedestrian load of 300 lbs. per square foot. The grate openings shall be 4" x 6" to allow both visual inspection and limited accessibility for maintenance purposes when the grate is closed. The leafs of the grate will pivot on aluminum hinge devices with 316 SS hardware that permit them to rotate upward 90 degrees and automatically lock in place. Aluminum pullrods will be attached to the grate's leafs so the operator is positioned with the grate between him and the hatch's opening whenever he raises a leaf. Each grate leaf will have a rod made from 316 SS that automatically engages to secure the leaf in its open position, and can be lifted upward to permit the grate leaf to close. The hatch cover will not be able to shut until the grate is closed, thereby insuring the grate is in position when the next operator opens the hatch cover. The grate shall have an OSHA safety yellow finish to increase visual awareness of the safety hazard.

3. <u>Valve/Meter Vaults</u>

a) The valve/meter vault shall, at a minimum, consist of a precast concrete manhole base section at least 6 feet in diameter, or a cast in place concrete, custom built section, or a precast concrete rectangular structure at least 6 feet square. The valve/meter vault shall be complete with a drain that goes to the wet well or where a gravity drain cannot be included, a sump with a minimum ½ hp mercury float switch activated sump pump discharging to the wet well.

The vault shall include an access ladder attached to the vault wall, and access cover cast in the top slab with an extendable/retractable grab bar. The drain pipe between the valve vault and the wet well shall have a back water valve at the wet well end. The access cover for the valve vault shall be a square lockable hatch of 1/4 inch aluminum diamond pattern plate with steel hinges on an aluminum frame cast in place in the cover slab. All access covers shall be centered over equipment to accommodate service and removal and includes a removable metal grate style fall protection guards. Stainless steel or galvanized pipe stands shall be used to support valves and other appurtenances requiring support.

4. Manholes

   a) Any manholes installed on the pump station site need to meet the standards described in Section 0700 of the Town of Apex Standard Specifications. All manholes installed on the pump station site shall receive an interior coating of an approved epoxy resin, as previously specified for the pump station wet well. All manholes located within the 100 year flood elevation shall receive an exterior coating as specified in Section 0700.

5. Buildings

   a) Building systems to house chemical feed facilities shall be adequate to provide sufficient storage, clearance, and full containment of chemicals in the event of a chemical tank or other failure. A removable roof or roof sections shall be required to allow sufficient access to all equipment and tanks within the building. All supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a sound, secure, and complete installation shall be designed and sealed by a NCPE. Chemical feed delivery lines will be chemical resistant and of a flexible material routed through oversized schedule 80 conduit

   b) On a case by case basis, a building may be required to house all electrical and control equipment. This building shall be of precast, prefabricated, or built in place construction.

   c) All buildings located on a pump station site shall have the first floor elevation a minimum of 2 feet above the 100 year flood elevation.

   d) Buildings shall be heated to avoid the freezing of chemicals.

D. Piping and Valves

1. Piping: Suction and discharge piping shall be SCH 10 304 Stainless Steel in accordance with AWWA C 115. Discharge piping and valves shall produce a

minimum head loss while maintaining a minimum velocity of 3 feet per second. All exposed piping shall have adequately sized and located restraint.

2. Pump piping: The discharge connection elbow shall be a straight through fitting with no flap valve and shall be permanently installed in the wet well along with the discharge piping. The pumps shall be automatically connected to the discharge connection elbow when lowered into place. The entire weight of the pump shall bear upon the guides and base support with no part of the pump bearing directly on the floor of the wetwell. A stainless steel chain shall be provided for lifting each pump from the wet well. All hardware used shall be 316 stainless steel.

3. All piping, couplings, fittings, valves, etc. shall be Class 125 for flanges meeting ANSI B16.1, unless Class 250 flanges are required for high head installations.

4. Check Valve: An external weight spring loaded or air-cushioned or hydraulic loop check valve and a plug valve shall be provided for the discharge pipe of each pump. A 1/4 turn plug valve shall be provided on the discharge pipe from the valve vault (the beginning of the force main). Check valves shall be ductile iron bodied, fully bronze mounted with bronze clapper disc and bronze seat ring, and shall have a spring loaded lever arm capable of being mounted on either side of the valve. Check valves and plug valves shall be mounted in the horizontal position with a minimum of 3 feet of separation between each valve body and the outside walls. All valves shall be centered on the vault door for maintenance access and valve removal.

5. Plug Valve: Plug valves shall be 1/4 turn, eccentric action and resilient plug facing with heavy duty stainless steel bearings and welded-in corrosion resistant nickel seat. Pump station plug valves shall be "full-port" cross-sectional area perpendicular to the flow of at least 100% of the adjoining pipe.

   Plug valves and check valves on the discharge side of each pump shall be located in a valve vault separate from and adjacent to the wet well. A restrained sleeve coupling shall be installed on each discharge main between the wet well and the valve vault. An isolation plug valve shall be installed downstream approximately 50-feet from the valve/meter vault in order to isolate the force main from the vault and equipment. Valves shall be rated for a minimum of 175 psi working pressure and be able to pass a 3-inch solid. A minimum 12-inch spool shall be installed between the check valve and plug valve to facilitate valve replacement.

6. Pressure gauge: A +/- 2% accuracy pressure gauge with a 3 inch or larger liquid filled dial, stainless steel case, and graduated to 150% of force main static pressure shall be provided on each discharge pipe. The gauge shall be installed between the check and plug valves. Isolation seals and cut-off ball valve shall be provided between the gauge and force main. The gauge shall be oriented so that it is easily visible and legible from the valve vault hatch opening. The gauge shall also be capable of delivering an electronic remote signal compatible with SCADA.

7. Air Release Valve: Each pump shall have an air release valve, installed on the discharge prior to combining with other pumps and leaving the valve vault.

   There shall be one additional air release valve installed in a manhole on the force main, prior to the main leaving the pump station site.

8. Surge Valve: There shall be one surge valve installed within the valve vault, if deemed required by analysis.

9. Flow Meter: A full size electromagnetic flow meter shall be installed in a manhole or vault on the discharge side of the valve vault.

10. Trash Basket:

    A. Each pump station shall have one aluminum trash basket with guide rails with the following requirements:
       1. Basket shall have bar screen on the front and bottom with a minimum 1-1/4 inch to maximum 2 inch clear opening between 1/4-inch thick bars. The sides of the basket may be solid.
       2. Basket shall have a minimum of four solid aluminum wheels with stainless steel axles for easy removal from wetwell on aluminum guide rail system. Guide rail system shall not be provided with ladder rungs. Provide basket stop bar for installation in field to insure proper location of basket.
       3. Minimum dimensions: 2 inches wider than OD of influent pipe, 18 inches deep, and 18 inches high. Influent pipe must be able to pass through guide rails to influent face of basket.

11. Anchor Bolts.

    a) Anchor bolts and nuts shall be furnished as required for each item of equipment. Anchor bolts, together with templates or setting drawings, shall be delivered sufficiently early to permit setting the anchor bolts when the structural concrete is placed. Anchor bolts shall be at least 3/4 inch in diameter. Anchor bolts and associated hardware shall be 316 stainless steel.

    b) Anchor bolts shall be accurately located and centered in pipe sleeves having an inside diameter approximately 2.5 times the bolt diameter and a length approximately 8 times the bolt diameter. A square anchor plate with thickness of approximately 0.5 the bolt diameter and side dimensions 4 times the bolt diameter shall be welded to the bottom of each sleeve, with the anchor bolt extended through the plate and welded thereto. Two nuts and a washer shall be furnished with each anchor bolt.

    c) Anchor bolts shall be long enough to accommodate 1.5 inches of grout beneath the baseplate and to provide adequate anchorage into structural concrete. Bolts shall have a "J" bend anchoring them into the concrete.

d) Anti-seize compound will be applied to the threads of all stainless steel bolts before assembly.

E. Electrical - General

1. All electrical systems associated with any of the items covered under this section shall meet all applicable electrical standards and code requirements, including, but not limited to: ANSI, ASTM, NEMA, IEEE, DEMA, EEI, HEI, ISO, NFPA, SAE, NEC, UL508, as well as any other federal, state, or local codes.

2. Electrical service to all pump stations shall be appropriately sized three phase power, 240 VAC with automatic transfer switches to automatically starting on-site emergency generators. The electrical power entrance shall be through a meter base, followed by a NEMA 3R heavy duty, single throw, and fusible safety switch. This shall be followed by a heavy duty automatic transfer switch that transfers between the utility power and the on-site generator. This shall be followed by a NEMA 3R heavy duty, double throw, three pole safety switch which feeds the control panel from one side and heavy duty, circuit breaking 4 wire, 4 pole male receptacle assembly as manufactured by Crouse-Hinds or other approved equal from the other side. There shall be a NEMA 3R heavy duty single throw fusible safety switch between the generator and the automatic transfer switch.

3. Electrical equipment inside the wet well shall meet the requirements for Class I, Division I, and Group C/D service.

4. All of these electrical components shall be suitably sized to be capable of service with all electrically powered equipment running.

5. All electrical components, including panels, shall be sealed off from the wet well in accordance with the N.C. Electrical Code requirements for electrical service to class 1 division 1.

6. The use of rigid conduits is required. Generally, PVC shall be used below ground and PVC coated galvanized steel shall be used above ground. Conduits that lead to a control panel shall be air gapped a minimum of 3-feet from the panel or seal-offs shall be provided.

7. Pump station electrical and control equipment shall be located in a building as described above, or under a weatherhood. An aluminum weatherhood with a clear height of 7 feet, an overhang of at least 4 feet and a thickness of 3/16 inch shall be provided for control equipment exposed to the weather. The back panel and side panel shall also be 3/16 inch thick aluminum. The support structure for the weatherhood shall be made from structural steel members assembled to provide individual, direct support to the control equipment panel, transfer switch, safety switches, meter base and the weatherhood. The steel frame shall be painted with

a two component, high build epoxy polyamide paint system designed for severe service. All weatherhoods shall be provided with a light and GFI protected 120V outlet.

8. All electrical equipment, including non-submersible motors, electrical panels, control panels, alarm/telemetry systems, backup generators, etc., shall be located a minimum of 2 feet above the 100 year flood elevation. Weatherhoods shall be installed to eliminate runoff to the front side. All electrical enclosures shall have hinged doors/covers. The control panel shall include a concrete pad, minimum 8' x 4' x 6" thick.

9. An intermediate terminating explosion proof junction box is to be supplied and installed mid-way from the wet well and the pump control panel. This box shall be NEMA type 4X suitably sized to house all pump power and control wiring. Rigid metal conduit shall be utilized with the necessary seal-off fittings. Terminal strips shall be provided to properly split the power termination to facilitate pump removal from the junction box and not the pump control panel.

   Exposed outlet boxes for outdoor and indoor wet process areas used for lighting fixtures, switches, and receptacles shall be aluminum provided with rubber neoprene gasketed covers of similar metal. Junction and pull boxes shall be NEMA 4X construction and of ample size to house the required devices. Boxes shall be provided with hasps.

   The minimum size of boxes shall be according to the NEC. No box shall be filled to more than 40% of capacity.

   Where control wires must be interconnected in a junction box, terminal strips consisting of an adequate number of screw terminals shall be installed. Current carrying parts of the terminal blocks shall be of ample capacity to carry the full load current of the circuits connected. Approximately 20 % of the terminals provided shall consist of spare terminals. Terminals shall be lettered and/or numbered to conform with the wiring diagram.

803 Pump Station Equipment

A. Pumps

1. General

   a) Each pumping unit shall be complete with a close-coupled, submersible electric motor, and all other appurtenances specified, or otherwise required for proper operation. Self-priming or vacuum primed pumps are not permitted.

b) The equipment provided under this section shall be suitable for the service conditions and shall be capable of meeting all operating requirements of the pumping system.

c) Each pumping unit including motor and all integral controls shall be rated and labeled for use in a Class 1, Division 1, Group C/D area as defined by the National Electric Code.

d) Each item of equipment and each part shipped separately shall be identified with indelible markings for the intended service. Tag numbers shall be clearly marked on all shipping labels and on the outside of all containers.

e) Abbreviations. Reference to standards and organizations herein shall be as indicated by the following designations.

1)AFBMA	Antifriction Bearing Manufacturers Association
2)AGMA	American Gear Manufacturers Association
3)AISI	American Iron and Steel Institute
4)ANSI	American National Standards Institute
5)ASME	American Society of Mechanical Engineers
6)ASTM	American Society of Testing and Materials
7)NPT	National Pipe Thread
8)SAE	Society of Automotive Engineers

2. Submittals

a) Complete fabrication and assembly drawings, together with detailed specifications and data covering materials, parts, devices, and accessories forming a part of the equipment furnished, shall be submitted in accordance with the submittals section. The data and specifications for each unit shall include, but not be limited to, the following:

1) Pumps
   i. Name of Manufacturer
   ii. Type and model
   iii. Rotating speed
   iv. Direction of rotation
   v. Size of suction elbow inlet
   vi. Size of discharge elbow outlet or nozzle
   vii. Net weight (mass) of pump and motor only
   viii. Complete performance curves showing capacity versus head, bhp (brake kW), NPSH required, and efficiency
   ix. Data on shop painting

2) Motors
   i. Name of manufacturer

ii. Type and model
iii. Type of bearings and method of lubrication
iv. Rated size of motor, hp (kW), and service factor
v. Insulation class and temperature rise
vi. Full load rotative speed
vii. Net weight
viii. Efficiency at full load and rated pump condition
ix. Full load current
x. Locked rotor current

b) Operation and Maintenance Manuals shall include, at a minimum, the following information:

1) Equipment function, normal operating characteristics, and limiting conditions.

2) Assembly, installation, alignment, adjustment, and checking instructions.

3) Operating instructions for startup, routine and normal operation, regulation and control, shutdown, and emergency conditions.

4) Lubrication and maintenance instructions.

5) Guide to troubleshooting.

6) Parts lists and predicted life of parts subject to wear.

7) Outline, cross-section, and assembly drawings; engineering data; and wiring diagrams.

8) Test data and performance curves.

3. Quality Assurance

a) Performance and Balance Requirements

1) All specified conditions shall be at rated speed unless otherwise indicated.

2) Overall (wire-to-water) efficiency for constant speed pumps shall include losses in the pump and motor. Overall (wire-to-water) efficiency for variable speed pumps shall include losses in the pump, motor, adjustable frequency drive, and any transformers supplied as part of the adjustable frequency drive equipment.

3) The minimum hydrostatic test pressure shall be 1.5 times shutoff head plus max suction pressure.

4) Pump performance shall be stable and free from cavitation and noise throughout the specified operating head range at minimum suction submergences. The design running clearance between the impeller inlet and the casing wearing ring (if provided) shall be not less than 0.01 inch or 1 mil per inch of casing wearing ring diameter, whichever is greater.

5) When required, pumping units shall be designed so that maximum reverse rotation due to reverse flow at the head as required will not cause damage to any component. Pump supplier shall coordinate this provision with the motor supplier.

6) All rotating parts shall be accurately machined and shall be in as nearly perfect rotational balance as practicable. Excessive vibration shall be sufficient cause for rejection of the equipment. The mass of the unit and its distribution shall be such that resonance at normal operation speeds is avoided. In any case, the unfiltered vibration velocity, as measured at any point on the machine including top of motor, shall not exceed the maximum velocity as indicated for vertical, end suction, solids handling pumps. At any operating speed, the ratio of rotative speed to the critical speed of a unit or its components shall be less than 0.8 or more than 1.3.

4. Materials

a) Stator housing, oil chamber housing, impeller casing, and impeller shall be cast iron, ASTM A48.

b) Casing wearing ring shall be bronze, ASTM B62, or rubber, or martensitic stainless steel, Brinell 300+.

c) Bottom wearing plate shall be cast iron, ASTM A48 with spiral grooves.

d) Impeller wearing plate shall be martensitic stainless steel, Brinell 200-250.

e) Shaft shall be alloy steel, hard chrome plated, or martensitic stainless steel, AISI type 416.

f) Mechanical seals shall be 2 tandem single type, oil lubricated with silicon or tungsten carbide seal rings at all points, except the upper rotating seal, which shall be carbon.

g) Discharge base shall be cast iron or fabricated steel.

h) Guiderails shall be stainless steel pipe, ASTM A312, Schedule 40S.

i) Upper guiderail bracket, cable hooks, and chain hooks shall be AISI type 304 stainless steel.

j) Pedestal base shall be cast iron or fabricated steel.

5. Pumps

a) Pumps shall be submersible, non-clog centrifugal sewage pumps capable of passing a 3 inch sphere. Pumps shall be capable of handling raw, unscreened sewage. Major pump components shall be of gray cast iron devoid of burrs, pits or other irregularities.

b) The impeller casing shall have well-rounded water passages and smooth interior surfaces free from cracks, porosity, blowholes, or other irregularities. The discharge nozzle shall be flanged, with dimensions and drilling conforming to ANSI B16.1, Class 125. The discharge nozzle shall be flanged and sufficiently rigid to support the pumping unit under all operating conditions.

c) The impeller shall be a semi-open and enclosed recessed one-piece casting with not more than two nonclog passages with the impeller completely out of the flow path. The interior water passages shall have uniform sections and smooth surfaces and shall be free from cracks and porosity. The impeller shall be dynamically balanced and securely locked to the shaft by means of a key and self-locking bolt or nut.

d) For pumping units 20 hp and larger, renewable wearing rings shall be provided in the casing and on the impeller. The rings shall be positively locked in place. For pumping units less than 20 hp a renewable wearing ring or axially adjustable wearing plate shall be provided in the casing. Casing wearing ring shall be securely fastened to the impeller casing front cover to provide either an axial or radial running clearance. Axially adjustable wearing plate shall be arranged to permit adjustment of the axial running clearance between the impeller and plate. The wearing plate shall have an outward spiraling groove designed to force stringy solids outward and away from the impeller.

e) The oil chamber shall contain a drain plug and a vent plug. Food grade oil shall be used.

f) Each pump shall be provided with two mechanical rotating shaft seals arranged in tandem and running in an oil chamber. Each interface shall be held in contact by an independent spring system designed to withstand maximum suction submergence. The seals shall require neither maintenance nor adjustment and shall be readily accessible for inspection and replacement. Shaft seals lacking positively driven rotating members or conventional double mechanical seals which utilize a common single or double spring acting between the upper and

lower units and requiring a pressure differential to offset external pressure and effect sealing, will not be acceptable. The seals shall not rely upon the pumped media for lubrication and shall not be damaged if the pumps are run unsubmerged for extended period while pumping under load.

g) All mating surfaces of major components shall be machined and fitted with O-rings where watertight sealing is needed. Sealing shall be accomplished by O-ring contact on four surfaces and O-ring compression in two planes, without reliance on a specific fastener torque or tension to obtain a watertight joint. The use of elliptical O-rings, gaskets, or seals requiring a specific fastener torque value to obtain and maintain compression and watertightness will not be acceptable. The use of secondary sealing compounds, gasket cement, grease, or other devices to obtain watertight joints will not be acceptable.

6. Pump Motors

a) The pump motors shall be sealed submersible type, and shall be appropriately sized three phase power, 60 Hertz motors with a maximum speed of 1800 RPM. The motors shall meet the U.S. requirements of Class I, Division I, and Group D for hazardous locations, and shall be sized to non-overloading throughout the entire operating range of the pump.

b) A heat sensor thermostat shall be attached to and embedded in the winding and be connected in series with the motor starter contactor coil to stop motor if temperature of winding is more than 220 degrees F. Thermostat shall reset automatically when motor cools to safe operating temperature. The common pump motor shaft shall be of 416 stainless steel. (See 4E)

c) The motor shall be protected by mechanical seal system as described above. A double electrode shall be mounted in the seal chamber to detect any water entering the chamber through the lower seal. Water in the chamber shall cause a red light to turn on at the control panel. This signal shall not stop the motor but shall act as a warning only.

d) Power cables to pumps shall be AWG (min) hypalon jacketed type SPC cable a minimum of fifty (50) feet in length.

e) Motors shall be provided by the pump manufacturer and shall be air-filled, totally submersible. Motor nameplate rating shall exceed the maximum power required by the pump in the operating head range. Each motor shall have a voltage, frequency, and phase rating as required and shall have a service factor of 1.15. The stator housing shall be an air-filled, watertight casing. A cooling jacket shall encase the motor housing for each pump where needed to maintain adequate cooling. Cooling jacket shall require no external source of cooling water. Motor insulation shall be moisture resistant, Class F, 180 degrees Celcius. Each motor shall be NEMA Design B for continuous duty at 40

degrees Celcius ambient temperature, and designed for at least 10 starts per hour.

f) Each motor housing shall be provided with a moisture detection system provided by the motor manufacturer and per the manufacturer's requirements, complete with all sensors, control power transformer, intrinsically safe control modules, and relays. The moisture detection system shall be rated for a 120V AC supply. The moisture detection system shall provide two normally open dry output contacts rated 5 amps at 120 volts AC. The contacts shall close when moisture is detected in the motor housing and an alarm relay energized. The pump shall not be shut down. All moisture detection system components shall be furnished by the pump supplier and shall be shipped loose for installation into the motor controller enclosure, or if required to be mounted separately all components shall be mounted in a NEMA 4 stainless steel enclosure.

g) The motor bearings shall be antifriction, permanently lubricated type. The lower bearing shall be fixed to carry the pump thrust and the upper bearing free to move axially. The bearings shall have a calculated AFBMA L10 Live Rating of 40,000 hours when operating at maximum operating head. Maximum shaft runout at the mechanical seals shall not exceed 2 mils at any point in the operating head range.

h) Thrust bearings shall be protected by bearing temperature switches. The switches shall be normally closed automatic reset type rated 5 amps at 120V AC.

i) Each motor shall be capable of continuous operation in air (unsubmerged) for at least 24 hours under pump full load conditions, without exceeding the temperature rise limits for the motor insulation system.

j) Each pump shall be equipped with one or more multiconductor cable assemblies for power and control. Each multiconductor assembly containing power cables shall be provided with a separate grounding conductor. Each cable assembly shall bear a permanently embossed code or legend indicating the cable is suitable for submerged use. Cable sizing shall conform to NEC requirements.

k) All cables shall be of sufficient length to terminate in a junction box outside the wetwell as indicated on the drawings, with 10 feet of slack that shall be coiled on a cable hook at the top of the wetwell. Each cable shall be supported by AISI Series 300 corrosion-resistant PVC Style woven Kellem Grips type woven grips to prevent damage to the cable insulation. Mounting of cable supports in the wetwell shall be coordinated to prevent damage to the cable.

l) The cable entry water seal shall include a strain relief and a grommet type seal designed so that a specific fastener torque is not required to ensure a watertight

submersible seal. The cable entry junction box and motor shall be separated by a stator lead sealing gland or a terminal board. The junction box shall isolate the motor interior from moisture gaining access through the top of the stator housing.

m) Motors with an adjustable frequency type speed controller shall be derated to compensate for harmonic heating effects and reduced self-cooling capability at low speed operation so that the motor does not exceed Class B temperature rise when operating in the installed condition at load with power received from the adjustable frequency drive. All motors driven by adjustable frequency drives shall be supplied with full phase insulation on the end turns and shall meet the requirements of NEMA MG 1, Part 31. In addition to the requirements of NEMA MG 1, Part 31, motors shall be designed to be continually pulsed at the motor terminals with a voltage of 1600 volts ac.

n) Adjustable Speed Drives: Adjustable frequency drives shall be provided as specified by the Director of Water Resources or if the projected flow is .5MGD or higher.

o) Station pumps between 15-30 hp shall have a 30 hp rated RVSS. Stations with pumps greater than 30 hp shall utilize variable frequency drives with appropriately sized RVSS.

7. Appurtenances

a) The lift out systems shall consist of a straight elbow that bolts to the bottom of the basin, a combination disconnect assembly with a seal flange that mounts to the pump, rail support guides that fasten to the wall of the basin and guide and support brackets that mount to the pump. The guide rails shall be type 316 stainless steel, 1-1/2 inch minimum diameter, schedule 40

b) Guiderail Mounted Base. A discharge base and discharge elbow shall be furnished by the pump manufacturer. The base shall be sufficiently rigid to firmly support the guiderails, discharge piping, and pumping unit under all operating conditions. The base shall be provided with one or more integral support legs or pads suitable for bolting to the floor of the wetwell. The face of the discharge elbow inlet flange shall be perpendicular to the floor and shall make contact with the face of the pump discharge nozzle flange. The diameter and drilling of the elbow outlet flange shall conform to ANSI B16.1, Class 125. The pump and motor assembly shall be automatically connected to and supported by the discharge base and guiderails so that the unit can be removed from the wetwell and replaced without the need for operating personnel to enter the wetwell.

c) Sliding Bracket. Each guiderail mounted pumping unit shall be provided with an integral, self-aligning guiderail sliding bracket. The bracket shall be

designed to obtain a wedging action between flange faces as final alignment of the pump occurs in the connected position. The bracket shall maintain proper contact and a suitably sealed connection between flange faces under all operating conditions. The sliding bracket shall be non-sparking.

d) Guiderails. Each guide rail mounted pumping unit shall be equipped with one or more guiderails. Guiderails shall be sized to fit the discharge base and the sliding bracket and shall extend upwards from the discharge base to just below the bottom of the access hatch. An upper guiderail bracket shall be provided at the pump access opening. Guiderails shall be made of stainless steel.

e) Lifting Chain. Each guide rail mounted pumping unit shall be provided with a chain suitable for removing and installing. The chain shall be stainless steel with 4x6 lifting eyes at 10ft intervals starting at the top. A suitable chain hook shall be provided at the top of the wetwell. A stainless steel cable is not an acceptable alternative to a lifting chain.

f) Special Tools and Accessories. Equipment requiring periodic repair and adjustment shall be furnished complete with all special tools, instruments, and accessories required for proper maintenance. Equipment requiring special devices for lifting or handling shall be furnished complete with those devices.

g) A replica of the nameplate with serial number, model number, manufacturer, operating conditions, etc. shall be provided for each pump.

8. Shop Painting

a) All iron and steel parts which will be in contact with pumped liquid or submerged after installation, including the inside of the casing, the impeller, and the discharge elbow, shall be shop cleaned in accordance with the coating manufacturer's recommendations and painted with the epoxy coating system specified. The coating shall have a dry film thickness of at least 10 mils and shall consist of a prime coat and one or more finish coats. At least 1 quart of the finish coat material shall be furnished with each pump for field touchup.

b) All other iron and steel surfaces, except stainless steel and machined surfaces, shall be protected with suitable protective coatings applied in the shop. Surfaces of the equipment that will be inaccessible after assembly shall be protected for the life of the equipment. Exposed surfaces shall be finished, thoroughly cleaned, and filled as necessary to provide a smooth, uniform base for painting. Electric motors, speed reducers, starters, and other self-contained or enclosed components shall be shop primed or finished with an oil resistant enamel or universal type primer suitable for top coating in the filed with a universal primer and aliphatic polyurethane system.

c) Surfaces to be coated after installation shall be prepared for painting as recommended by the paint manufacturer for the intended service, and then shop painted with one or more coats of the specified primer.

B. Pump Control Systems

1. All components of the Pump Control Systems shall be properly designed and installed to meet all NEC and other industry standards, as well as all federal, state, and local requirements. Power service to wastewater pumping stations shall be 3-phase.

2. Submittals: Complete fabrication and assembly drawings, together with detailed specifications and data covering materials, parts, devices, and accessories forming a part of the equipment furnished, shall be submitted in accordance with the submittals section. The data and specifications for the Control Panel and Components shall include, but not be limited to, the following:

    a) Name of acceptable manufacturer, Square D, Cutler Hammer, or ABS
    b) Type and model
    c) Enclosure rating
    d) Dimensions of complete panel
    e) Electrical schematics and wiring diagram
    f) Liquid level sensors with mounting details and cable lengths, and pump controls
    g) Published descriptive data on each item of equipment and all accessories, indicating all specific characteristics and options.

3. Enclosure: The Control Equipment Enclosure shall be a NEMA type 4X fiberglass and be of suitable size to house all components. A locking hasp shall be provided with no screw clamp type latches. Enclosure shall be fabricated from fiberglass. The top of the enclosure shall serve as a drip shield and the seam free sides shall prevent rain and sleet from entering. Inner panel shall be made of fiberglass.

4. Hinged Inner Door: An inner door shall be furnished. Overload reset push buttons, circuit breakers, switches pilot lights, and hr. meters shall be the only components accessible with door closed. Door shall be hinged and may be opened when service is required.

5. Line Terminal Block: A terminal block shall be furnished with properly sized line lugs to accept the main power source entering the control panel. Load lugs shall be adequate to accept all required load side wiring requirements. All live parts shall be fully shielded.

6. Motor Circuit Breaker (440-480 VAC): A properly sized, molded case, thermal hydraulic-magnetic circuit breaker or motor protector shall be provided for each

pump motor. Line and load sides shall be equipped with lugs properly sized for the horsepower and current rating of the motor(s). The interrupting rating shall be 5,000 RMS symmetrical amps.

7. Transformer Primary Circuit Breaker: A properly sized, two pole, molded case circuit breaker shall be furnished ahead of the control power 120-VAC power transformer for short circuit protection and disconnecting power to the transformer. The circuit breaker shall conform to the Specifications for the motor circuit breaker(s).

8. Control Power Transformer: An industrial quality control transformer shall be furnished to provide control voltage. The transformer shall be furnished to provide more than adequate KVA rating to provide 120-VAC power for all items required in the control and alarm circuits. Transformer shall be protected in its secondary by properly sized supplemental circuit breaker(s).

9. Magnetic Contactors and Overload Relays: A magnetic contactor shall be furnished for each motor. A separate, panel mounted, 3 leg (three phase) overload relay or motor protector shall be supplied for each motor. Each leg of the overload relay shall be equipped with a properly sized overload heater. Electronic overloads are not acceptable. Contactor and overload relay shall be properly sized for the required horsepower, voltage and phase.

10. Elapsed Time Meters: Six digit, non-resetable elapsed time meters shall be mounted in the control panel enclosure inner door to record the running time of each pump.

11. Condensation Strip Heater with Thermostat: A strip heater shall be furnished to prevent condensation within the control panel enclosure. The heater shall be controlled by a panel mounted, adjustable thermostat.

12. Phase & Voltage Monitor: A phase failure, reversal and under voltage monitor shall be supplied to prevent the motors from running under low voltage, phase loss, or phase reversal conditions. The monitor shall lock out the control circuit until the problem is corrected and automatically reset. The phase and voltage monitor shall be adjustable.

13. Lightning and Surge Suppressors: Suitable lightning and transient level surge suppressors shall be provided to protect motors and control equipment from lightning induced or other line surges. Surge suppressors shall meet current UL standards.

14. Thru - Door Overload Reset Push Buttons: Overload reset push buttons shall be provided for each overload relay. Push buttons shall be mounted so that with inner door closed, overload relays may be reset without entering high voltage compartment.

15. Switches: Heavy-duty industrial grade oil-tight 22mm switches shall be provided for each pump for "Hand/Off/Automatic" operation selection. All switch components shall be made of corrosion resistant metals and polyesters. Contact blocks shall be made of see-through polycarbonate for simplified inspection of contacts. Cams and strokers shall be Teflon impregnated for abrasion free service without lubrication. The switches required shall be as follows:

Switch Function (Name Plate)	Voltage
HOA	120 VAC

16. Pilot Lights: Full voltage, push to test, heavy-duty industrial grade oil-tight pilot lights shall be provided. All pilot light components shall be made of corrosion resistant metals and polyesters. An insulated socket shall be furnished to eliminate the possibility of shock during bulb change. Bulb change shall not require removal of the socket. Bulbs shall be “super bright” LED type. Lens shall be 22mm and made of lexan. The pilot lights required shall be as follows:

Pilot Light Function (Name Plate)	Voltage	Lens Color
PUMP 1	120 VAC	GREEN
PUMP 2	120 VAC	GREEN

17. Seal Fail Alarm Circuit with Test Push Button (Required for Submersible Pumps and Motors): The control panel shall be equipped with a conductance actuated control relay that shall respond to current from a moisture sensor in the pump seal chamber. Relay contacts shall be rated at 10 amps minimum. All molded structural parts shall be of high mechanical and dielectric strength, structural dimensionally stable, arc resistant, thermosetting plastic. Base plate shall be high strength, diecast aluminum alloy. Solid state type relays shall not be considered acceptable for seal fail monitoring applications. An amber alarm pilot light shall illuminate upon alarm condition. Each pilot light shall include contacts that shall allow testing of the seal failure circuit and pilot light bulb by pushing. Bulb change shall not require removal of the socket. Bulbs shall be “super bright” LED type.

18. Seal Failure Circuit Test Push Button (Illuminated): Heavy-duty industrial grade oil-tight push buttons shall be provided for each submersible pump motor. All push button components shall be made of corrosion resistant metals and polyesters. An insulated socket shall be furnished to eliminate the possibility of shock during bulb change. Bulb change shall not require removal of the socket. Bulbs shall be “super bright” LED type. Lens shall be 22mm and made of lexan. The push buttons required shall be as follows:

Push Button Function	Voltage	Lens Color

(Name Plate)		
P1 SEAL FAIL	120 VAC	AMBER
P2 SEAL FAIL	120 VAC	AMBER

19. Pump Alternator Circuit (For Duplex Pump Operation): The electro-mechanical alternator relay shall be of industrial design specifically for use in pump applications. It shall have single-pole double-throw heavy-duty 10-amp silver cadmium oxide contacts enclosed in a transparent cover. The snap action contacts shall transfer when the unit is de-energized. The circuit shall never be closed or opened while current is being conducted. The alternator circuit shall alternate the lead pump position between the pumps and shall allow the lag pump to start in response to a rising water level in the wet well. A four position switch shall be provided on the exterior of the pump control panel inner door. The switch shall have a position for: Pump 1, Pump 2, or Both.

20. Control Relay(s): Plug-in control relays with 120-VAC coils shall be provided as required. Contact rating shall be 5-amps (minimum). Sockets shall be of the same manufacture as the relays and hold-down clips shall be furnished to prevent relay from sliding out of the socket. Relays shall have indicator lights showing when they are engaged.

21. High Wet Well Level Alarm: The control panel shall be provided with a suitable alarm circuit, activated by a separate level control. This alarm shall signal a high water condition in the wetwell. Terminals shall be furnished in the control panel for connection of externally mounted alarm devices. A red flashing light shall be provided as a visual alarm of the high water in the wet well condition. A continuous sounding alarm shall also be provided as an audible alarm of the high water in the wet well condition.

22. Liquid Level Controls: Level control will be achieved by means of a corrosion resistant level sensing **Pressure Transducer**. Float-actuated mercury level control switches shall serve as a backup for low level alarm and high level alarm functions. The mercury switch shall be encapsulated in polyurethane foam for corrosion and shock resistance. Level switches shall be weighted to hold desired position in the wetwell. The cord connection to the control shall be numbered 16-2, rated for 13-amps, and shall be type SJTO. To ensure optimum longevity contacts shall be rated for 20-amps at 115-VAC and shall be sealed in a heavy-duty glass enclosure. No junction boxes or cable splices of any kind will be allowed in the wet well. Level elevations shall be set in accordance with design drawings.

23. High Temperature Shutdown Circuit(s): The pump motor high temperature circuit shall provide terminals for connection of the leads from the temperature sensor provided in the pump motor windings. Upon a high temperature condition in the pump windings, the control power to the pump motor contactor shall be disconnected, thus stopping the pump motor. The pump shall automatically restart when the pump motor temperature returns to an acceptable level.

24. Ground Lug(s): Equipment ground lug(s) shall be provided for grounding the enclosure. The ground lug(s) shall be suitable for the service provided the enclosure sized per table 250-95 of the N.E.C. In all cases, the enclosure must be adequately grounded per article 250 of the N.E.C. except for fiberglass enclosures, where a grounding bus shall be provided.

25. Terminals: Terminals shall be provided for connecting mercury float switch leads, temperature sensor and seal fail sensor leads. Terminal blocks shall be rated for 600 volt use and accept a wire range of #22-8. All live parts shall have insulating walls on all sides of the lug. Blocks must be U.S. recognized.

26. Construction Standards: Subpanel shall be drilled and tapped to accept machine thread bolts (self-tapping screws are not acceptable). All control wiring shall be 16-AWG machine tool wire, Carol type 76512 or equal. All control wire shall be color coded or numbered in accordance with applicable standards. Power (motor) shall be in accordance with the current National Electrical Code. Major groups of wires shall be contained in plastic wiring trough equal to Panduit type E.

27. Nameplates: All indicator lights, alarms, selector switches, pushbuttons and major control system components shall be identified with engraved phenolic plastic nameplates, white lettering on a black background.

28. Control Panel: The control panel shall include the following elements:
    a) Separate Manual Disconnect for each pump with 2-pole adjustable overload protection for each phase;
    b) Magnetic starter for each pump motor with all leg quick trip ambient compensated overload protection for each motor. Overloads are to have an auxiliary contact for automatic dialer;
    c) Hand-Off-Auto selector switch for each pump;
    d) Automatic Electric Alternator with ability to designate either Pump 1 or Pump 2 as lead;
    e) Circuit Breaker for Control Circuit;
    f) Motor Thermal protection - Motor control circuit is to shut down if high temperature occurs. Manual resets to be provided;
    g) MPE LPC420-R-RM Level Control Mode;
    h) MPE Level Probe-Mode-LP-10;
    i) Backup float system with 3 floats shall be included as backup to the MPE Level Control;
    j) Test dial shall be provided to allow simulation of wet well level on MPE Control;
    k) ≥ 40 hpw shall be ‘soft start’;
    l) Horn signaling;
    m) Control Disconnect;
    n) Seal failure light for each pump and contact closure for automatic dialer (submersible installations only);

o) High temperature light for each pump and contact closure for automatic dialer (submersible installations only);
p) Running light for each pump;
q) Non-resettable, elapsed time meter for each pump, reading in tenths of hours. Capacity 100,000 hours;
r) High-level alarm light with Red Globe and contact closure for automatic dialer (remote mounting for “package” pumps station where panel is inside pump compartment);
s) All necessary internal wiring, relays, etc. to provide the operation as described;
t) All functions and internal wiring shall be labeled accordingly;
u) Junction box shall be stainless steel and installed 4 feet above final grade to ensure water does not damage the internal wiring;
v) Automatic Dialer / Scada;
w) AC Voltmeter.

C. Alarm Dialer/SCADA/Telemetry

1. The pump station shall be provided with an alarm dialer in a lockable NEMA 4 enclosure. Hard line dialer units shall have a minimum of eight inputs and capable of additional expansion with battery backup and be the ANTX Dialer Scout or approved equal. The operating environment shall withstand from –5^{o} Fahrenheit to 130^{o} Fahrenheit with a 90% relative humidity, non-condensing. The alarm dialer shall operate on 120-VAC, and shall have a rechargeable battery backup capable of providing 4 hours of standby power with surge protectors on the power and telephone lines. The alarm dialer shall monitor high water conditions and grinder jams through normally open/normally closed contacts, shall have the capability of dialing four phone numbers, and shall work on a standard telephone service. The dialer shall be provided by a manufacturer listed on the design drawings. Seal failure and high temperature signals from all pumps shall be combined into a common “pump trouble” alarm to be transmitted from the dialer.

2. The pump station telemetry units shall be compatible with the Town’s current SCADA system. The Town shall not be required to purchase additional software to operate the telemetry unit.

D. Grinders

1. <u>General</u>

a) A wastewater grinder shall be provided at each pump station for the intended purpose of grinding solids in the influent flow to the pump station.

b) The entire grinder unit and accessories necessary to provide a fully functional wastewater grinder system, shall be supplied and warranted by a single

manufacturer. The list of acceptable manufacturers shall be identified on the design drawings.

c) The wastewater grinder shall be placed in a separate manhole or other influent structure prior to the wetwell, but still within the pump station site. The grinder shall be able to be removed from the influent structure without entering the influent structure by means of a stainless steel guide rail and stainless steel lifting chain with 4x6 lifting eyes at 10ft intervals starting at the top assembly. Another means of solids removal such as a trash basket or bar rack must be provided for installation when the grinder unit is out of service for extended periods.

d) The wastewater grinder shall be electrically driven. The electric motor shall be a minimum 5 hp, 60 Hz, appropriately sized immersible motor. The motor shall be NEMA Design "B" and TEFC.

e) The wastewater grinder unit will have a complete and separate control panel providing all settings, monitoring, and control options required, as well as the ability to send alarm signals back to the alarm dialer and telemetry system.

f) The equipment shall be installed as recommended by the manufacturer, and in compliance with all OSHA, local, state and federal codes and regulations.

g) The grinder unit power supply shall match the pump station power supply. Standard pump station power supply is 3 phase AC power.

h) Identification. Each unit of equipment shall be provided with a corrosion resistant substantial metal nameplate, securely affixed in a conspicuous place. Nameplate information shall include equipment model number, serial number, manufacturer's name and location, and important performance data.

2. Submittals

Submittals shall include electrical wiring diagrams complete for field wiring, terminal identifications, and control panel schematics. Electrical and control information shall be provided to allow coordination of field wiring to place the system in the desired operation. Submittals shall also include complete mounting and installation instructions, including size, length and spacing of all supports and anchor bolts. Submittals shall include painting instructions.

3. Quality Assurance

a) All equipment shall meet the requirements of the following standards:

1) ASTM A536-84 - Standard Specifications for Ductile Iron Castings
2) ASTM A36 - Standard Specifications for Carbon Steel Plate

3) AISI 304 - Stainless Steel
4) AISI 4140 - Heat Treated Hexagon Steel
5) AISI 4130 - Heat Treated Alloy Steel
6) AISI 1018 - Carbon Steel
7) 45-50 Rockwell C
8) National Electrical Manufacturers Association (NEMA)
9) National Electrical Code (NEC)
10) Underwriters Laboratory (UL and cUL)

b) Qualified manufacturers shall have a minimum of 5 years experience in the manufacturing of grinding and controlling equipment and a minimum of 20 installations at equivalent applications. Manufacturer shall submit a listing of names and dates of installations for verification by the Town of Apex Water Resources Department.

c) System Controls.

1) Each grinder system shall be provided with a single control panel suitable for mounting on an electrical rack, building wall, or as a secondary panel located under the weathershield. The control panel shall include all power and control circuits to provide the functional requirements specified herein.

2) A programmable controller shall be included in the panel. The programmable logic controller shall talk directly with the SCADA PLC without a third party communication device. Upon the grinder encountering a jam or overload condition, the controller shall stop the grinder and screen and reverse their direction of rotation to clear the obstruction. If the jam is cleared, the controller shall return to normal operation. If the jam condition persists, the controller shall repeat the reversing cycle up to eight additional times within 45-seconds (total of nine cycles) before signaling a grinder overload condition. Upon a grinder overload condition, the controller shall shut down the grinder and screen and activate an overload contact.

3) If a power failure occurs while the grinder is running, the grinder shall resume running when power is restored. A 0-60 second adjustable time delay device shall be included in the control panel to select time delay until restart after power restoration. If the grinder is stopped due to an overload condition and a power failure occurs, the overload indicator shall reactivate when power is restored.

4) The control panel shall provide overcurrent protection. The overload relay shall be adjustable so that the range selected includes the FLA rating and service factor. Grinder control panel shall be positioned either under the weather shield at the electrical riser or in the control building if included. A standalone control panel will not be accepted.

5) The control panel shall be equipped with a Hand-Off/Reset-Auto (HOA) selector switch. In the Off/Reset position, the motor shall not run. In the Hand position, the motor shall run continuously. In the Auto position, the grinder shall stop and start by remote control signal. The control panel shall include dry contacts for future addition by others of a remote maintained contact start/stop control signal when in Auto mode. The control panel shall not allow remote resetting of overload condition. Overload reset shall be accomplished by switching the HOA switch to the Off/Remote position.

6) The controller shall indicate each of the following statuses with an indicator light on the panel face:
    a) Power On
    b) Grinder Overload
    c) Motor Overload
    d) Run

7) Engraved phenolic laminate plastic identification nameplates, with white letters on black background, shall be provided for each switch, indicator light, gauge, etc. on the control panel and in the system.

8) The controller shall be properly rated three phase power, 60 Hertz.

9) A single enclosure shall house all power and control devices, relays, terminal blocks and motor starter. Control and indicating devices shall be mounted in the front of the enclosure. Indicating lights shall be integral transformer type with low voltage long life 6-volt lamps. Lamps and selector switches shall be heavy duty type. The control panel and all control devices shall be NEMA 4X. Enclosure shall be a NEMA 4X fiberglass reinforced polymer equipped with full hinged door, suitable for exterior mounting as shown on the drawings.

10) A lockable disconnect switch shall be provided on the outside of the control panel to disconnect power to the entire grinder system.

11) One set of normally open (NO) contacts shall be provided in the control panel for remote indication of each of grinder “fail” and grinder “run” status. Grinder overload, motor overload, oil overtemperature, low oil level and oil pressure alarms shall be ganged together to a common grinder “fail” alarm. The control panel shall provide 120 VAC power to these alarm circuits for remote indication at an existing alarm dialer system.

12) Contacts shall be provided for a future remote maintained contact emergency stop pushbutton, to be provided by others. These contacts shall be jumpered.

13) Motor starter shall be full voltage type with 120-volt operating coil and captive terminal screws. Overload relay shall be mounted directly to the contactor. The relay shall be sized to the motor full load amperage (FLA).

14) Control panel shall incorporate a manual momentary or spring return reversing switch for grinder control.

d) Spare Parts

1) The following spare parts shall be provided for each grinder as a minimum:
   a) Three (3) of each type of fuse found in the system
   b) Three (3) of each type of lamp bulb found in the system

2) The motor controller shall have sufficient space within its enclosure for the storage of motor controller spare parts. Grinder spare parts shall be packaged in suitable containers for long term storage and shall bear labels clearly designating the contents of each package and the equipment for which they are intended.

E. Generators

1. General

a) Backup power shall be provided by an automatically starting on-site generator controlled by an automatic transfer switch. The generator shall be capable of supplying all necessary electrical power for complete operation of the pump station in the event of a failure of the electrical feed supplied by the local grid.

b) The entire generator set, switchgear, and accessories necessary to provide a fully functional backup power system, shall be supplied and warranted by a single manufacturer. The standby power generator set shall be Cummins, Kohler, Caterpillar, Generac, or Blue Star.

c) Each engine-generator unit, controls, and transfer switch shall be new and a standard product of a single manufacturer and shall be a packaged type unit, fully shop assembled, wired and tested, requiring no field assembly of critical moving parts.

d) The generator shall be sized to sequentially start and continuously run all pumps, motors, and other electrical equipment at the pump station site. Simultaneous starting of pumps is not required. The pump starting conditions (including delay timers, VFDs, soft starts, reduced voltage starters, etc.) should be verified for the particular site. The kW rating needed for a particular pump station shall be calculated by a licensed professional engineer by the generator manufacturer.

e) The voltage, amps, phase, etc., shall be coordinated with the design of the electrical equipment for the particular site. Generators will be 3 phase, 60 hertz, and capable of multiple voltages through re-strapping.

f) The engine generator set will have a complete and separate control panel mounted inside the generator enclosure providing all settings, monitoring, and control options required, as well as the ability to send alarm signals back to the alarm dialer and telemetry system.

g) Each unit of equipment shall be provided with a corrosion resistant substantial metal nameplate, securely affixed in a conspicuous place. Nameplate information shall include equipment model number, serial number, manufacturer's name and location, and important performance data.

h) If the generator is elevated 30 inches or greater from the existing grade, a walk way with handrails shall be installed for access to all generator components.

i) The engine-generator set supplier shall be an authorized dealer of the engine-generator set manufacturer and shall be fully qualified and authorized to provide service and parts for the engine and generator 24 hours per day, 7 days per week from a location within a 100-mile radius of the installation site.

2. Submittals

a) The Contractor shall submit to the Town of Apex Water Resources Department, complete shop drawings for assembly and installation, together with detailed specification and data covering materials, drive unit, parts, devices and accessories forming a part of the equipment furnished, with the submittals section. The data and specifications for each unit shall include, but shall not be limited to, the following:

    a) Manufacturer, model, and type: engine, alternator, enclosure, battery charger and battery, silencer, switchgear, transformer, etc.

    b) Listing of standard and optional accessories.

    c) Engine output horsepower and efficiency curves at specified conditions.

    d) Engine mechanical data including heat rejection, exhaust gas emission data (maximum values at loads of 1/4, 1/2, 3/4, and full for: carbon monoxide (CO) (lb/hr), nitrogen oxides (NOx)(lb/hr), temperature (F), flow (ACFM)), combustion air and ventilation air flows, and fuel consumption at specified conditions.

e) Generator electrical data including temperature and insulation data, winding pitch, cooling requirements, excitation ratings, voltage regulation, voltage regulator, efficiencies, waveform distortion and telephone influence factor.

f) Ratings at specified conditions: engine (net horsepower), engine (maximum performance horsepower bare engine), generator kW at specified power factor, volts, amperes.

g) Overall dimensions (length, width, height) and net weight.

h) Concrete pad recommendation (including size, length, and spacing of all necessary supports and anchor bolts) and layout/stub-up locations for electrical conduits.

i) Wiring diagrams and schematics for the entire system, including the engine control panel, generator breaker, automatic transfer switch, auxiliary transformer, and remote alarm indicators.

j) Calculations or test results showing compliance with specified motor starting and voltage dip requirements.

k) Line circuit breaker rating.

l) Control panel layout, identifying location of all instrumentation being supplied.

m) Operation instructions.

n) Letter from the engine-generator manufacturer confirming that the unit will provide the specified minimum kW rating at the specified design conditions and time duration.

o) Battery sizing calculations.

p) Battery charger sizing calculations.

q) Maximum output short circuit kvA available.

r) A certificate of compliance, when required.

s) Manufacturer's and dealer's written warranty.

3. Quality Control

a) Except where modified or supplemented by these Specifications, all equipment and materials shall be designed and constructed in accordance with the latest

applicable requirements of the standard Specifications and codes of ANSI, ASTM, NEMA, IEEE, DEMA, EEI, HEI, ISO, NFPA, SAE, NEC, UL508, and other such regularly published and accepted standards as well as state and local codes.

4. Generator Equipment

a) Engine

1) Engine shall be compression ignition type diesel, propane, or natural gas powered. Diesel fueled generators may be considered on large installations and shall be 4 stroke, liquid cooled, American made, with a minimum of 130 HP, or equal. Propane and natural gas fueled generators shall be specified on all small (less than 50 kW) stations. Any variance to this requirement shall be approved by the Water Resources Director.

2) Engine shall operate at an RPM of no more than 1800.

3) The engine will be equipped with an electronic governor to maintain 4% droop from no load to full load and +/-0.25% steady state. The electronic governor control shall be furnished as a complete governor and control package.

4) Engine shall have a dry type air cleaner, coolant, fuel filters, and oil filters with replaceable elements.

5) Engine shall be liquid cooled and shall have a radiator, coolant pump, thermostat, and fan. Air cooled engines may be approved by the Town for installation of less than 10 kW.

6) Governor shall be mechanical flyweight type with a speed regulation of 5 percent maximum.

7) Lubrication shall be by a positive displacement lube oil pump with positive pressure lubrication to all bearings. Full flow lube oil filter shall be provided.

8) Starting system shall be 12 volts, 35 amps with solid state voltage regulator. A battery float charger shall be provided.

9) An engine block heater shall be provided with control thermostat. The unit shall be 120 volt.

b) Generator

1) The synchronous generator shall be a single bearing, self-ventilated, drip-proof design in accordance with NEMA MG 1 and directly connected to the engine flywheel.

2) Voltage regulation shall be within +/-0.5% at steady state from no load to full load. The momentary voltage drop shall not exceed the specified percent without starter coils dropping out or stalling the engine at any time when applying or starting the specified loads. Recovery to stable operation shall occur within 2 seconds. Unit shall be capable of adjusting voltage under varying load conditions within 16 milliseconds.

3) The voltage regulator shall be a totally solid state design, and include electronic voltage buildup, volts per hertz regulation, overexcitation protection, shall limit voltage overshoot on startup, and shall be environmentally sealed.
4) The insulation material shall meet NEMA standards for Class H insulation and be fungus resistant.

5) The generator shall be a self-excited generator type. The excitation system shall be of brushless construction.

6) The generator shall be supplied with a 240V single phase anti-condensation heater protected by a circuit breaker inside the main control panel. When the generator set is not running the heater is automatically connected to the AC supply through a power relay mounted in the control panel. Upon receiving a start signal the AC supply is automatically disconnected by the power relay and automatically reconnected when the start signal is removed and the engine has stopped. A temperature set point shall determine the start and stop signal.

7) A sound retention enclosure shall be installed rated to a maximum decibel level of 65.

c) Fuel System

1) Each engine-generator unit shall be furnished with a complete fuel system, including an integral fuel tank, fuel filter, fuel shut off valve, air filter, pressure regulator (if applicable), and piping along with all other accessories as required for proper operation. All items shall be suitable for the specified fuel and located inside the enclosure above the base plate and serviceable from inside the enclosure. The fuel system shall conform to NFPA 58.

2) The fuel tank shall have a capacity of at least 175 gallons to provide fuel for a minimum run time of 48 continuous hours at 100% prime load.

3) The fuel tank shall be double walled with a rupture basin of 110% capacity. It shall be pressure tested for leaks prior to shipment and have all necessary venting per US142 standards. A locking fill cap, a mechanical reading fuel level gage, low fuel level alarm contact, and fuel tank rupture alarm contact shall be provided. The fuel system shall require a polishing/filtration system for larger units to be determined by the Town. Any drain lines shall associated with the generator need to include brass plugs. Plastic plugs will not be accepted.

4) Fuel piping shall be designed for a working pressure of 250 psi. Sizing shall be in accordance with the manufacturer's recommendations, but not less than ½ inch in diameter.

5) A vapor withdrawal system shall be installed, to include a manual shut-off valve at the tank(s), a vaporizer, dry fuel filter, line service regulator, solenoid fuel shut-off valve to pen when engine runs, flexible pipe connection at the engine, and a gas flow regulator.

6) An 80% charge of propane in the propane storage tank shall be provided at the time of final acceptance.

7) Complete charges of antifreeze and oil shall be provided.

d) Lubrication

1) Equipment shall be adequately lubricated by systems which require attention no more frequently than weekly during continuous operation. Lubrication systems shall not require attention during startup or shutdown and shall not waste lubricants.

2) Lubricants shall be provided in sufficient quantities to fill all lubricant reservoirs and to replace all consumption during testing, startup, and operation prior to acceptance of equipment. Unless otherwise specified or permitted, the use of synthetic lubricants will not be acceptable.

3) Lubrication facilities shall be convenient and accessible. Oil drains and fill openings shall be easily accessible from the normal operating area or platform. Drains shall allow for convenient collection of waste oil in containers from the normal operating area or platform without removing the unit from its normal installed position.

e) Alternator

1) Alternator shall be revolving field, broad range, brushless type designed for minimum resistance, low voltage, waveform distortion, and maximum efficiency. Rotor shall be dynamically balanced permanently aligned to

engine by flexible disc coupling. Maximum allowable voltage dip shall be 30%.

2) Exciter shall be 3 phase, full-wave rectified with silicon diodes mounted on a common motor shaft, sized for maximum motor starting.

3) Voltage regulator shall be solid state with silicon-controlled rectifiers with phase controlled sensing circuits.

4) Temperature rise at rated load shall be within limits for class F insulation in accordance with NEMA MG 1-22.40.

5) Insulation system shall be Class F in accordance with NEMA MG1-1.65. Rotor shall be vacuum impregnated with 100% solid epoxy resin for complete environmental protection. Stator shall be impregnated twice with varnish conforming to MIL-I-24092, Type M, Class 155.

6) Output circuit breaker shall be 3-pole, rated at 145% of alternator full load current.

f) Exhaust System

1) Each engine-generator unit shall be furnished with a complete exhaust system including an exhaust silencer, exhaust piping, expansion joints, and accessories as required for a complete operating system.

2) A rain cap shall be provided to prevent rain from entering the exhaust pipe. The rain cap shall open from exhaust pressure from the engine and shall close when exhaust flow tops. The cap shall be stainless steel counter-balancing with vertical discharge.

g) Starting System

1) Each engine-generator unit shall be furnished with a complete electric motor start system including starting motors, maintenance free starting batteries, battery pack with rack, cables, and battery charger.

2) The engine starter shall be a 12-volt DC or 24-volt DC, solenoid shaft, electric starting system with positive engagement.

3) The batteries shall be of the high rate, diesel starting, lead acid type. The batteries shall be sized for five 10 second cranks with battery and engine oil temperature of 30 degrees F and a battery end voltage of 70 percent of system voltage.

4) The battery charger shall be current limiting and shall be furnished to automatically recharge the batteries. The charger shall be dual charge rate with automatic switching to the boost rate when required. Output voltage regulation shall not exceed 1%. The charger shall include temperature compensation, NEMA 2 corrosion resistant enclosure, overload protection, silicon diode full wave rectifiers, voltage surge suppressor, DC ammeter, DC voltmeter, and fused AC input, on/off switch, remote annunciation of loss of AC power, low battery voltage, and high battery voltage, AC input and DC output circuit breakers or fuses, floating voltage equalization, equalizing timer. AC input voltage shall be 120 volts or 240 volts, single phase.

5) The battery charger shall have a DC output suitable to supply power for all continuous loads and to recharge the batteries from a full discharge state to normal operating voltage within 8 hours.

6) The batteries, battery rack, and battery charger shall be located within the engine-generator enclosure. The battery rack frame shall be constructed of corrosion resistant material.

7) The engine-generator shall automatically supply power to the battery charger when it is operating and utility power is not available.

h) Cooling System

1) Each engine-generator unit shall be cooled with unit-mounted radiator cooling system complete with radiator, expansion tank, water pump, belt-driven fan, fan guard, thermostatic temperature control, high-water temperature cutout, and all accessories as required for proper operation. The radiator shall be sized to provide sufficient capacity for cooling of the engine and all other accessories required for proper operation at an ambient temperature of 125 degrees F and taking into account the enclosure static pressure restriction. The fan shall draw air over the engine and discharge through the radiator.

2) The cooling system shall be filled with a permanent antifreeze mixture of the ethylene glycol type with rust inhibitor.

3) The engine generator unit shall have a 240V coolant heater protected by a safeguard breaker inside the main control panel. A controller shall be included to regulate the output temperature to within safe limits. When the generator set is not running the heater is automatically connected to the AC supply trough a power relay mounted in the control panel. Upon receiving a start signal the AC supply is automatically disconnected by the power relay and automatically reconnected when the start signal is removed and the engine has stopped.

i) Enclosure

1) The engine-generator unit, fuel system, control panel, battery rack, battery charger, power panel, exhaust silencer, and other ancillary equipment, shall be housed in a weatherproof enclosure.

2) The enclosure shall consist of a roof, side walls, and end walls, and shall be weatherproof and sufficiently sealed to prevent the entry of rodents.

3) The enclosure shall be constructed of 12 gage or heavier metal panels that can be easily removed, or doors.

4) Doors shall be lockable with stainless steel hardware for access to the engine-generator, controls, and accessories. Doors shall also provide easy accessibility for maintenance. Doors shall have lock arm to prevent swinging when open.

5) The enclosure shall be provided pre-wired, requiring only external connection to the power panel and ATS.

6) Lube oil and coolant drains shall be extended to the exterior of the enclosure and terminated with drain valves.

7) All moving parts inside of enclosure, including cooling fan and charging alternator, shall be fully guarded to prevent injury.

8) Lifting points shall be provided on base frame suitable for lifting combined weight of base tank, engine generator unit, and enclosure.
9) An LED floodlight shall be provided inside and outside the enclosure to illuminate the generator equipment located within the interior of the enclosure. The floodlight shall be provided with a switch mounted on the generator control panel.

j) Control System

1) Provide a generator set mounted control panel for complete control and monitoring of the engine and generator set functions. Critical components shall be environmentally sealed to protect against failure from moisture and dirt. Components shall be housed in a NEMA 1/IP22 enclosure with hinged door secured with a twist lock latch. The panel door will have a voltage shunt switch. The panel itself shall be mounted on a separate support stand shall be mounted inside the enclosure such that the face of the panel faces outward and is isolated from vibrations of the engine/generator arrangement. Panel/breaker arrangements shall be mounted in such a

manner as to not restrict access to the generator, engine, or other parts of the system that need periodic maintenance or repair.

2) The control panel shall be automatic and safety type and shall include at least all items required by NFPS 110 Level 1.

3) Panel shall include the following instrumentation and controls (at a minimum): AC voltmeter, AC ammeter, frequency/tachometer, engine running hours, coolant temperature gauge, lube oil pressure gauge, battery condition voltmeter, run/off/auto switch, emergency stop push-button, lamp test pushbutton, 7 position voltmeter phase selector switch, 4 position ammeter phase selector switch, 3 attempt start timer, cool down timer, remote start/stop terminals for 2-wire starting from ATS, charge rate ammeter, and exciter circuit breaker with manual reset.

4) Panel shall include the following emergency shutdowns with individual warning lamps (at a minimum): fail to start, high coolant temperature, low lube oil pressure, overspeed, overcrank protection, and alarm contact for auto-dialer (generator fail signal)

5) Panel shall include the following alarms with individual warning lamps (at a minimum): approaching low oil pressure, approaching high engine temperature, low/high battery voltage, battery charger failure, control switch not in auto mode.

6) Panel shall have at least 2 spare shutdown channels and 1 spare alarm channel and 4 additional fault channels for shutdown or alarm programming.

7) Panel shall have the ability to send up to 8 channels back to the existing SCADA system at the pump station.

8) Engine generator unit shall be provided with a fuel level gauge indicating relative fuel tank level in % values.

9) The panel shall be provided with a switched light that illuminates the panel face.

10) The panel shall include a stainless steel canopy with LED hood lights.

k) Circuit Breaker

Provide a generator mounted, molded case or insulated case construction, UL rated, 3 pole, and circuit breaker, sized as required. Breaker shall utilize a thermal magnetic trip. Breaker shall be housed in a steel NEMA 1 enclosure mounted on a separate support stand vibration isolated from the

engine/generator arrangement. Bus bars, sized for the cable type shown on drawing, shall be supplied on the load side of breaker.

l) Receptacles

The engine generator will be supplied with two 120V, 20 amp duplex receptacles and two 120V, 20 amp twist lock receptacles. Receptacles will have individual circuit breakers, and will be placed inside the enclosure or will have weatherproof covers.

m) Shop Painting

1) All steel and iron surfaces shall be protected by suitable coatings applied in the shop. Surfaces which will be inaccessible after assembly shall be protected for the life of the equipment. Coatings shall be suitable for the environment where the equipment is installed. Exposed surfaces shall be finished, thoroughly cleaned, and filled as necessary to provide a smooth, uniform base for painting. Electric motors, engine, alternator, enclosure, piping, and valves shall be shop primed and finish painted prior to shipment to the site.

2) Stainless steel, nonferrous, and nonmetallic surfaces shall not be painted.

n) Power Transformer

An externally mounted power transformer shall be supplied to provide required 240V single phase power to the coolant heater and anti-condensation heater for each engine generator unit. The amp load shall be calculated by a licensed engineer or the generator manufacturer.

F. Automatic Transfer Switch

1. An automatic transfer switch (ATS) shall be provided on all pump stations for switching power to the onsite backup generator when normal grid power fails. The ATS shall be provided by the same manufacturer as the generator, and included under the same warranty as the generator.

2. General

a) The ATS shall be rated for the voltage and ampacity as shown on the plans and shall have 600 volt insulation on all parts in accordance with NEMA standards.

b) The current rating shall be a continuous rating when the switch is installed in an unventilated enclosure, and shall conform to NEMA temperature rise

standards. Designs which require cabinet ventilation are unacceptable and do not meet this Specification.

c) The unit shall be rated based on all classes of loads, i.e., resistive, tungsten, ballast and inductive loads. Switches rated 400 amperes or less shall be UL listed for 100% tungsten lamp load.

d) As a precondition for approval, all transfer switches complete with accessories shall be listed by Underwriters Laboratories, under Standard UL 1008 (automatic transfer switches) and approved for use on emergency systems.

e) The withstand current capacity of the main contacts shall not be less than 20 times the continuous duty rating when coordinated with any molded case circuit breaker established by certified test data. Refer to required withstand and close ratings as detailed in this Specification.

f) Temperature rise tests in accordance with UL 1008 shall have been conducted after the overload and endurance tests to confirm the ability of the units to carry their rated currents within the allowable temperature limits.

g) Transfer switches shall comply with the applicable standards of UL, CSA, ANSI, NFPA, IEEE, NEMA, and IEC.

h) The transfer switches shall be supplied with a microprocessor based control panel as detailed further in these Specifications.

i) The transfer switch shall be capable of detecting if the source switch was successful and if the pump station is receiving power. It shall also be capable of transmitting a failure signal if it was not successful in switching sources and the pump station is not receiving power.

3. Sequence of Operation

a) The ATS shall incorporate adjustable three phase under-voltage sensing of the normal source and emergency source.

b) When the voltage of any phase of the normal source is reduced to 80% of nominal voltage, for a period of 0-10 seconds (programmable) a pilot contact shall close to initiate starting of the engine generator.

c) When the emergency source has reached a voltage value within 10% of nominal voltage and achieved frequency within 5% of the rated value, the load shall be transferred to the emergency source after a programmable time delay.

d) When the normal source has been restored to not less than 90% of rated voltage on all phases, the load shall be re-transferred to the normal source after

a time delay of 0-30 minutes (programmable). The generator shall run unloaded for 5 minutes (programmable) and then automatically shut down. The generator shall be ready for automatic operation upon the next failure of the normal source.

e) If the engine generator should fail while carrying the load, retransfer to the normal source shall be made instantaneously upon restoration of proper voltage (90%) on the normal source.

f) The transfer switch shall be equipped with a microprocessor based control panel. The control panel shall perform the operational and display functions of the transfer switch. The display functions of the control panel shall include ATS position and source availability.

g) The front panel display shall include indicators for timing functions, capability to bypass the TD on transfer or retransfer, and an ATS test switch and afford on-board diagnostic capability.

h) The control panel shall be provided with calibrated pots (accessible only by first opening the lockable cabinet door) to set time delays, voltage and frequency sensors. Designs which make use of DIP switches to render such adjustments are not acceptable. The ATS shall be capable of being adjusted while the controls are energized and the unit in automatic mode. Designs which force a "programming mode" or require the controls be de-energized during adjustment are unacceptable.

i) The control panel shall be opto-isolated from its inputs to reduce susceptibility to electrical noise and provided with the following inherent control functions and capabilities:

    1) An LED display for continuous monitoring of the ATS functions.

    2) Built-in diagnostic display.

    3) Capability to support external communication and network interface through an optional RS 485 port.

    4) Mechanical test switch to simulate a normal source failure.

    5) Time delay to override momentary normal source failure prior to engine start. Field programmable 0-10 minutes (continuously adjustable via a calibrated potentiometer factory set at 3 minutes).

    6) Time delay on retransfer to normal source, continuously adjustable 0-30 minutes, factory set at 15 minutes. If the emergency source fails during the

retransfer time delay, the transfer switch controls shall automatically bypass the time delay and immediately retransfer to the normal position.

7) Time delay on transfer to emergency, continuously adjustable 0-15 minute, factory set at 1 minute.

8) An in-phase monitor shall be provided. The monitor shall compare the phase angle difference between the normal and emergency sources and be programmed to anticipate the zero crossing point to minimize switching transients.

9) An interval-type automatic clock exerciser shall be incorporated within the microprocessor.

10) Provide a momentary pushbutton to bypass the time delays on transfer and retransfer.

4. Construction and Performance

a) The automatic transfer switch shall be of double throw construction operated by a reliable electrical mechanism momentarily energized. There shall be a direct mechanical coupling to facilitate transfer in 6 cycles or less.

b) The normal and emergency contacts shall be mechanically interlocked such that failure of any coil or disarrangement of any part shall not permit a neutral position.

c) For switches installed in systems having ground fault protective devices, and/or wired so as to be designated a separately derived system by the NEC, a 4th pole shall be provided. This additional pole shall isolate the normal and emergency neutrals. The neutral pole shall have the same withstand and operational ratings as the other poles and shall be arranged to break last and make first to minimize neutral switching transients. Add-on or accessory poles that are not of identical construction and withstand capability are not acceptable.

d) The contact structure shall consist of a main current carrying contact, which is a silver alloy with a minimum of 50% silver content. The current carrying contacts shall be protected by silver tungsten arcing contacts on all sizes above 400 Amps.

e) The transfer switch manufacturer shall submit test data for each size switch, showing it can withstand fault currents of the magnitude and the duration necessary to maintain the system integrity. Minimum UL listed withstand and close into fault ratings shall be as follows:

Any molded case breaker:

Size (Amps)	(RMS Symmetrical)
Up to 200	10,000
201-260	35,000
261-400	35,000
401-1200	50,000
1201-4000	100,000

Specific coordinated breakers:

Size (Amps)	(RMS Symmetrical)
Up to 150	30,000
151-260	42,000
261-400	50,000
401-800	65,000
801-1200	85,000
1201-4000	100,000

Current limiting fuse:

Size (Amps)	(RMS Symmetrical)
Up to 4000	200,000

*All values 480 volt, RMS symmetrical, less than 20% power factor.

f) A dielectric test at the conclusion of the closing tests shall be performed.

g) The automatic transfer switch manufacturer shall certify sufficient arc interrupting capabilities for 50 cycles of operation between a normal and emergency source that are 120 degrees out of phase at 480 volts, 600% of rated current at 0.50 power factor. This certification is to ensure that there will be no current flow between the two isolated sources during switching.

h) All relays shall be continuous duty industrial type with wiping contacts. Customer interface contacts shall be rated 10 amperes minimum. Coils, fuses, relays, timers and accessories shall be readily front accessible. The control panel and power section shall be interconnected with a harness and keyed disconnect plugs for maintenance.

i) Main and arcing contacts shall be visible without major disassembly to facilitate inspection and maintenance.

j) A manual handle shall be provided for maintenance purposes with the switch de-energized. An operator disconnect switch shall be provided to defeat automatic operation during maintenance, inspection, or manual operation.

k) The switch shall be mounted in a NEMA 3R enclosure unless otherwise indicated on the plans.

l) Switches composed of molded case breakers, contactors or components thereof not specifically designed as an automatic transfer switch will not be acceptable.

804 Odor/Chemical Facilities

1. Odor control measures shall be evaluated for all possible sources of odor related to wastewater pumping systems. Source locations to be analyzed shall include, but not be limited to, the wetwell at the pump station, the force main discharge location, and force main air release valves. Odor control measures to be analyzed shall include, but not be limited to, oxidizing agent added to the wastewater, odor masking agents added to the air, activated carbon treatment, biofilter treatment, and wet scrubber treatment. Final determination of appropriate odor control measures shall be made by the Director of Water Resources.

2. Solutions that include chemical feed must consider the feasibility of chemical delivery to the site, provide appropriate chemical storage facilities including secondary containment, and must incorporate chemical feed systems as listed in the Town of Apex Approved Manufacturers List.

3. Odor control facilities not located on the pump station site (air release valves and discharge points, for instance) shall be constructed in underground vaults or if necessary to be above ground, shall be house inside a structure. Appropriate consideration shall be given to changing media or supplying chemical at the remote locations, as well as the safety of the maintenance staff while servicing the systems.

805 Inspections, Testing, and Training

A. Inspections

1. All materials and equipment used in the construction of the wastewater pumping system must be verified for compliance with the Specifications (or other approval granted by the Town) by the Infrastructure Field Technician prior to installation. Non-conforming materials or equipment shall be immediately removed from the job site.

2. Compliance with plans and Specifications shall be verified on a regular basis by the Infrastructure Field Technician.

B. Testing

1. <u>General</u>

a) The Contractor shall furnish all materials, labor, and equipment to perform all testing and start up services. Water for testing purposes may be obtained from the Town of Apex. The Contractor shall reimburse the Town for all water used at Inside Utility Rates.

b) All water or wastewater used during testing of the pump station, force main, or any of the systems described in this section, must be returned to the Town of Apex sanitary sewer system after proper coordination with the Town of Apex Department of Public Works and Utilities.

c) Before the operational tests are conducted, the required copies of the Operation and Maintenance Manuals shall be delivered to the Town.

d) The Town reserves the right to require further testing, as necessary, to assure that all components and infrastructure are performing in accordance with the manufacturer recommendations and Town Specifications. All testing, repairs and/or readjustments, and necessary re-testing, shall be at no additional cost to the Town.

e) All on-site testing and/or installation verification shall be performed in the presence of the Infrastructure Field Technician or other representative authorized by the Town.

f) All testing, installation verification, and training, shall be performed in the presence of, or by, an experienced, competent, and authorized manufacturer's representative.

g) Factory testing shall consist of testing all operating functions of the equipment under varying operating conditions to assure that it will perform as specified. Any specific testing that may be required is discussed under the individual equipment items below. Results of factory testing shall be presented to the Town prior to delivery of the equipment.

h) Installation Verification shall consist of a visit to the site by a manufacturer's representative to inspect, check, adjust if necessary, and approve the equipment installation. The manufacturer's representative shall certify that the equipment has been properly installed and lubricated, is in accurate alignment, and is free from any undue stress imposed by connecting piping or anchor bolts. Any specific verification requirements are discussed under the individual equipment items below. Results of the installation verification shall be presented to the Town prior to start-up of the equipment.

i) On-Site Testing shall consist of all manual and automatic operating functions under various operating conditions, including full load conditions. The equipment shall also be tested under adverse or emergency conditions. All alarms and remote signals shall also be tested. Any specific testing that may

be required is discussed under the individual equipment items below. Results of the on-site testing shall be presented to the Town prior to final acceptance of the project.

j) All functions and systems of the pump station, even those not specifically listed below, shall be tested to ensure proper operation under normal and emergency situations.

k) All defective equipment or malfunctioning systems shall be replaced or corrected, and the full system placed in a fully operational condition to the satisfaction of the Infrastructure Field Technician.

l) Results of all factory testing, installation certifications, and on-site operational testing shall be provided to the Town of Apex in the final construction documents as described in the Submittals portion of this Specification section.

2. Pump Testing

a) Each pump shall be tested at the factory for capacity, power requirements, and efficiency at specified rated head, shutoff head, operating head extremes, and at as many other points as necessary for accurate performance curve plotting. All tests and test reports shall conform to the requirements and recommendations of the Hydraulic Institute Standards. Acceptance testing shall be Level A, with no minus tolerance or margin allowed. The test result report shall include data and test information as stipulated in the Hydraulic Institute Standards, copies of the test log originals, test reading to curve conversion equations, and certified performance curves. The curves shall include head, bhp (brake kW), pump efficiency, and shop test NPSH available, plotted against capacity. The curves shall be easily read and plotted to scales consistent with performance requirements. All test points shall be clearly shown.

b) All pumps shall receive installation verification.

c) On-site testing shall be performed to the maximum extent possible (flow availability could limit the range of testing conditions).

3. Grinder Testing

a) Each grinder unit shall be factory tested.

b) Each grinder unit shall receive installation verification.
c) Each grinder unit shall receive on-site testing.

4. Generator Testing

a) Each engine generator set shall be fully assembled with its control panel and factory tested to demonstrate that the equipment conforms to specified requirements for load capacity. The tests shall consist of repeated starts and stops operation under a load bank at specified capacity for a minimum of 4 continuous hours, and tests to demonstrate that each safety shutdown device is working properly.

b) Each engine generator set shall receive installation verification.

c) Each engine-generator set shall receive on-site testing to demonstrate that the equipment conforms to specified requirements for load capacity, and starting duty. The complete system (engine, generator, control panel, and automatic transfer switch) shall be field tested together by the manufacturer or manufacturer's representative as a complete system to assure compatibility. A resistive load bank with temporary connections shall be provided to complete the field testing. Each unit shall be mechanically checked for proper operation. Each alarm and safety shutdown shall be checked by artificially simulating an alarm condition. The testing shall consist of repeated starts and stops, a "cold start", normal operation under full load conditions at the specified power rating for a minimum of four continuous hours, and a one step rated load pickup test in accordance with NFPA 110. The following items shall be measured, recorded, and submitted in a field test report: outdoor ambient temperature, barometric pressure, kW output, engine speed (RPM), engine jacket water temperature, engine oil pressure, start time, completion time. Test reports shall verify that the specified tests have been performed and shall state results.

5. Automatic Transfer Switch Testing

a) Each automatic transfer switch shall receive field verification.

b) Each automatic transfer switch shall receive on-site testing in conjunction with the engine generator. At a minimum, the main power supply from the commercial power grid shall be cut and the switch shall automatically properly transfer the power feed to the standby generator.

6. Control System Testing

a) All electrical, instrumentation, control, and telemetry systems shall receive on-site testing to ensure complete operation of all systems. At a minimum the testing shall include the following:

1) Pump automatic control and operation
2) Level-sensing equipment operation
3) Alarm and telemetry system automatic operation
4) Backup power generation automatic control and operation
5) Vibration testing of all rotating equipment

7. Structure Testing

   a) Wetwells and other wastewater containing structures at the pump station shall be inspected and tested for watertightness. Structures shall be thoroughly cleared of dirt, mud, gravel and other foreign debris prior to testing.

   b) The watertightness test shall be performed in accordance with ACI 350.1R "Testing Reinforced Concrete Structures for Watertightness". If the structure is a small diameter precast manhole, a vacuum test in accordance with ASTM C1244 "Standard Test Method for Concrete Sewer Manholes by Negative Test Pressure (Vacuum) Test" may be used in lieu of the hydrostatic test.

   c) Watertightness testing shall not commence until the structure is fully assembled and backfilled.

   d) Any structure that fails to meet the requirements of the watertightness test shall be inspected, made watertight, and retested until the structure passes.

C. Operator Training

1. Suppliers of major equipment packages shall provide training to Town of Apex staff as to the proper operation and maintenance of their equipment.

2. Training shall be performed by an experienced, competent, and authorized manufacturer's representative.

3. Training shall be at no additional cost to the Town.

4. Training shall be provided for, but not limited to, the equipment listed in the table below. The training times presented below for Operation Training and Maintenance Training are the minimum required. Complicated systems can require more than the minimum requirements.

Equipment System	Operation Training (hours)	Maintenance Training (hours)
Pumps and Pump Control Systems	2	4
Grinder System	1	2
Engine Generator and Automatic Transfer Switch	2	4
Chemical on/or Odor Control Systems	1	2
Alarm Dialer/ SCADA/Telemetry	1	0

5. Operational training shall include, but not be limited to, the following procedures or information: normal startup of the unit, normal shutdown of the unit, emergency

shutdown of the unit, normal operation of the unit (typical temperature, pressures, signals, rpm, etc., for gages and instruments which are displayed on the panel), a presentation of all operational features (alternative run modes, bypasses, other features not typically used in day-to-day operation, etc.), presentation of all alarm signals, etc.

6. Maintenance training shall include, but not be limited to, the following procedures or information: standard lubrication procedures and schedules, removal and replacement of equipment, disassembly and re-assembly, replacement of wear parts or common replacement parts, standard troubleshooting procedures, etc.

7. Simplified operation instructions shall be submitted for review in accordance with the submittals section of this Specification. When the review is complete, the instruction sheets shall be printed on heavy paper or cardboard stock and laminated with clear plastic. Two copies of the laminated instructions shall be furnished with the unit. One copy shall be located or displayed at the control panel for the unit. The reserve copy shall be delivered to the Town. The instructions specified here are in addition to the required operation and maintenance manuals.

806 Force Main General

1. These Specifications apply to all force mains that are to be owned, operated, and maintained by the Town of Apex. Design of private pump stations and force mains and associated facilities is not covered by these Specifications or otherwise herein, and the applicant should look for guidance from other appropriate agencies (NCDEQ, NC Plumbing Code, etc.).

2. All aspects of the design of wastewater force mains, and associated facilities shall, at a minimum, meet the requirements of the latest version of the NCDEQ "Minimum Design Criteria for the Fast-Track Permitting of Pump Stations and Force Mains". Requirements presented in the Town of Apex Standard Specifications hereunder that are more restrictive or go above and beyond the requirements of the Minimum Design Criteria are required by the Town of Apex.

3. All aspects of the design of pump stations, force mains, and associated facilities shall be submitted for review and approval to the Town of Apex Water Resources Department.

4. Wastewater force main interconnections shall be prohibited. All wastewater force mains shall extend to the nearest gravity sewer or pump station wet well that has sufficient long term capacity.

807 Wastewater Force Mains

A. Design

1. Force mains shall be installed with a minimum cover of 3 feet measured from the top of the pipe to the finished grade (or subgrade if installed under roadways). The engineering drawings shall include profile drawings for the entire length of the main.

2. All force mains shall be located within dedicated right of way of Town roads, outside of the right of way on NCDOT roads, or dedicated easements with a minimum width of 20 feet. When wastewater force mains are constructed adjacent to gravity sewer mains or for construction of parallel wastewater force mains, the minimum horizontal clearance shall be at minimum 7-ft from pipe edge to pipe edge when the depth of installation is 8-ft or less. Otherwise, the minimum horizontal separation between pipelines shall be 10-ft up to installation depth of 10-ft. Clearances for pipelines greater than 10-ft depth shall be designed by Engineer of Record and approved by the Town of Apex Water Resources Department. Easement widths outlined below shall be widened by at least the clearance between the pipelines when constructing a shared gravity sewer and wastewater force main corridor. If sewer main is located within road right-of-way or on Town owned property there shall be no permanent structures, equipment, retaining walls, embankments, impoundments, or other elements that would inhibit maintenance operations unless approved by the Water Resources Director.

3. All force mains shall be installed outside of all Zone 1 and Zone 2 buffers whenever practical. Sewer main shall be installed outside of all floodplain unless No Practical Alternative is available and prior approval is obtained from the Water Resources Director.

Standard Easement Width for Sewer Force Mains

Pipe Size (D)	Pipe Depth*	Easement Width	Town Road R/W
≤ 12-inches	≤ 8-ft	20-ft	Allowed
≤ 12-inches	8-ft – 15-ft	30-ft	Exception Required
≤ 12-inches	15-ft – 20-ft	40-ft	Not Allowed
>12-inches to ≤ 24-inches	≤ 15-ft	30-ft	Exception Required
>12-inches to ≤ 24-inches	15-ft to 20-ft	40-ft	Not Allowed
≥ 24-inches	Any Depth	As Specified by the WR Department	Not Allowed
Any Size	Deeper than 20 ft		

*Depth of the sewer main shall be measured from the top of the pipe to the final grade or road subgrade at the deepest point between manholes.

4. Dedicated easements for force mains and appurtenances shall be recorded as "Town of Apex Public Forcemain Easement". Town of Apex force main easements shall contain only Town of Apex utilities unless otherwise approved by an encroachment agreement.

5. Wastewater force main discharge manholes and intermediate air release locations that require odor control shall be provided with sufficient easement area to accommodate the odor control systems as designed by the Engineer of Record, whether utilizing passive, forced-air or chemical treatment for odor control. The maintenance easement for odor control systems shall be sized based on site specific conditions and shall provide sufficient area for routine maintenance operations, such as refilling media, chemicals, replacing equipment, etc.

6. Force mains shall discharge at the invert of the receiving manhole and shall be as close as possible to 180 degrees from the outlet pipe.

7. Force main design shall facilitate cleaning and inspection. The use of 90 degree bends is prohibited.

8. Force mains shall be constructed with a pigging/bypass connection located within 50-ft of the pump station valve vault.

9. Force main minimum design velocity shall not be less than 2-ft per second throughout the length of the force main. As a design preference, force main systems when operating at higher flows shall reach velocities of 3 to 5 ft/s to re-suspend any settled solids.

   Force main systems shall be of adequate sizing and design to effectively convey the ultimate peak flows as applied by the connected pump station to the discharge point.

10. The force main route shall be such that the number of high points requiring combination air valves is minimized to the extent possible. Combination Air Valves rated for use with raw wastewater shall be installed at all the high points or runs exceeding 3000-ft on all force mains in accordance with the Standard Details. A high point shall be determined as any location where the vertical separation between the adjacent low point and high point in the force main is greater than or equal to 10 vertical feet.

11. <u>Restraint:</u>
    a) General: All pipe, valves, and fittings shall be restrained. Pipe joints shall also be restrained an adequate length away from valves and fittings in accordance with AWWA manual M41 (or the latest edition of *Thrust Restraint Design for Ductile Iron Pipe* as published by the Ductile Iron Pipe Research Association). In all cases, there must be a pipe restraint plan with the method of restraint to be used and the length of pipe to be restrained clearly identified on the plans

at all necessary locations. The pipe restraint plan shall be included under the design responsibility of the NC Professional Engineer sealing the plan drawings. All restraint systems shall be factory produced by the manufacturer.

b) Pipe Joints: The standard joint restraint method shall be to use manufacturer provided restrained joint pipe. Pipe up to and including 12-inches in diameter may utilize mechanical joint pipe with approved wedge action retainer glands (for the specified distance). All joint restraint products that include the means of restraint within the joint gasket shall be prohibited. Fusible C-900 DR 18 PVC may be utilized as an acceptable means of restraint.

c) Valves: Valves shall be restrained in a manner consistent with operation as a dead end. This includes restraining the valve to the pipe and restraining a sufficient number of pipe joints on both sides of the valve to accommodate dead end restraint.

12. A plug valve shall be installed at least every 3000 feet of force main length.

13. All air release valves, plug valves greater than 12-inches, or other appurtenances that have moving or operating parts and require maintenance and routine access shall have a manhole placed over them or over the operating portion of the device.

14. Separation Requirements:

    a) <u>Separation between Sewer Force Main and Storm Water Pipes:</u>
    Sewer force mains shall have a minimum vertical separation of 24 inches between storm pipes when the horizontal separation is 3 feet or less. Where sanitary and storm drain cross with a vertical separation of less than 24 inches, the entire leg of sanitary sewer shall be made of standard ductile iron pipe with joints rated for water main service and the void space between the pipe crossing shall be backfilled with 3000-psi concrete or minimum 500-psi, quick setting, non-excavatable flowable fill that meets or exceeds NCDOT Specifications.

    b) <u>Separation between Sanitary Sewer and Sewer Force Main:</u>
    There shall be a minimum 7 foot horizontal separation between parallel gravity and/or force mains in outfall locations when the depth of installation is 8-ft or less. Otherwise, the minimum horizontal separation between pipelines shall be 10-ft in outfalls.

    c) <u>Separation between Sewer Force Main and Water Main:</u>
    Parallel Installations: 10-ft lateral separation (pipe edge to pipe edge) or minimum 5-ft lateral separation, and water line at least 18-inches above sewer force main measured vertically from top of sewer pipeline to bottom edge of water main.

d) Crossings (Water Main over Sewer Force Main): All water main crossings of sewer force mains shall be constructed in conformance with Town of Apex Specifications. At a minimum, 18-inches of clearance shall be maintained between the bottom edge of the water main and the top edge of the sewer force main. If 18-inches of clearance is not maintained, the water main and sewer force main shall both be constructed of ductile iron pipe with joints in conformance with water main construction standards. The ductile iron sewer force main shall extend 10-ft on both sides of the crossing. When the separation between pipelines is 18-inches or less, the void space between the pipes shall be filled with minimum 5000-psi, quick setting, and non-excavatable flowable fill extending 3-ft on both sides of the crossing. Regardless of pipe material, at least 12-inches of vertical separation is required for sewer force main crossings of potable water mains.

e) Crossings (Water Main under Sewer Force Main: Allowed only as approved by Town of Apex, when it is not possible to cross the water main above the sewer force main. At a minimum, 18-inches of separation shall be maintained, (measured from pipe edge to pipe edge) and both the water main and sewer force main shall be constructed of ductile iron in conformance with water main construction standards to a minimum of 10-ft on both sides of the crossing. If local conditions prevent providing 18-inches of clearance, then at least 12-inches of clearance shall be provided and the void space between the pipes shall be filled with minimum 5000-psi, quick setting, and non-excavatable flowable fill extending at least 3-ft on both sides of the crossing. In all cases the water main pipe shall be centered at the point of crossing with joints equally spaced from the point of crossing.

f) Sanitary Sewer Force Main and Stream Crossings:
The top of the sewer force main shall be at least three feet below the stream bed. If three feet of cover cannot be achieved, prior approval from the Water Resources Director must be obtained and concrete encasement and ductile iron pipe shall be required

Sewer force mains shall not be installed under any part of water impoundments or area to be impounded. Sewer mains shall not be installed through, above, or below any retained earth structure. Sewer main location and depth shall not be within the theoretical 1:1 slope of any impoundment dam or structure, or shall maintain a minimum of 10’ horizontal separation from the toe of slope, whichever is greater. The entire easement shall be outside of the toe of slope, unless prior approval is obtained from the Water Resources Director.

The following minimum horizontal separations shall be maintained:

1) 100 feet from any private or public water supply source, including wells, WS-1 waters or Class I, Class II, or Class III impounded

reservoirs used as a source of drinking water (except as noted below).

2) 50 feet from any waters (from normal high water) classified WS-II, WS-III, WS-IV, B, SA, ORW, HQW or SB (except as noted below).

3) 10 feet from any other stream, lake, or impoundment (except as noted below).

4) 50 feet from private wells (with no exceptions).

5) 50 feet from sources of public water supply (with no exceptions)

Where the required minimum separations cannot be obtained, ductile iron sewer force main pipe with joints equivalent to water main standards shall be used. Steel casing and/or concrete may also be required for protection, at the direction of the Water Resources Director.

15. All retaining walls shall have a separation from the easement boundary of at least 1:1, vertical to horizontal. For example, if the retaining wall is 10 feet tall, it shall be placed no closer than 10 feet from the easement.

B. Materials

1. Pipe Materials

a) The minimum wastewater force main size shall be 4-inches in diameter.

b) Ductile Iron Pipe or PVC C900 DR18 shall be required for all wastewater force mains.

c) Ductile iron pipe shall be designed and manufactured in accordance with AWWA C150 and C151 and provided in nominal 20-ft lengths. The minimum requirements for ductile iron pipe and required laying conditions are tabulated below. For all other installations other than specified, the laying condition, bedding requirements or the minimum pressure class rating and/or thickness class shall be increased in accordance with AWWA C151. A pipe thickness design shall be submitted for external loading in all cases where the pipe depth exceeds the specified range of depths outlined in the following table.

Pressure Class, Max. Depth and Laying Condition forDI Wastewater Force Mains

Pipe Diameter	AWWA C-150, Laying Condition	Pressure Class	Maximum Depth of Cover
4-8 -inch	type 1	350 psi	3-16 feet
4-8 -inch	type 4	350 psi	16-20 feet
10-12 -inch	type 1	350 psi	3-10 feet
10-12 -inch	type 4	350 psi	10-20 feet
14-20 -inch	type 4	350 psi	3-25 feet
24 -inch	type 4	350 psi	3-25 feet

Note: For cases not specified, a ductile iron pipe and bedding design certified by a Professional Engineer licensed in the State of North Carolina shall be required in compliance with AWWA C150 and the Ductile Iron Pipe Research Association.

All ductile iron pipe shall be marked in conformance with ASTM A-746.

d) All ductile iron wastewater force mains and fittings for sewer construction shall receive an interior ceramic epoxy coating, consisting of an amine cured novalac epoxy containing at least 20% by volume of ceramic quartz pigment, as manufactured by Protecto 401. The interior coating shall be applied at a nominal dry film interior thickness of 40-mils. All DIP bells and spigots shall be lined with 8-mils of Protecto 401 joint compound applied by brush to ensure full coverage. All pipe supplied with Protecto 401 interior lining shall be provided free of holidays. Pipe installed with defects in the lining will be rejected. Patching of Protecto 401 coating defects after installation shall not be approved. Protecto 401 lined pipe must be installed within one year of the application date on the pipe.

   The liner manufacturer shall have a minimum of ten (10) years of successful experience and be able to demonstrate successful performance on comparable projects.
   Permeability rating of 0.00 when tested according to Method A of ASTM E-96-66, Procedure A with a test duration of 30 days.

e) PVC pipe shall conform to AWWA C900 standards along with the following requirements:
   1) Outside diameter shall conform to that of ductile iron pipe.
   2) Pipe shall have plain end and elastomeric gasket bell ends.
   3) Green in color.

f) Pipe fittings shall be made of ductile iron designed and manufactured per AWWA C110 or C153. All fittings up to and including 24 inches in diameter shall be designed for a minimum internal pressure of 350 psi, unless otherwise approved by the Town of Apex. Fittings shall be mechanical joint or proprietary

manufacturer provided restrained joint. Gaskets shall be in accordance with AWWA C111. All fittings shall be interior coated with Protecto 401 as specified herein for ductile iron pipe. Two 45 degree fittings shall be used in lieu of 90 degree fittings in all horizontal and vertical installations.

g) Restrained Joint Pipe shall be the boltless type unless otherwise approved. For installations requiring welded locking rings, the rings shall be factory welded. The restrained joints shall provide a minimum of 4-degrees of deflection for pipe sizes, 4-inches through 12-inches in diameter.

All proprietary pipe restraint systems shall be approved by the Town of Apex and provided in compliance with all standards for coatings, linings, pressure classes, etc. as required for PVC C900 or ductile iron pipe. All restrained joint pipe shall be installed based on laying conditions, pressure class, etc. as required for typical ductile iron pipe.

Pipe and fitting manufacturer(s) must have a supplier within 200 miles of the Town of Apex.

2. Manhole Materials:

a) All sewer force main manholes shall be installed according to Section 0700 of the Town of Apex Standard Specifications when design and installation criteria are not otherwise covered herein.

b) All force main discharge locations (including all downstream manholes within 1,200 feet) and other manholes for wastewater force mains (excluding those housing large diameter plug valves) shall be epoxy coated at minimum 80-mils thickness.

c) Force Main Manhole Epoxy Coating: Sewer force main receiver manholes, sewer force main combination air valve manholes and other concrete structures subject to high levels of hydrogen sulfide gas shall be provided with an approved monolithic epoxy coating system consisting of a 100% solids, solvent-free, two-component epoxy resin that meets the following Specifications for up to 100 mils of coating with a manufacturer approved set time of 6-hours or less.

1) Surface Preparation: Concrete manholes must be well cured prior to application of the protective epoxy coating. Generally, 28 days is adequate cure time for standard Portland cement. If earlier application is desired, compressive or tensile strength of the concrete can be tested to determine if acceptable cure has occurred. (Note: Bond strength of the coating to the concrete surface is generally limited to the tensile strength of the concrete itself. An Elcometer pull test to determine suitability of concrete for coating may be required).

Surface preparation shall be based on the requirements of the manufacturer of the epoxy coating and applicable NACE International standards.

2) Installation: A minimum 80-mils thickness shall be applied to new manholes (120-mils for existing manholes). During application a wet film thickness gage, meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, shall be used to ensure a monolithic coating and uniform thickness during application.

   Temperature of the surface to be coated should be maintained between 40° F and 120° F during application. Prior to and during application, care should be taken to avoid exposure of direct sunlight or other intense heat source to the structure being coated. Where varying surface temperatures do exist, care should be taken to apply the coating when the temperature is falling versus rising or in the early morning. The humidity should also be observed to ensure compliance with the epoxy manufacturers' recommendations.

   Manufacturer approved heated plural component spray equipment shall be used in the application of the specified protective epoxy coating. The spray equipment shall be specifically designed to accurately ratio and apply the specified protective coating materials and shall be regularly maintained and in proper working order.

   If necessary, subsequent topcoating or additional coats of the protective coating should occur as soon as the basecoat becomes tack free, ideally within 12 hours but no later than the recoat window for the specified products. Additional surface preparation procedures will be required if this recoat window is exceeded.

d) Force Main Receiver Manholes: Sewer force mains shall not discharge directly into existing gravity sewer lines. Sewer force mains shall typically discharge into a receiver manhole that has been epoxy coated as specified herein. The receiver manhole shall be provided in the typical eccentric tapered design at minimum 5-ft diameter. The bench shall be sloped up to 8-inches from the invert channel to the manhole wall. The invert shall be provided with a gradual upsloping alignment from the force main entry to the gravity transition point. Sufficient grade shall be placed on the invert such that wastewater falls back into the force main when the pumps are not in operation creating a vapor lock between the force main and the manhole. Drop connections into force main receiver manholes shall be prohibited.

   The interior surface of the receiving manhole at the discharge end of the force main and all manholes within 1,200 feet downstream of a force main connection

shall receive 2 coats of Sherwin Williams Sher-Flex or equivalent. Coatings shall conform to US Army Corps of Engineers Specification C-200. The coating shall have a total dry film thickness of 80-125 mils, and all blemishes shall be touched up prior to acceptance.

Force mains shall discharge at the invert of the receiving manhole and at an angle which is as close as possible to 180-degrees of the outlet pipe.

e) Combination Air Valve Manholes: Manholes for combination air valve installation shall be provided in flat top configuration to accommodate the excess length of wastewater combination air valves. In cases where the combination air valve assembly shall be located in a paved area, provide typical eccentric, tapered manhole design with typical manhole frame and cover for paved areas. The minimum manhole diameter for combination air valve assemblies shall be 5-ft. Minimum 6-ft diameter manholes shall be used with force mains 20-inches and larger and when an odor control system is required. Any manholes located in NCDOT or street right-of-way shall be provided flush with finished grade. ARVs shall be 2-inch and manufactured by ARI, model D-02P sewage dual ARV with plastic body.

C. Installation

1. General

Ductile iron pipe shall be installed in accordance with the requirements of AWWA C600 and the Ductile Iron Pipe Handbook published by the Ductile Iron Pipe Research Association. Materials at all times shall be handled with mechanical equipment or in such a manner to protect them from damage. At no time shall pipe and fittings be dropped or pushed into ditches.

Pipe trench excavation and backfilling shall be performed in accordance with Section 0450 of these Specifications.

Pipe and fitting interiors shall be protected from foreign matter and shall be inspected for damage and defects prior to installation. In the event foreign matter is present in pipe and fittings, it shall be removed before installation. Open ends of pipe shall be plugged or capped when pipe laying is not in progress.

All pipe shall be constructed with at least 48 inches of cover below the finished surface grade. Pipe shall be laid on true lines as directed by the Engineer. The wastewater force main shall be installed at a grade which will allow air to migrate to a high point where the air can be released through an air valve. A minimum pipe slope of 1 foot in 500 feet should be maintained and there shall be no intermediate high points in the line.

Trenches shall be sufficiently wide to adjust the alignment. Bell holes shall be dug at each joint to permit proper joint assembly. The pipe shall be laid and adjusted so that the alignment with the next succeeding joint will be centered in the joint and the entire pipeline will be in continuous alignment both horizontally and vertically. Pipe joints shall be fitted so that a thoroughly watertight joint will result. All joints will be made in conformance with the manufacturer's recommendations for the type of joint selected. All transition joints between different types of pipe shall be made with transition couplings approved on shop drawings showing the complete assembly to scale.

Forcemains shall not be installed within roundabouts or alleys.

2. Utility Coordination

Prior to beginning construction, the Contractor shall contact local utility companies and verify the location of existing utilities. The Contractor shall be completely and solely responsible for locating all existing buried utilities inside the construction zone before beginning excavation. The Contractor shall be solely responsible for scheduling and coordinating the utility location work. When an existing utility is in conflict with construction, it shall be exposed prior to beginning construction to prevent damage to the existing utility.

D. Valves and Appurtenances

1. General: The rated working pressure of all valves and appurtenances shall meet the maximum design pressure of the pump station and pipeline.

2. Check Valve: Check valves shall be iron bodied, fully bronze mounted with bronze clapper disc and bronze seat ring, and shall have a spring loaded lever arm capable of being mounted on either side of the valve.

3. Plug Valve: Plug valves shall be non-lubricating, eccentric action and resilient plug facing with heavy duty Type 316 stainless steel bearings. Plug valves shall be designed for a minimum working pressure of 175 psi for valves 12” and smaller, 150 psi for valves 14” and larger. Valves shall be bi-directional and meet the pressure rating in both directions of flow. The plug valve body shall be cast iron ASTM A126 Class B with welded-in overlay of 90% nickel alloy content on all surfaces contacting the face of the plug. Sprayed, plated, nickel welded rings or seats screwed into the body are not acceptable.

All plug valves 12” and smaller shall have round port design that provides a minimum 80% port area. The valve plug shall be ductile iron ASTM A536 Grade 65-45-12 up to 20-inches in diameter, with EPDM, Buna N, or Neoprene resilient seating surface to mate with the body seat. Valves 24-inches and larger may have plugs made of cast iron in accordance with ASTM A126 class B. Large plug valves with rectangular plugs shall provide clean passage for a solid sphere of at least

67% of the adjoining pipe diameter to facilitate pigging of the force main. Force main plug valves with rectangular port shall be "full-port" cross-sectional area perpendicular to the flow of at least 100% of the adjoining pipe.

All buried plug valves shall be provided with worm gear actuators. All plug valves shall be buried and provided with a 2-inch operator nut and valve box as shown in the details. Plug valves greater than 12-inches shall be installed such that the actuator and gearing is accessible in a manhole as shown in the details. All plug valves shall be provided with typical mechanical joint end connections and restrained with wedge action retainer glands on both ends of the valve assembly as described herein.

Valves shall be installed according to the manufacturer's recommendations. Typically for wastewater this means installing the seat side toward the pump station so that the flow is against the face of the plug in the closed position. In the open position, the plug should rotate up to the top of the pipeline which may require installing the valve on its side.

4. Rubber Seated Ball Valve: For larger diameter force mains where plug valves are not available, rubber seated ball valves shall be of the tight-closing, shaft-mounted type that fully comply with AWWA Standard C507 to provide a full port unobstructed waterway with no additional pressure drop. Design pressure ratings shall be 150 psi or greater and provide tight shutoff against flow. With the valve in the closed position, the rubber seated valve shall be bubble tight at rated pressure. All ball valves shall be provided in an epoxy coated manhole with worm gear actuators and a handwheel.

5. Valve Box Covers: Force main plug valves or ball valves shall have valve box covers and/or manhole lids with the word "Sewer" cast into them.

6. Combination Air Valves shall be provided to purge air from the system at startup, vent small pockets of air while the system is being pressurized and running, and prevent critical vacuum conditions during draining. Combination air valves approved for use in wastewater force main installations shall be installed at all high points of wastewater force mains 6 inches in diameter or larger and at other locations, such as major changes in slope, as directed by the Town. A high point shall be determined as any high location where the difference between the high elevation and adjacent low elevation exceeds 10-ft unless otherwise determined by the Director of Water Resources based on special circumstances. The combination air valve shall automatically exhaust large volumes of air from the system when it is being filled and allow air to re-enter the pipe when the system is being drained. The wastewater force main shall be installed at a continuous grade between low and high points without intermediate high points unless an air release valve is being installed. A minimum pipe slope of 1 foot in 500 feet should be maintained. Combination air valves shall be sized by the Engineer and approved by the Town.

a) Combination air valves shall be of the single housing style with Type 304 or 316 stainless steel body that combines the operation of both an air/vacuum and air release valve. The valve must meet the requirements of AWWA C512 and be installed in accordance with the Details. The valve shall have a minimum 145-psi working pressure unless the pipeline design requires a higher pressure rating.

b) The valve shall have a minimum 2-inch male NPT inlet for a 2-inch valve assembly. Combination air valves sized from 3-inches to 8-inches shall be provided with studded inlet connectors or flanged connections. The combination air valve shall be provided with cylindrical shaped floats and anti-shock orifice made of high density polyethylene. Combination air valves with spherical floats shall not be accepted. All combination air valves shall be installed in accordance with the Details.

c) Installation of Combination Air Valve Assembly:

    1) The Engineer of Record shall provide ample depth of installation to accommodate the extended height of combination air valves for wastewater force mains. All combination air valves shall be connected to the main by an MJ x FLG tee with the branch diameter equal to at least half of the main diameter.

    2) The 2-inch combination air valve shall be provided with male NPT threads and isolated with a 2-inch gate valve. The isolation valve shall be provided with NPT threads and connected with brass or bronze piping.

    3) Combination air valves 3-inches and greater shall be connected by flange or studs. If needed due to a larger diameter tee, a flanged reducer shall be provided between the tee and the isolation valve. Gate valves shall be used for 3-inch assemblies. Combination air valves 4-inches and larger shall be isolated with a plug valve. In all cases the isolation valve shall be sized equal to the combination air valve.

    4) The ARV shall be installed in a 5 foot diameter manhole per the standard detail. The manhole interior surface shall receive two coats of Sherwin Williams Sher-flex or equivalent with a total dry film thickness of 80-125 mils, and all blemishes shall be touched up prior to acceptance.

7. Pigging Station: Force mains shall be constructed with a pigging/bypass connection located within 50-ft of the pump station valve vault. This pigging leg shall consist entirely of Protecto 401 coated ductile iron pipe of the same diameter

as the main. A restrained MJ wye shall be provided in the main line and valved on each branch. The pigging leg shall extend out of the ground and be closed with a blind flange. The protruding pipe shall be protected by concrete bollards spaced 6-ft apart.

8. Bypass Connection Assembly: On some wastewater force mains, an additional bypass connection assembly may be required. The size, criticality and proximity to a downstream manhole will be important factors in the need for this connection. The bypass assembly shall include either a ball valve or plug valve assembly for isolation from the primary wastewater force main. Additionally, the primary force main shall be provided with a main line plug valve or ball valve on the upstream side of the bypass assembly to prevent bypass flow from draining back to the pump station. The bypass assembly shall be brought to the final graded surface with a visible blind flange assembly for connection by an outside pumping contractor.

9. Force Main Odor Control Systems: Force main odor control shall be included in the design plans for any proposed force main at discharge locations, intermediate air release locations and otherwise as directed by the Town of Apex Water Resources Department. In limited cases, air release valves located in isolated areas may be approved without odor control systems. The suggested odor control technology shall be designed by the Engineer of Record to achieve 95% or greater hydrogen sulfide removal. All systems, including those utilizing activated carbon, shall be manufactured specifically for addressing hydrogen sulfide gas. Forced air systems should be avoided due to the need to include provisions for electrical power to the odor control system. For all odor control systems, the Engineer of Record shall provide sufficient easement area for long term maintenance of the system.

10. Marker Posts: Force mains shall be marked with a plastic marker at every valve, every horizontal fitting, and spaced every 1,000 feet along the force main. The post shall having a minimum diameter of four inches and a minimum bury of thirty inches with a minimum of four feet exposed. The exposed portion shall be painted green and label “Apex Sewer”. Marker posts shall be installed through outfalls, easements, all non-residential areas, and as directed by the Water Resources Director. Valves shall have marker posts only when they are installed outside of paved areas.

808 Force Main Inspections and Testing

A. Inspections

1. All materials and equipment used in the construction of the wastewater pumping system must be verified for compliance with the Specifications (or other approval granted by the Town) by the Inspector prior to installation. Non-conforming materials or equipment shall be immediately removed from the job site.

2. Compliance with plans and Specifications shall be verified on a regular basis by the Inspector.

B. Testing

1. General

   a) The Contractor shall furnish all materials, labor, and equipment to perform all testing. Water for testing purposes may be obtained from the Town of Apex. The Contractor shall reimburse the Town for all water used at Inside Utility Rates.

   b) All water or wastewater used during testing of the pump station, force main, or any of the systems described in this section, must be returned to the Town of Apex sanitary sewer system after proper coordination with the Town of Apex Water Resources Department.

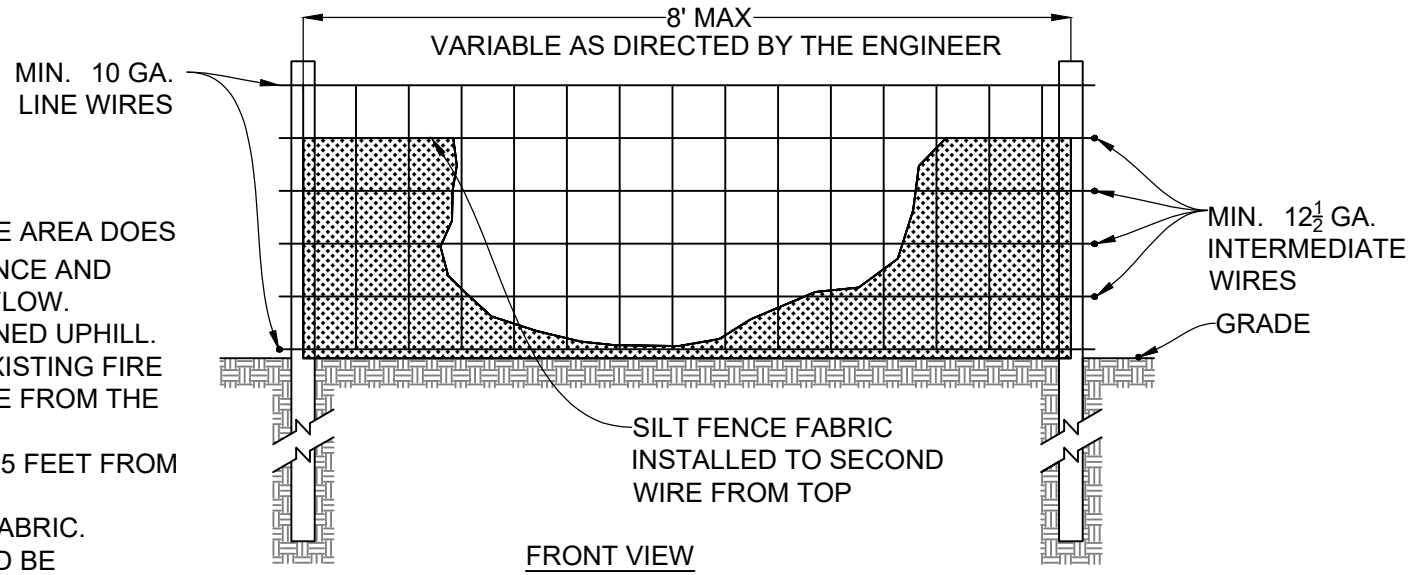
   c) All on-site testing and/or installation verification shall be performed in the presence of the Inspector or other representative authorized by the Town.

2. Force main Testing

   The force main shall be tested in accordance with the water main standards set forth in Section 600.

   The following tests must be run on coupons from factory lined ductile iron pipe:
   a) ASTM B-117 Salt Spray (scribed panel) – Results to equal 0.0 undercutting after two years.
   b) ASTM G-95 Cathodic Disbondment 1.5 volts @ 77°F. Results to equal no more than 0.5mm undercutting after 30 days.
   c) Immersion testing rated on using ASTM D-714-87.
      1) 20% Sulfuric Acid – No effect after two years.
      2) 140°F 25% Sodium Hydroxide – No affect after two years.
      3) 160°F Distilled Water – No effect after two years.
      4) 120°F Tap Water (scribed panel) – 0.0 undercutting after two years with no effect.

   An abrasion resistance of no more than 3 mils (0.075mm) loss after one million cycles using European Standard EN 598: 1994, Section 7.8 Abrasion Resistance.

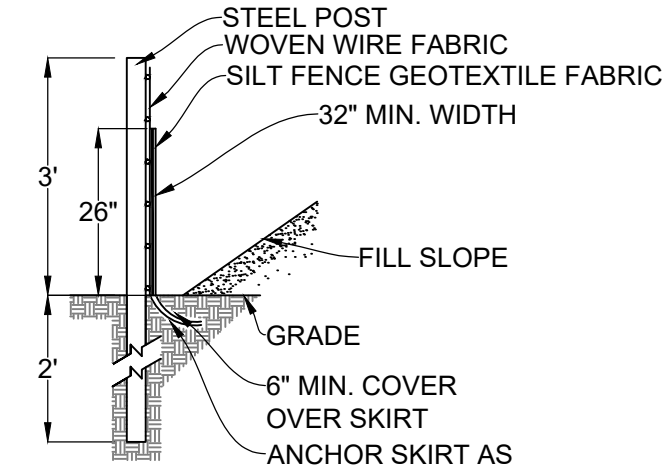


GENERAL NOTES:

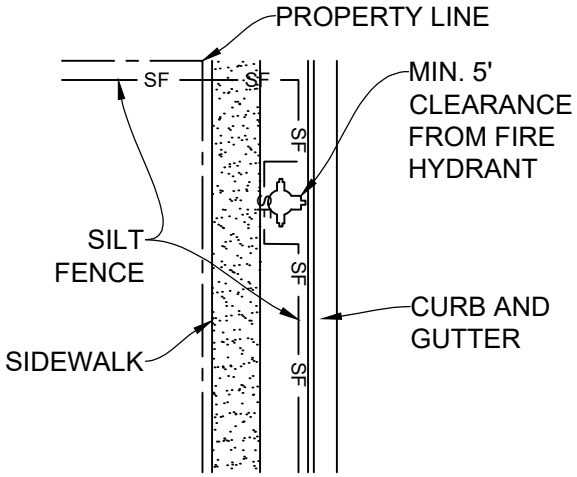
1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED $\frac{1}{4}$ ACRE PER 100 LF OF FENCE AND NEVER IN AREAS OF CONCENTRATED FLOW.
2. END OF SILT FENCE NEEDS TO BE TURNED UPHILL.
3. WRAP THE SILT FENCE AROUND ALL EXISTING FIRE HYDRANTS SO THEY ARE FULLY VISIBLE FROM THE ROADWAY.
4. SILT FENCE SHOULD BE A MINIMUM OF 5 FEET FROM THE TOE OF SLOPE.
5. OVERLAP 12 INCHES WHEN SPLICING FABRIC.
6. ANCHORING OF TOE OF FENCE SHOULD BE REINFORCED WITH 12 INCHES OF NCDOT #5 OR #57 WASHED STONE WHEN FLOW WILL RUN PARALLEL TO TOE OF FENCE.

MAINTENANCE NOTES:

1. REMOVE SEDIMENT WHEN AT HALF HEIGHT OF SILT FENCE.
2. REPAIR OR REPLACE FENCE IMMEDIATELY WHEN TEARS, HOLES, SAGGING, COLLAPSE, OR OTHER DEFICIENCIES FOUND.
3. THE DESIGN LIFE OF A SYNTHETIC SILT FENCE IS APPROX. 6 MONTHS. DETERIORATED SILT FENCE MUST BE REPLACED.
4. SILT FENCE SHALL BE INSPECTED WEEKLY OR AFTER 1 INCH RAIN EVENT.
5. USE #57 WASHED STONE FOR REPAIR OF SILT FENCE FAILURES, AND FOR ANCHOR WHEN SILT FENCE IS PROTECTING CATCH BASIN.

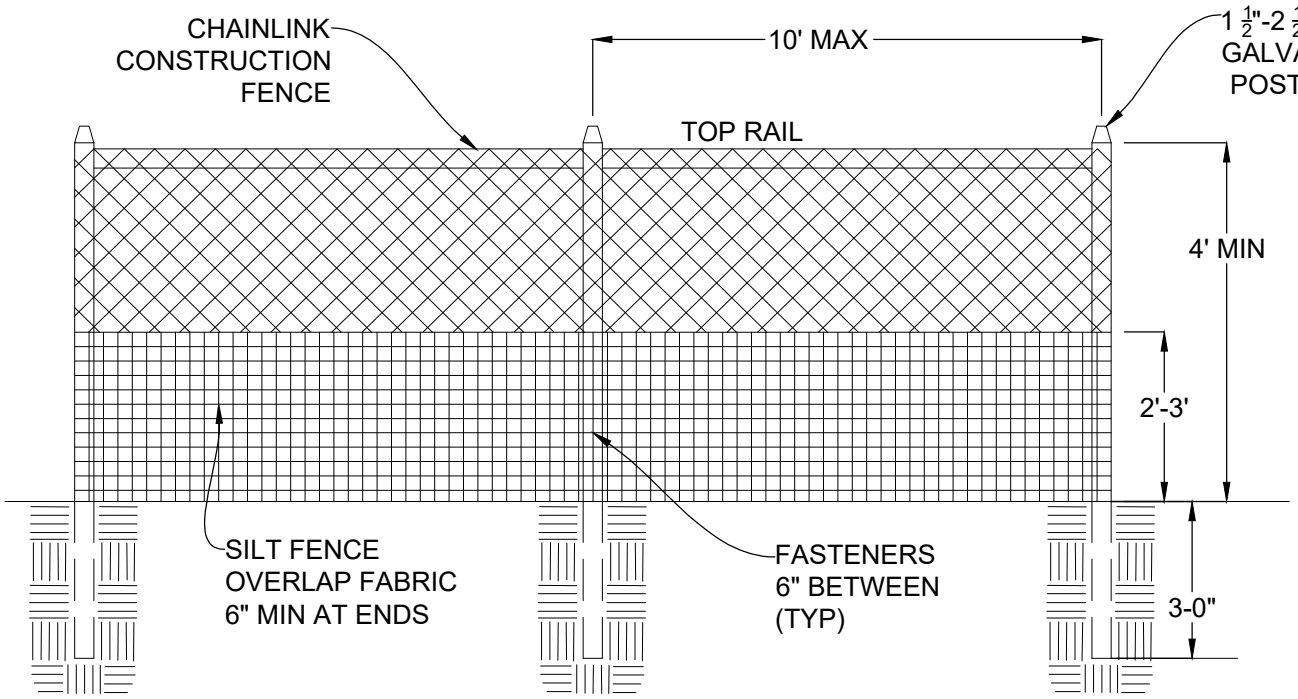


SIDE VIEW

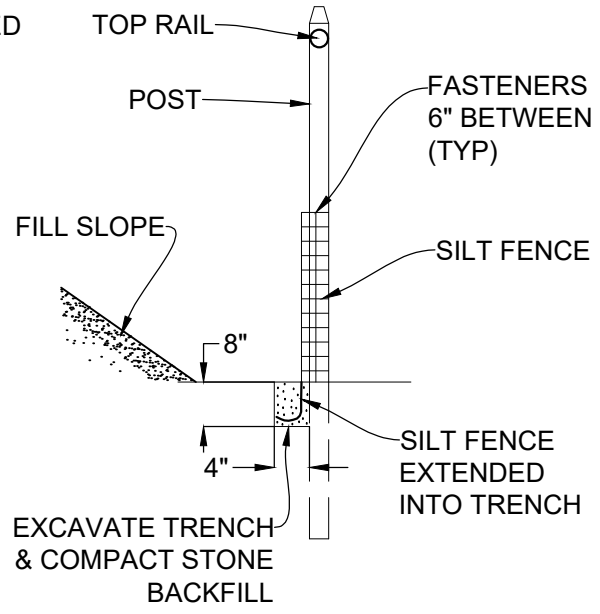


FH INSTALLATION

TOWN OF APEX STANDARDS	TEMPORARY SILT FENCE	STD. NO.
EFFECTIVE: JUNE 11, 2024	- Page 537 -	400.01
		SHEET 1 OF 2



FRONT VIEW



SIDE VIEW

GENERAL NOTES:

1. SUPER SILT FENCE TO BE USED WHEN STANDARD IS INADEQUATE, AS DIRECTED BY THE ENGINEER.
2. DO NOT USE IN AREAS OF CONCENTRATED FLOW.
3. END OF SILT FENCE NEEDS TO BE TURNED UPHILL.
4. WRAP THE SILT FENCE AROUND ALL EXISTING FIRE HYDRANTS WITH 5' OF CLEARANCE, SO THAT THEY ARE FULLY VISIBLE FROM THE ROADWAY.
5. SILT FENCE SHOULD BE A MINIMUM OF 5 FEET FROM THE TOE OF SLOPE.
6. OVERLAP 12 INCHES WHEN SPLICING FABRIC.
7. ANCHORING OF TOE OF FENCE IN TRENCH SHALL BE WITH COMPACTED NCDOT #5 OR #57 WASHED STONE.

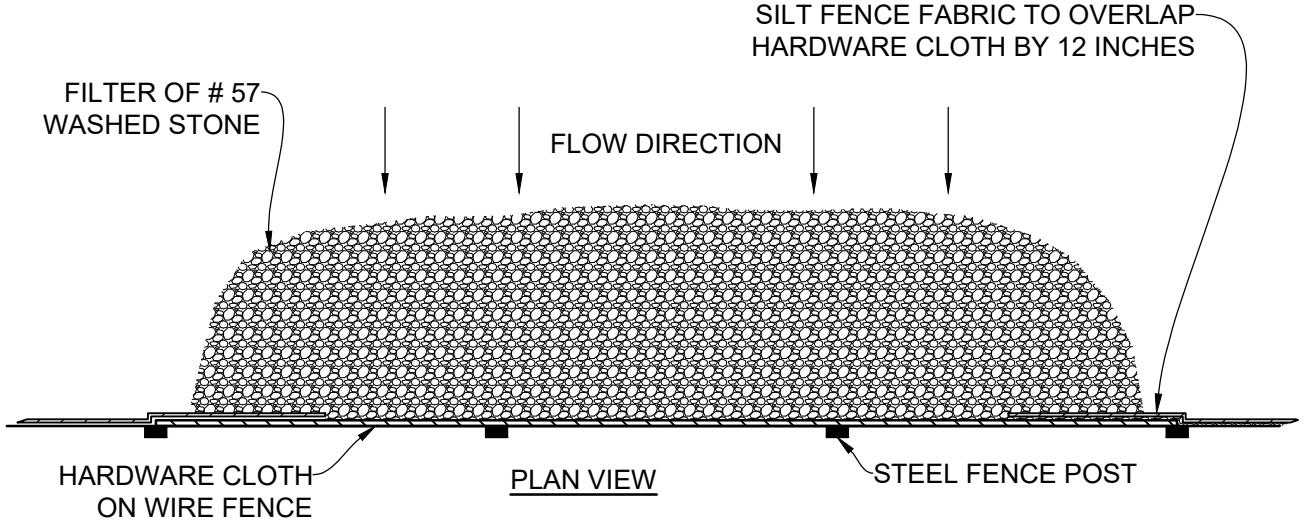
MAINTENANCE NOTES:

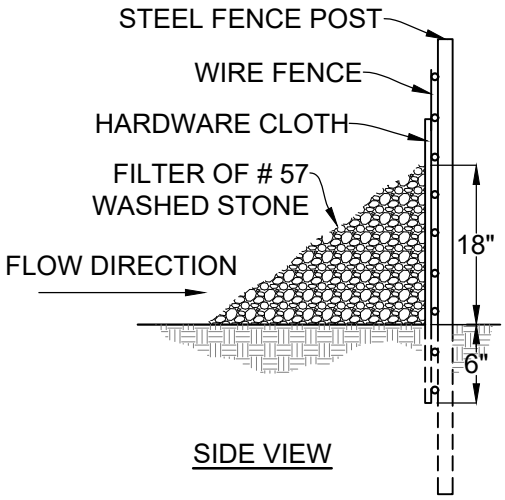
1. REMOVE SEDIMENT WHEN AT HALF HEIGHT OF SILT FENCE.
2. REPAIR OR REPLACE FENCE IMMEDIATELY WHEN TEARS, HOLES, SAGGING, COLLAPSE, OR OTHER DEFICIENCIES FOUND.
3. THE DESIGN LIFE OF A SYNTHETIC SILT FENCE IS APPROX. 6 MONTHS. DETERIORATED SILT FENCE MUST BE REPLACED.
4. SILT FENCE SHALL BE INSPECTED WEEKLY OR AFTER 1 INCH RAIN EVENT.
5. USE #57 WASHED STONE FOR REPAIR OF SILT FENCE FAILURES, AND FOR ANCHOR WHEN SILT FENCE IS PROTECTING CATCH BASIN.

TOWN OF APEX STANDARDS	TEMPORARY SILT FENCE (SUPER SILT FENCE)	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.01
		SHEET 2 OF 2

GENERAL NOTES:

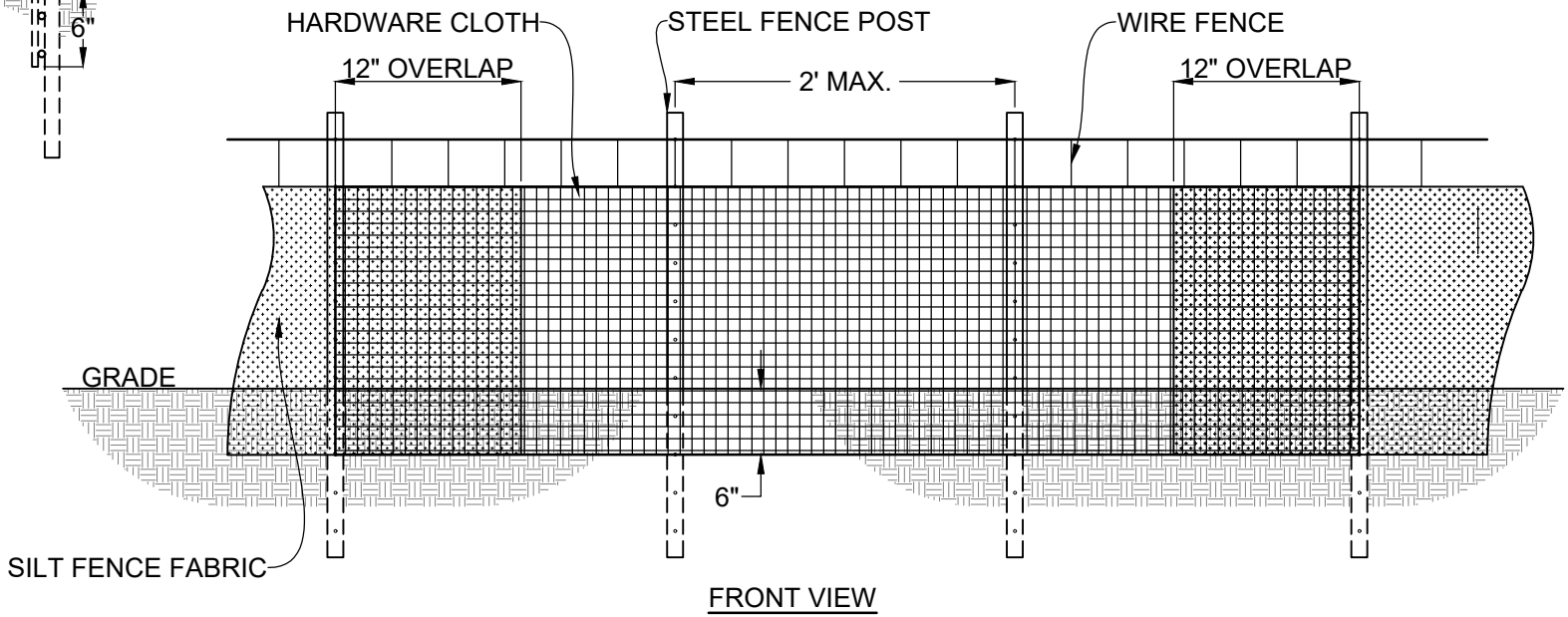
1. APPLICABLE FOR DRAINAGE AREAS NO MORE THAN 1/4 ACRE.
2. USE AS A REPAIR OF SILT FENCE FAILURES.
3. BURY WIRE FENCE, HARDWARE CLOTH, AND SILT FENCE FABRIC 6 INCHES.



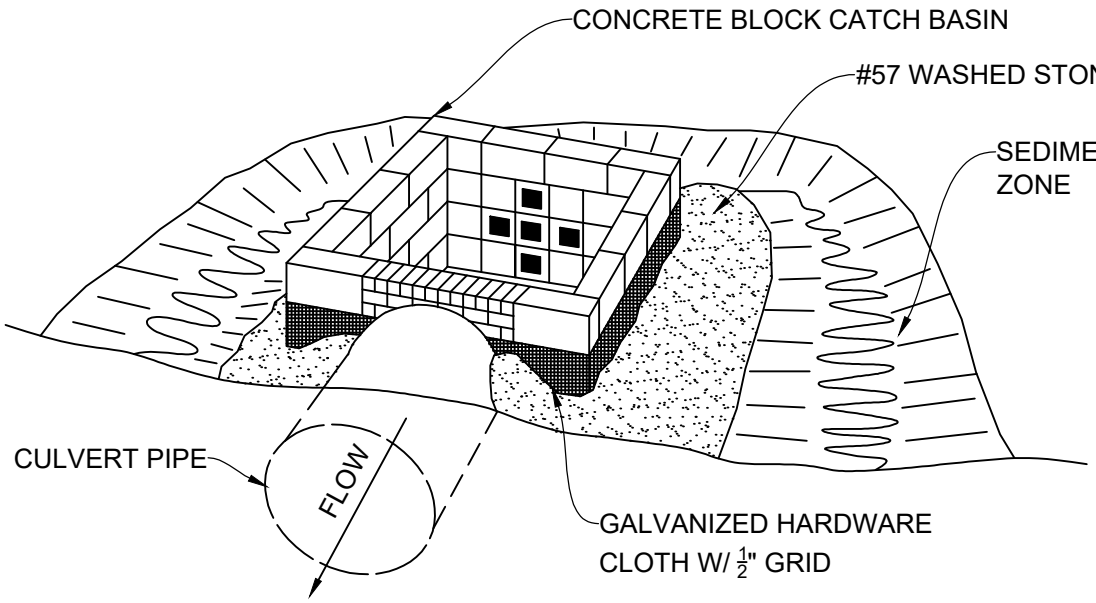


MAINTENANCE NOTES:

1. REMOVE SEDIMENT WHEN AT HALF HEIGHT OF STONE. REFRESH STONE THAT BECOMES CLOGGED WITH SEDIMENT/DEBRIS.
2. REPAIR OR REPLACE FENCE & HARDWARE CLOTH IMMEDIATELY WHEN DEFICIENCIES FOUND.



TOWN OF APEX STANDARDS	TEMPORARY SILT FENCE OUTLET	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.02
		SHEET 1 OF 1



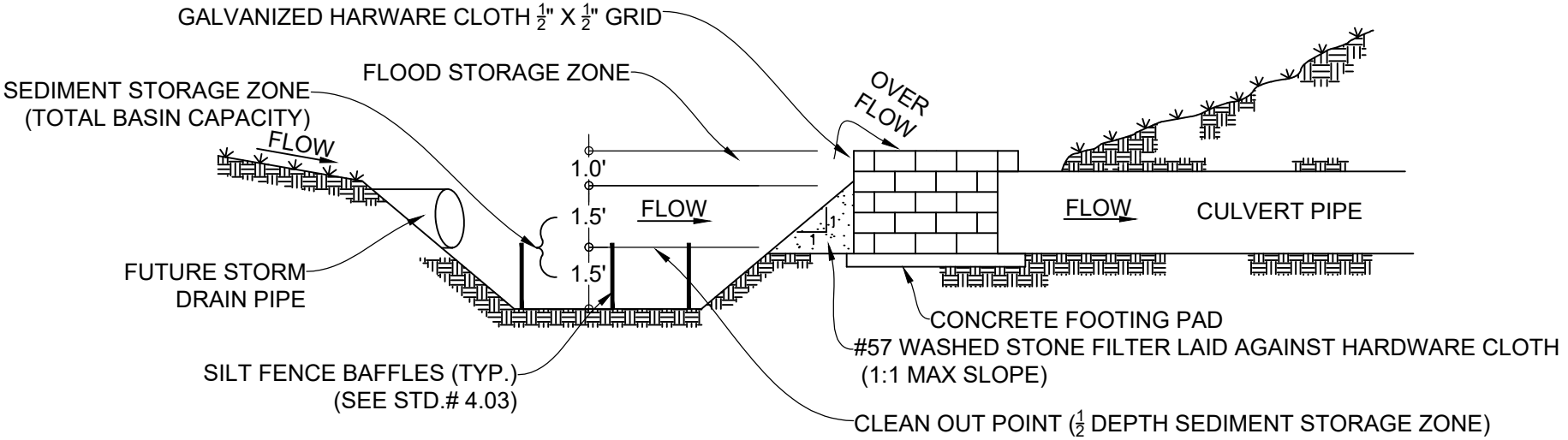
PERSPECTIVE VIEW

GENERAL NOTES:

1. AT THE END OF THE PROJECT, CATCH BASIN CAN BE RAISED AS NEEDED PLUGGING OPEN COURSE OF BLOCK WITH MORTAR.
2. RISER CAN BE BUILT AS A STANDARD CATCH BASIN/JUNCTION BOX (WITH WEEP HOLES) IN RECEIVING WALL AND BE UTILIZED AS SUCH WHEN PROJECT IS STABLE.
3. FOR DRAINAGE AREA >5 ACRES TREAT AS RISER STRUCTURE INCLUDING TRASH RACK, ELEVATIONS, AND ANTI-FLOATATION.

MAINTENANCE NOTES:

1. REMOVE SEDIMENT WHEN ½ HEIGHT OF SEDIMENT STORAGE ZONE.
2. REPLACE STONE, HARDWARE, & BAFFLES AS NEEDED.

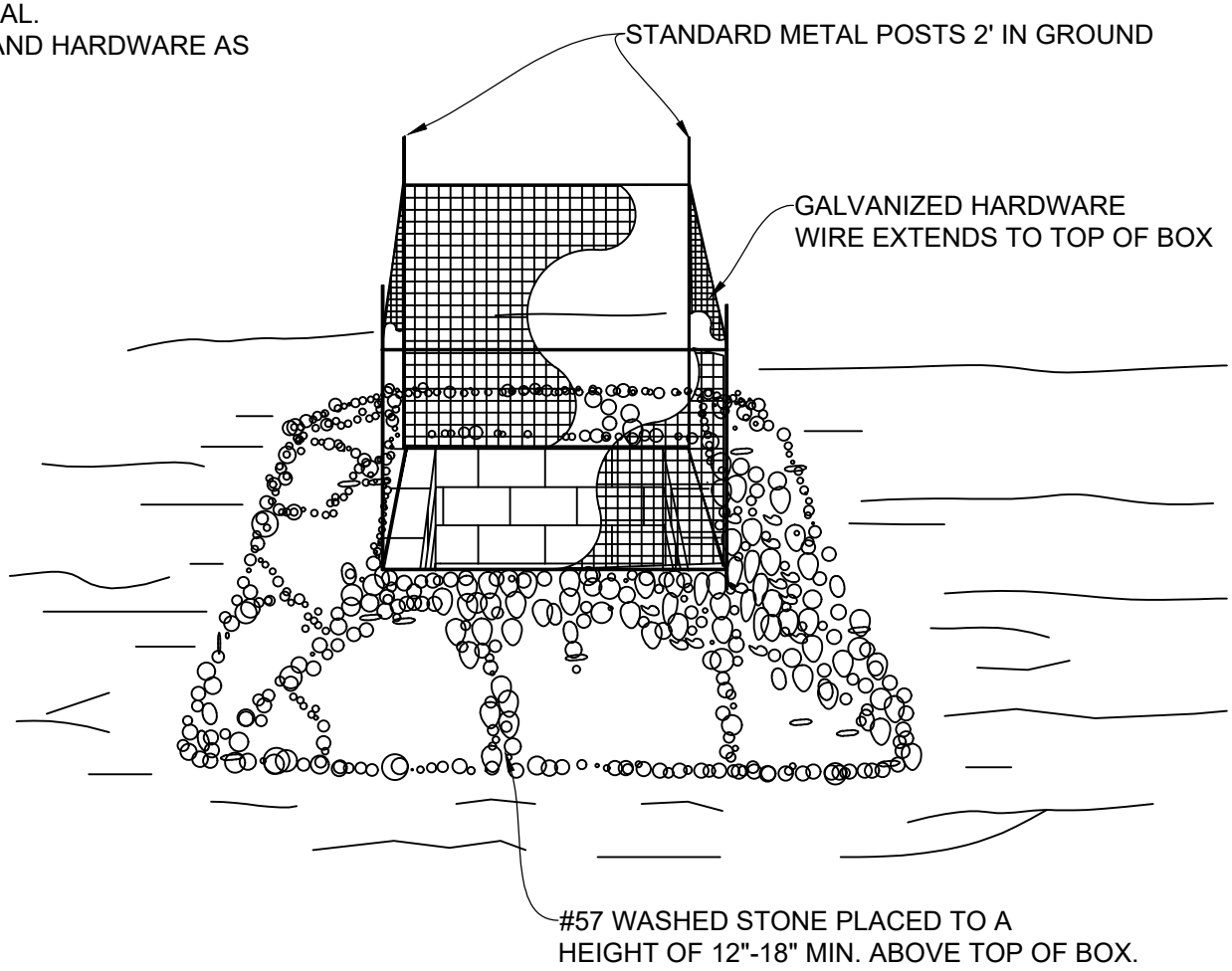


SECTION VIEW

TOWN OF APEX STANDARDS	CATCH BASIN RISER/FILTER	STD. NO.
EFFECTIVE: JUNE 11, 2024	- Page 540 -	400.03
		SHEET 1 OF 1

MAINTENANCE NOTES:

1. REMOVE SEDIMENT WHEN AT $\frac{1}{2}$ HEIGHT OF STONE AND CLEAR HARDWARE OF DEBRIS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS, TAKING CARE NOT TO DAMAGE OR UNDERCUT HARDWARE DURING SEDIMENT REMOVAL.
2. REPLACE STONE AND HARDWARE AS NEEDED.

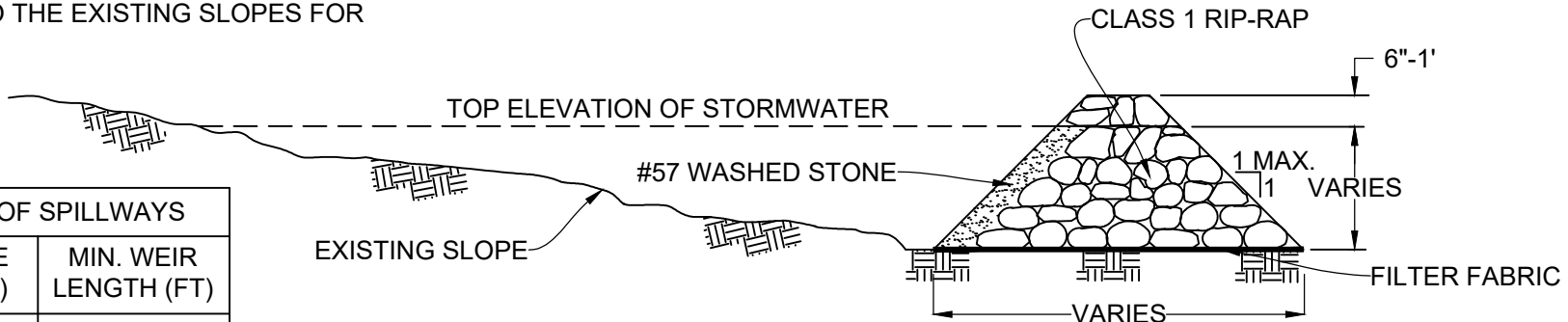


TOWN OF APEX STANDARDS	CATCH BASIN & YARD INLET PROTECTION	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.04
		SHEET 1 OF 1

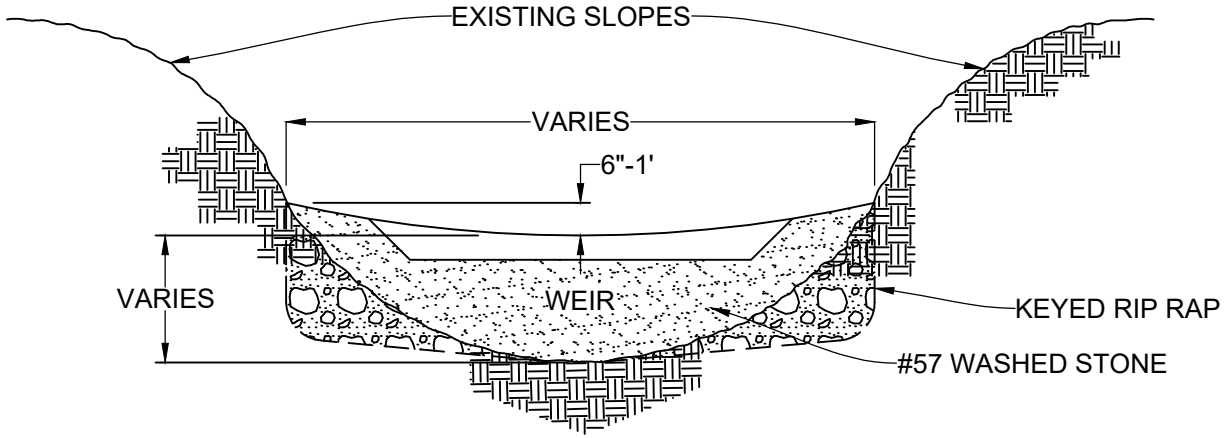
GENERAL NOTES:

1. HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
2. KEY RIP RAP INTO THE EXISTING SLOPES FOR STABILIZATION.

DESIGN OF SPILLWAYS	
DRAINAGE AREA (AC)	MIN. WEIR LENGTH (FT)
1	4
2	6
3	8
4	10
5	12



SIDE VIEW

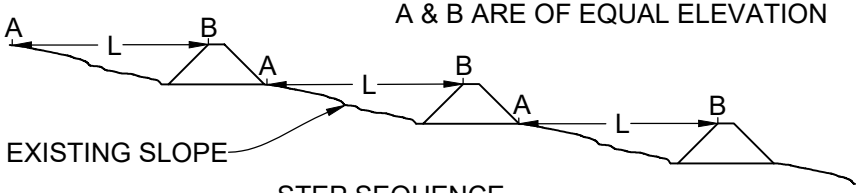


FRONT VIEW

MAINTENANCE NOTES:

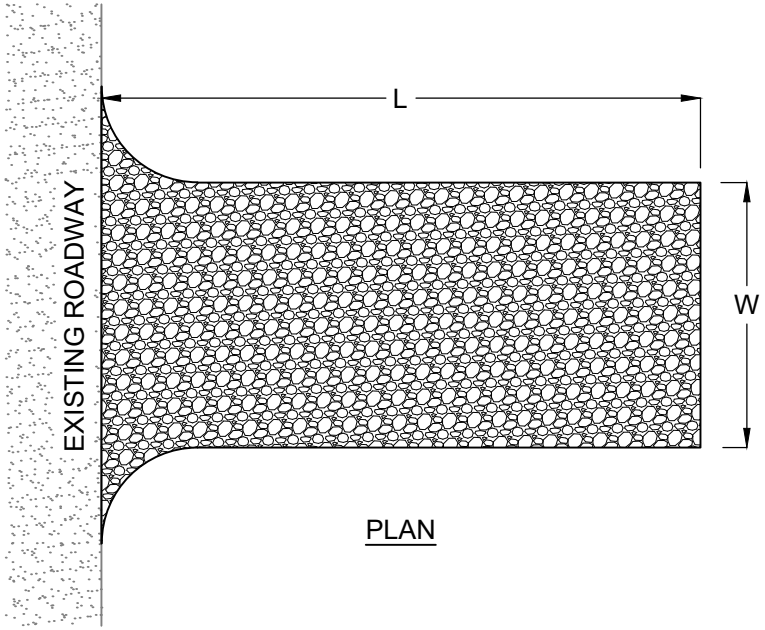
1. REMOVE SEDIMENT WHEN AT $\frac{1}{2}$ HEIGHT OF STONE, AND CLEAR DEBRIS THAT COULD CLOG CHANNEL.
2. ADD OR REFRESH STONE AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.
3. CORRECT DEFICIENCIES IF EROSION OCCURS AROUND EDGES OF DAM.
4. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, ADD ADDITIONAL DAMS AND ENSURE CHANNEL IS PROPERLY STABILIZED WITH MATTING/STABILIZATION.

L=THE DISTANCE SUCH THAT POINTS A & B ARE OF EQUAL ELEVATION



STEP SEQUENCE

TOWN OF APEX STANDARDS	CHECK DAM	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.05
		SHEET 1 OF 1



PLAN

GENERAL NOTES:

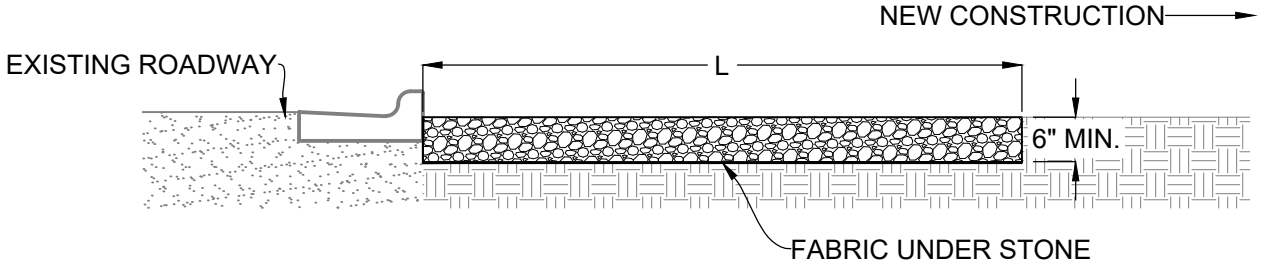
1. INSTALL SILT FENCE OR TREE PROTECTION FENCE TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ENTRANCE DOES NOT REMOVE MUD FROM TIRES EFFECTIVELY, THE TIRES OF THE VEHICLE MUST BE WASHED BEFORE ENTERING PUBLIC ROAD (SEE DETAIL 400.06 SHEET 2 OF 2).
3. IF A PROJECT CONTINUES TO DEPOSIT MUD AND DEBRIS ONTO THE PUBLIC ROAD, THE TOWN WILL CLEAN THE AREA AND INVOICE THE FINANCIALLY RESPONSIBLE PARTY.

MAINTENANCE NOTES:

1. CONSTRUCTION ENTRANCE SHALL BE MAINTAINED ROUTINELY TO AVOID SEDIMENT LEAVING PROJECT.
2. SEDIMENT ENTERING PAVED ROADWAYS FROM PROJECT SHALL BE REMOVED IMMEDIATELY.

ENTRANCE TYPE	L	W	STONE SIZE
GENERAL	50'	25'	2"-3"
RESIDENTIAL*	25'	12'	#57

* INDIVIDUAL SINGLE FAMILY



CROSS SECTION

TOWN OF APEX STANDARDS

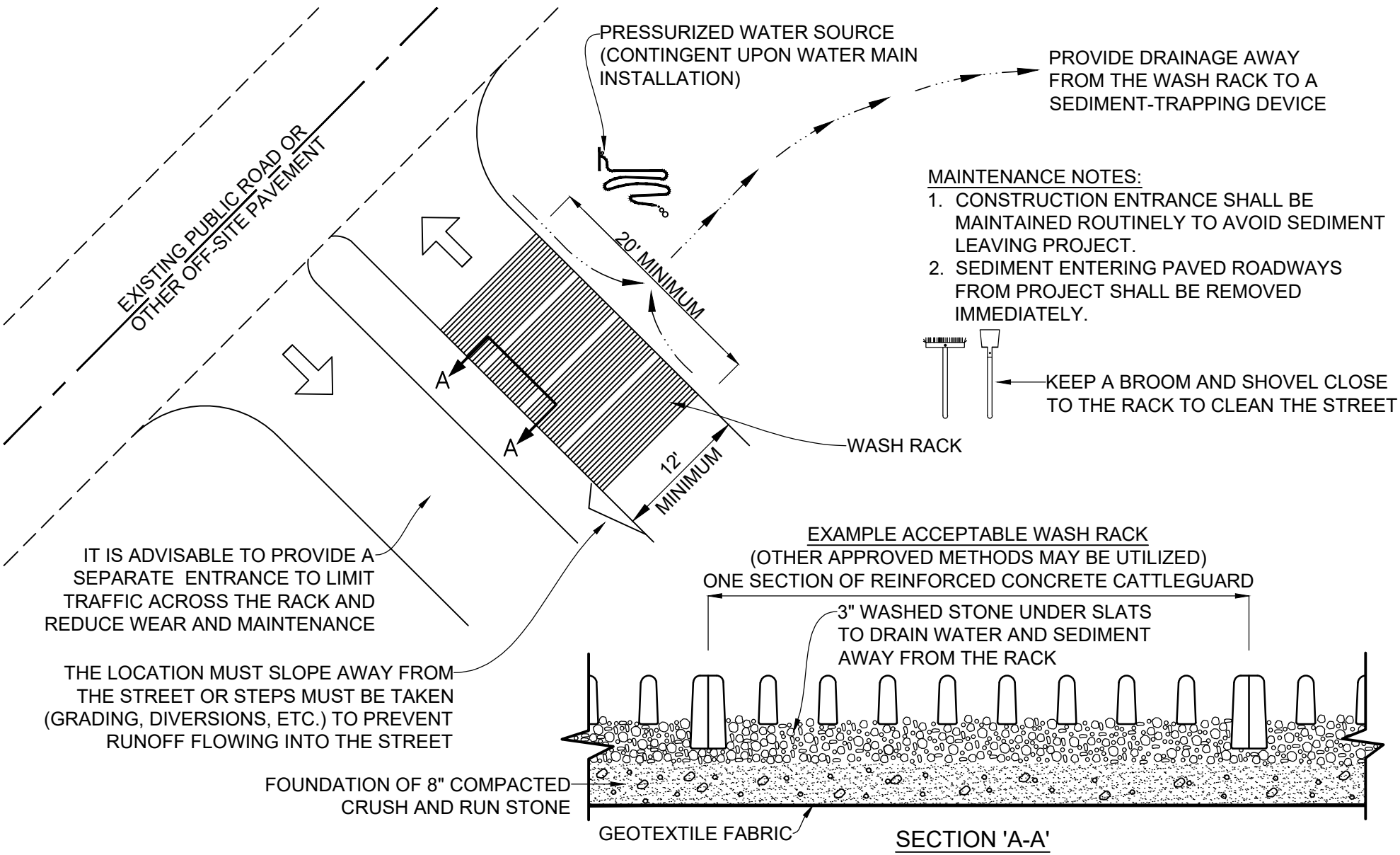
EFFECTIVE: JUNE 11, 2024

CONSTRUCTION ENTRANCE

STD. NO.

400.06

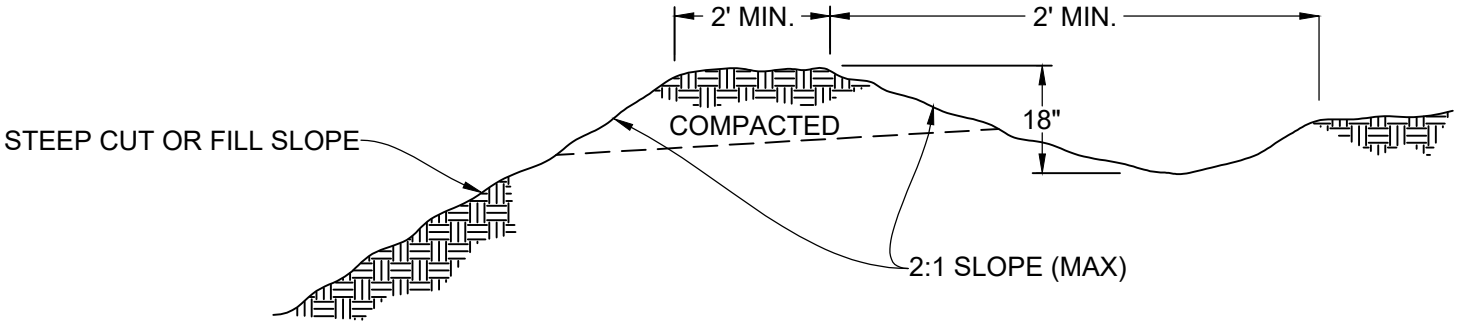
SHEET 1 OF 2



TOWN OF APEX STANDARDS	CONSTRUCTION ENTRANCE	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.06
		SHEET 2 OF 2

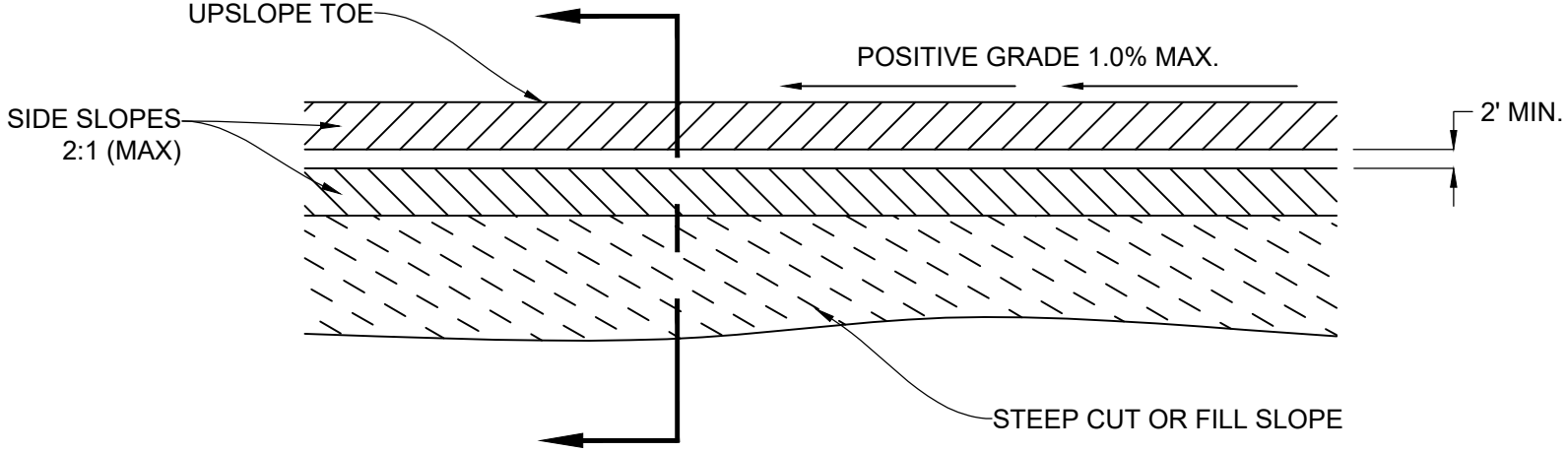
MAINTENANCE NOTES:

1. INSPECT DIVERSION DITCH WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS FOR EROSION AND GRASS ESTABLISHMENT. REPAIR EROSION, REMOVE SEDIMENT, AND RESTABILIZE DITCH AS NEEDED TO MAINTAIN THE DESIGNED CARRYING CAPACITY.
2. CHECK DAMS, WATTLES, OR OTHER APPROVED MEASURE MUST BE INSTALLED WITHIN DITCH, AND MAINTAINED AS NEEDED.



CROSS SECTION

GENERAL NOTE: STABILIZE DIVERSION DITCH WITH TEMPORARY SEEDING AND EROSION CONTROL NETTING.



PLAN VIEW

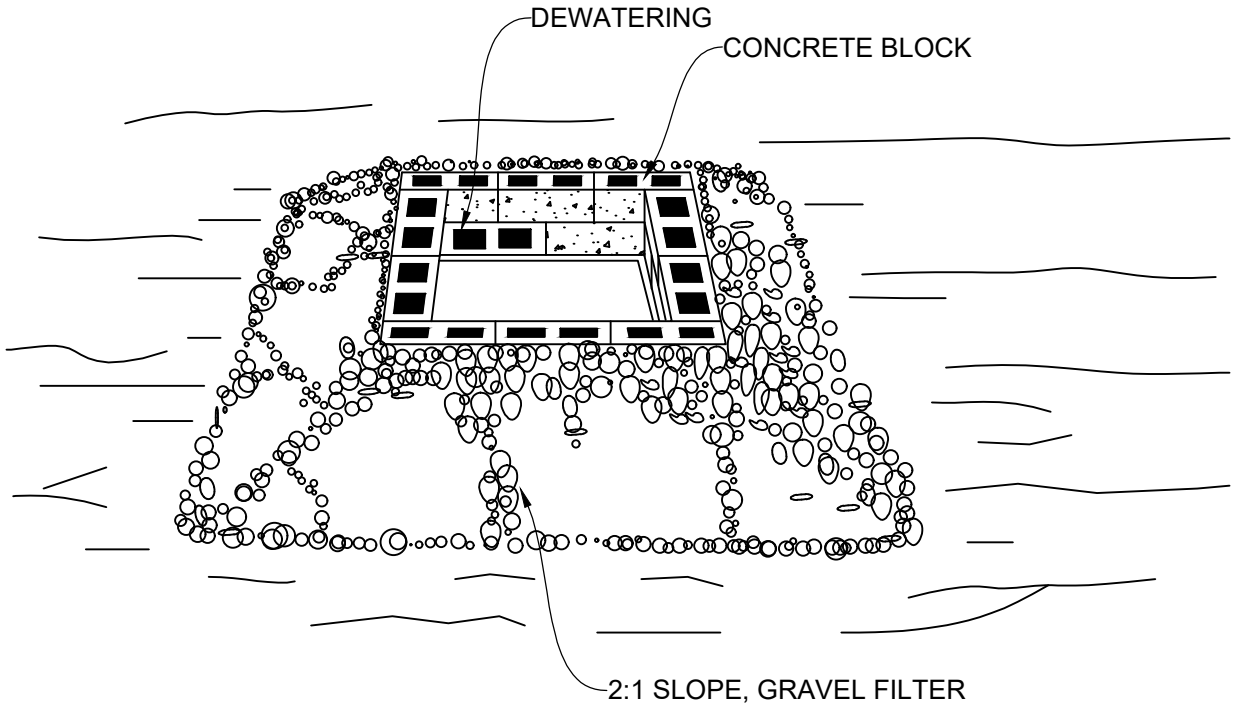
TOWN OF APEX STANDARDS	DIVERSION DITCH	STD. NO.
EFFECTIVE: JUNE 11, 2024	- Page 545 -	400.07
		SHEET 1 OF 1

GENERAL NOTES:

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE IN THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2" BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF BLOCKS AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2X4 WOOD STUDS THROUGH BLOCK OPENINGS.

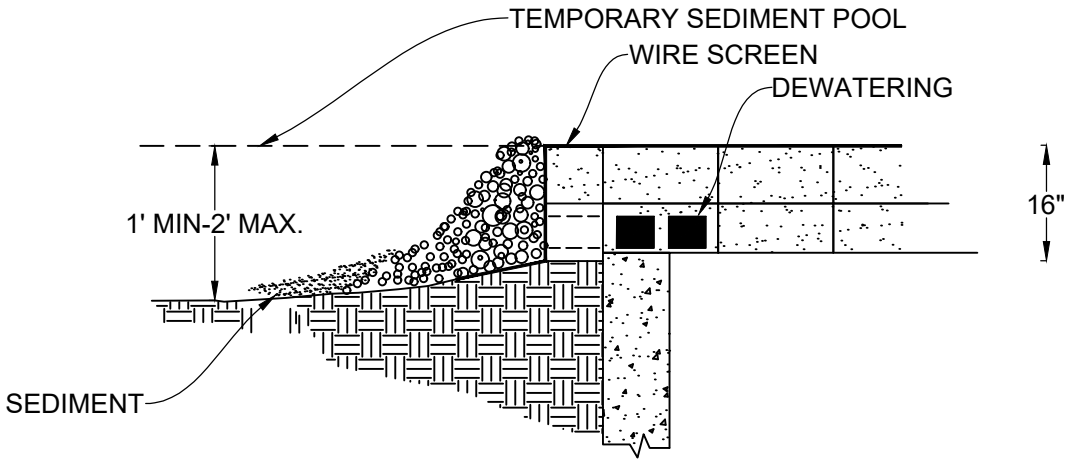
2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH $\frac{1}{2}$" OPENINGS OVER ALL BLOCK OPENINGS TO HOLD GRAVEL IN PLACE.

3. USE CLEAN GRAVEL, $\frac{3}{4}$"- $\frac{1}{2}$" IN DIAMETER, PLACED 2" BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. NCDOT #57 WASHED STONE IS RECOMMENDED.



MAINTENANCE NOTES:

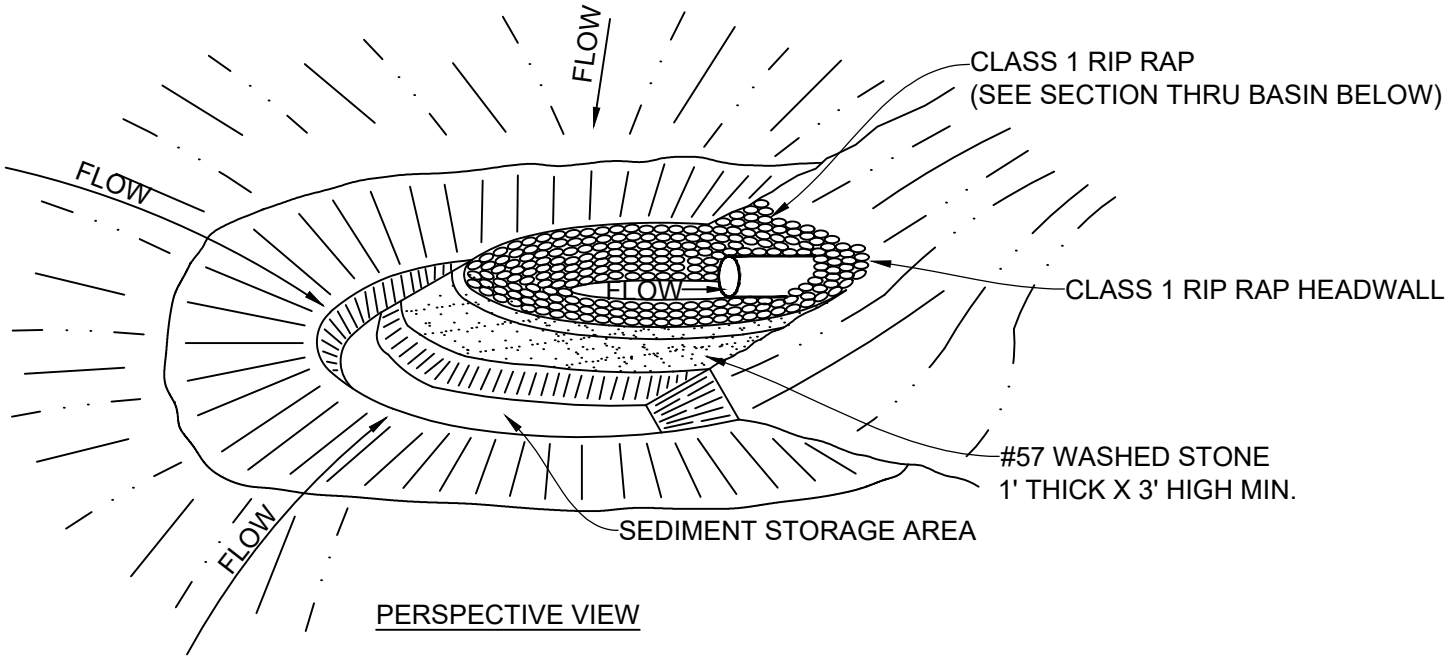
1. REMOVE SEDIMENT AS NEEDED TO PROVIDE ADEQUATE STORAGE VOLUME FOR SUBSEQUENT RAINS.
2. REFRESH OR REPLACE STONE AS NEEDED.



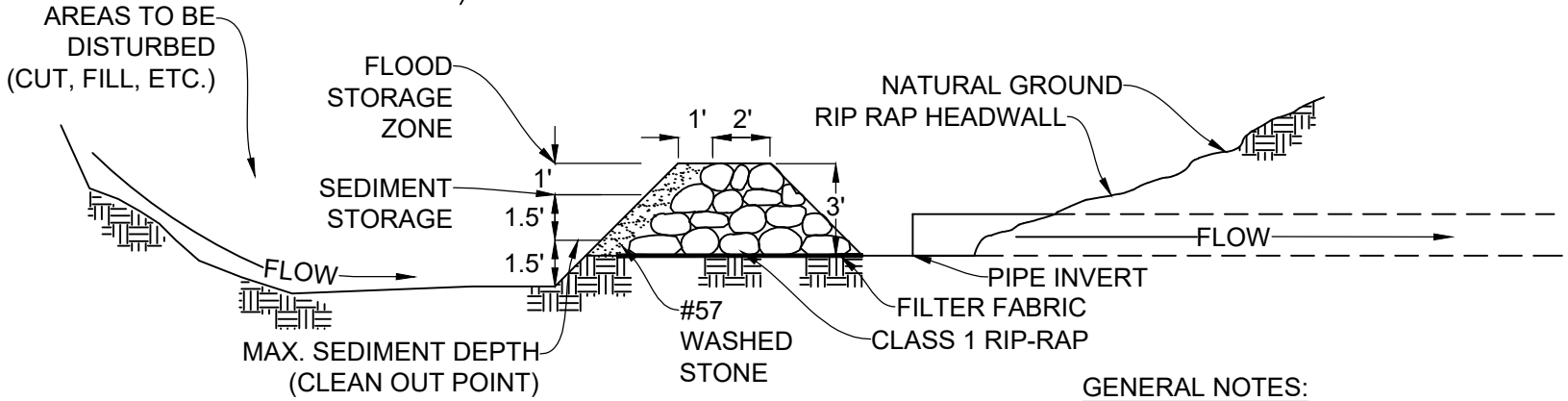
TOWN OF APEX STANDARDS	BLOCK & GRAVEL DROP INLET PROTECTION	STD. NO. 400.08
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

MAINTENANCE NOTES:

1. REMOVE SEDIMENT AND RESTORE STORAGE AREA WHEN SEDIMENT HAS ACCUMULATED TO $\frac{1}{2}$ DESIGN DEPTH OF TRAP.
2. REPLACE STONE AS NEEDED TO RESTORE TO INITIAL INSTALLATION CONDITIONS WHEN STONE BECOMES CLOGGED OR DISLODGED.



PERSPECTIVE VIEW



SECTION THRU BASIN, FILTER, & CULVERT PIPE

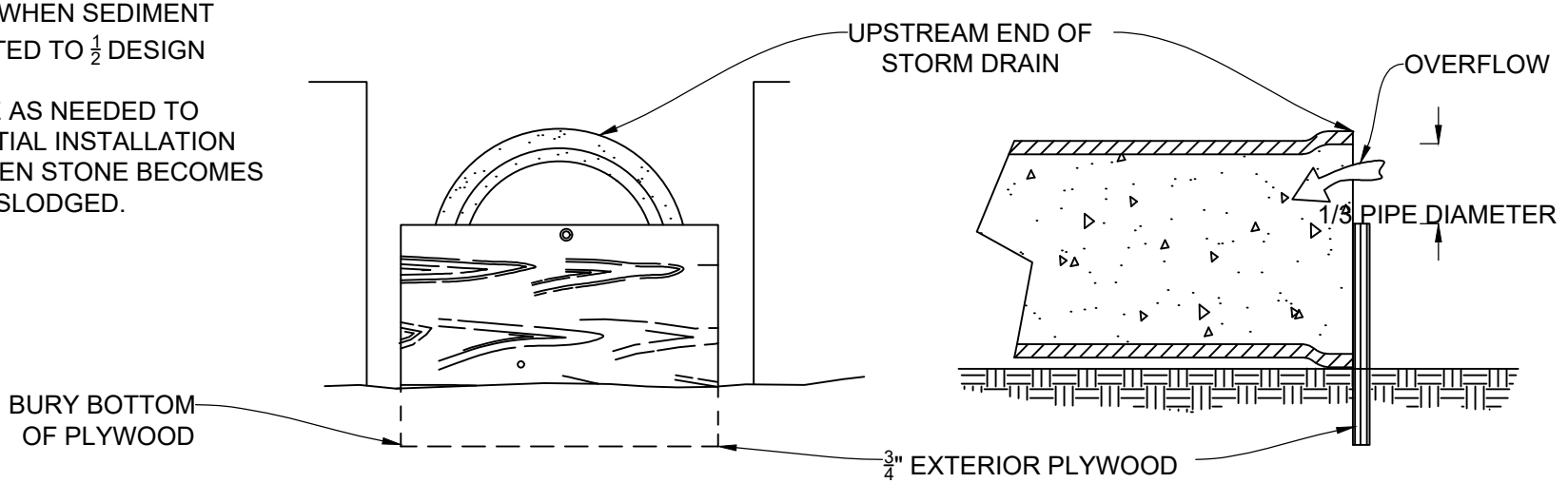
GENERAL NOTES:

1. GRAVEL & RIP RAP FILTER BERM BASIN DETAIL IS DESIGNED TO PROTECT EXISTING PIPE INVERTS THAT DRAIN 10 ACRES OR LESS.
2. DIMENSIONS ARE MINIMUM ACCEPTABLE UNLESS OTHERWISE NOTED.

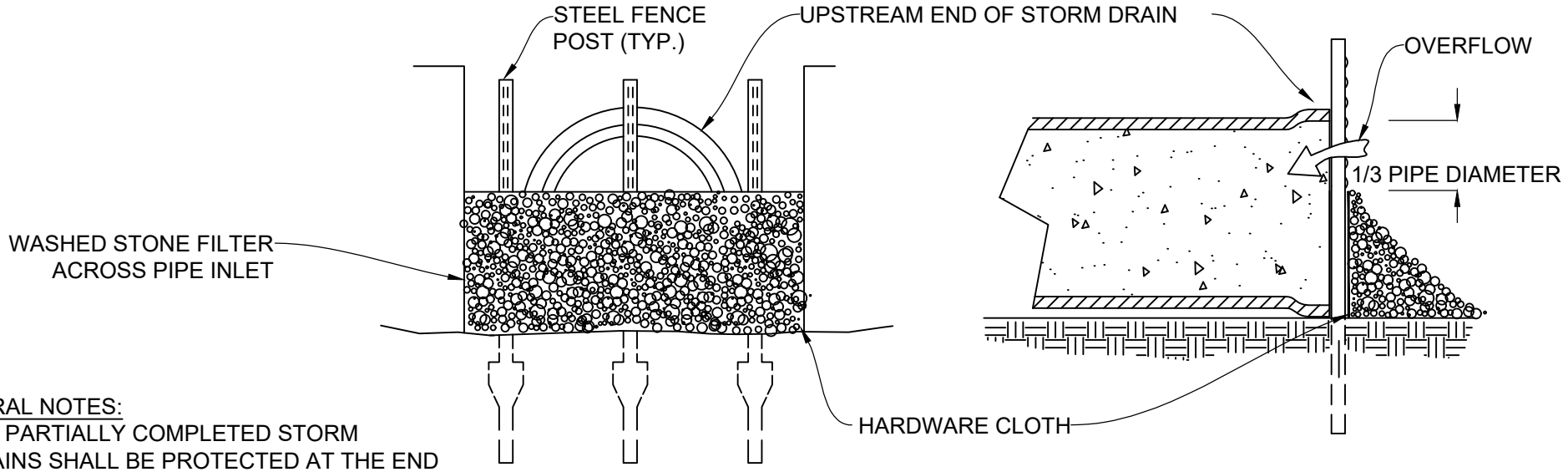
TOWN OF APEX STANDARDS	GRAVEL & RIP RAP HORSESHOE INLET BASIN FOR EX G PIPE INVERTS	STD. NO. 400.09
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

MAINTENANCE NOTES:

1. REMOVE SEDIMENT AND RESTORE STORAGE AREA WHEN SEDIMENT HAS ACCUMULATED TO $\frac{1}{2}$ DESIGN DEPTH OF TRAP.
2. REPLACE STONE AS NEEDED TO RESTORE TO INITIAL INSTALLATION CONDITIONS WHEN STONE BECOMES CLOGGED OR DISLODGED.



PLYWOOD INLET PROTECTION



STONE FILTER INLET PROTECTION

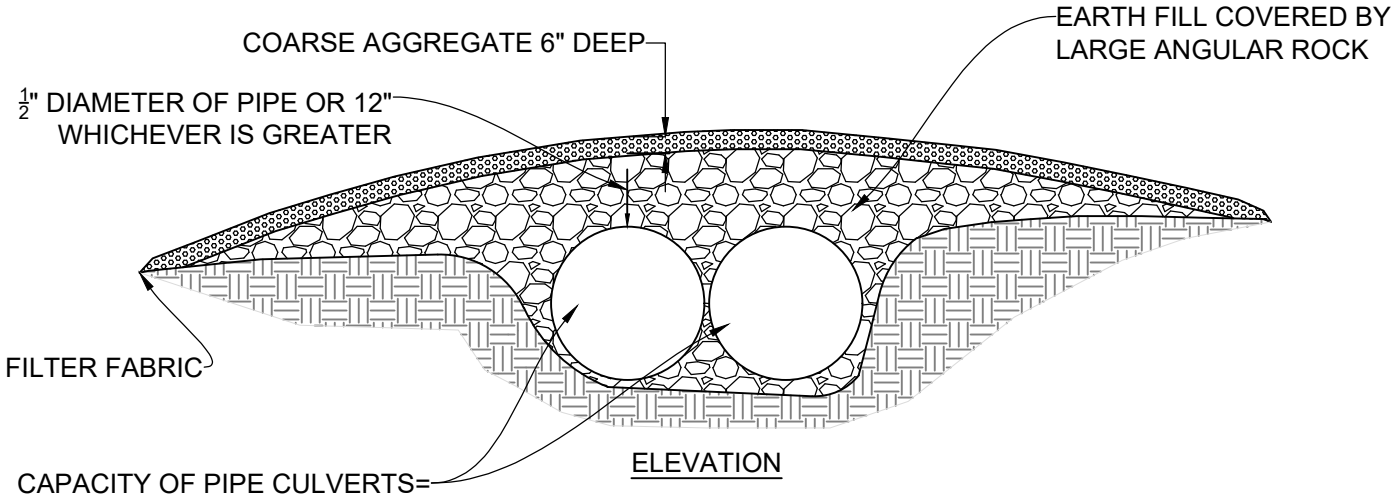
GENERAL NOTES:

1. ALL PARTIALLY COMPLETED STORM DRAINS SHALL BE PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THESE DETAILS.

TOWN OF APEX STANDARDS	PIPE INLET PROTECTION (PLYWOOD & STONE)	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.10
		SHEET 1 OF 1

MAINTENANCE NOTES:

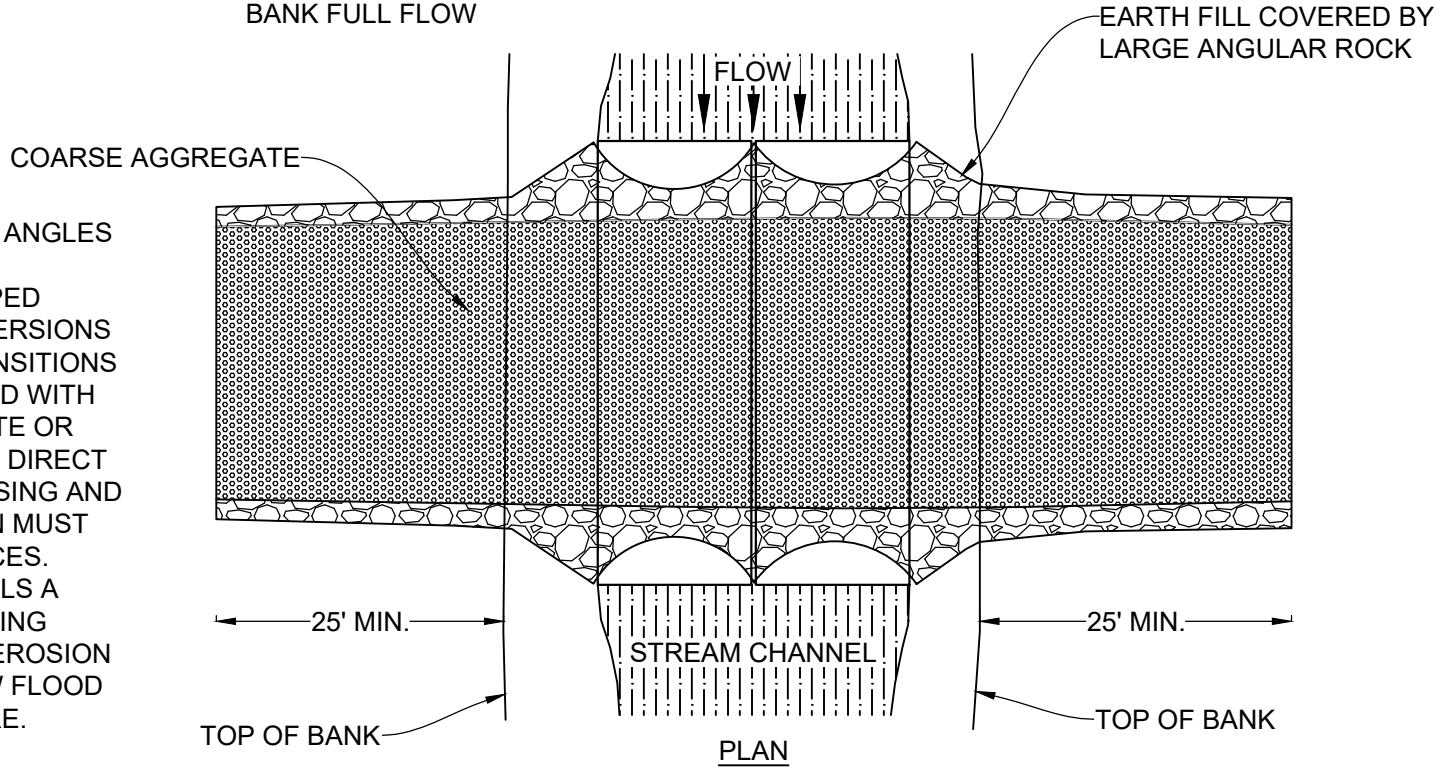
1. INSPECT TEMPORARY STREAM CROSSINGS WEEKLY AND AFTER RUNOFF-PRODUCING RAIN EVENTS TO CHECK FOR BLOCKAGE IN CHANNEL, EROSION OF ABUTMENTS, CHANNEL SCOUR, RIPRAP DISPLACEMENT, OR PIPING. REPAIR DEFICIENCIES IMMEDIATELY.
2. REPLACE OR REFRESH COARSE AGGREGATE AS NEEDED TO RESTORE TO INITIAL INSTALLATION CONDITIONS WHEN STONE BECOMES CLOGGED OR DISLODGED.



ELEVATION

INSTALLATION NOTES:

1. KEEP STREAM CROSSINGS AT RIGHT ANGLES TO STREAMFLOW.
2. FOR STREAM CROSSINGS WITH SLOPED APPROACH AREAS, CONSTRUCT DIVERSIONS AT CROSSING/APPROACH AREA TRANSITIONS WITH 18" HIGH EARTH BERM COVERED WITH FILTER FABRIC & COARSE AGGREGATE OR STABILIZED DITCH/SWALE TO DIVERT DIRECT RUNOFF AWAY FROM STREAM CROSSING AND TO A STABILIZED OUTLET. DIVERSION MUST SPAN WIDTH OF CROSSING ENTRANCES.
3. RAISE ABUTMENTS AND CULVERT FILLS A MINIMUM OF 1 FT ABOVE THE ADJOINING APPROACH SECTIONS TO PREVENT EROSION FROM SURFACE RUNOFF AND ALLOW FLOOD FLOWS TO PASS AROUND STRUCTURE.

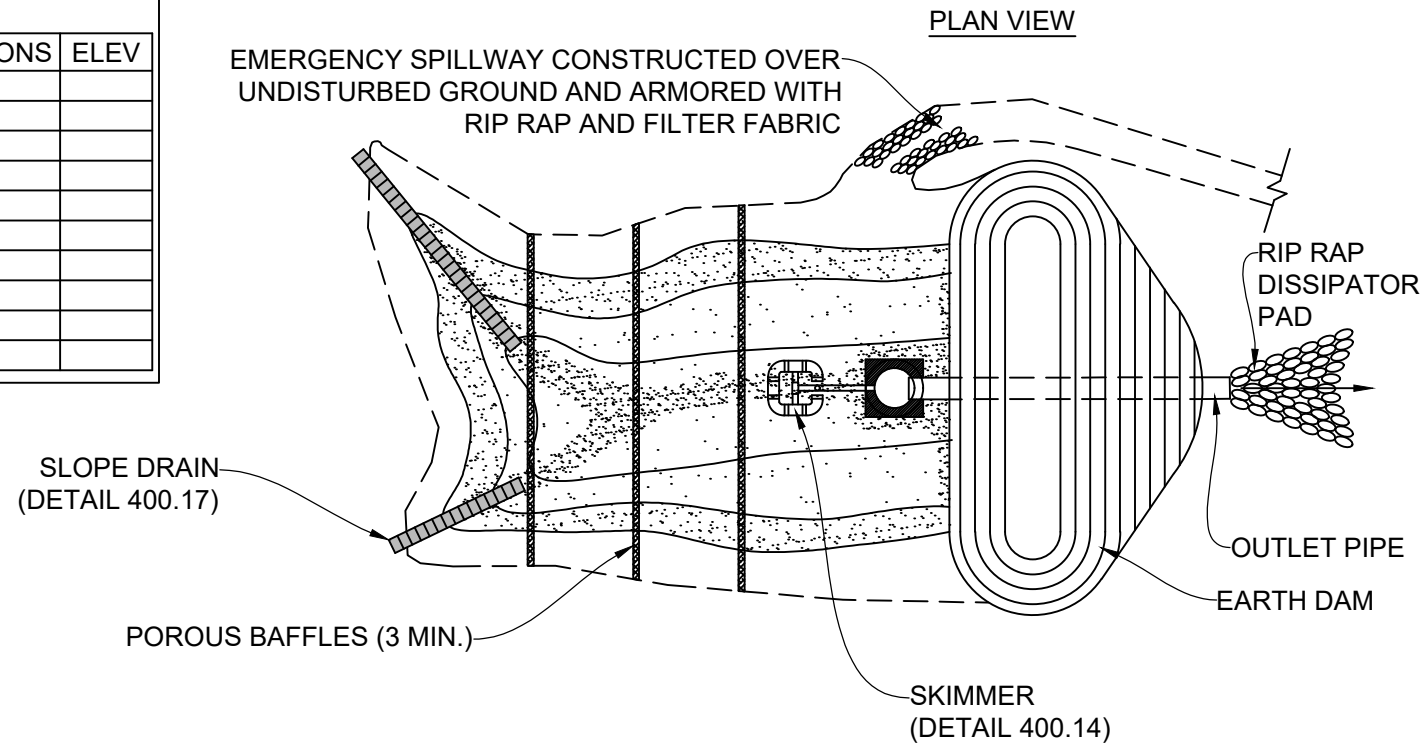


PLAN

TOWN OF APEX STANDARDS	TEMPORARY STREAM CROSSING	STD. NO. 400.11
EFFECTIVE: JUNE 11, 2024	- Page 549 -	SHEET 2 OF 2

DESIGN INFORMATION TO BE PROVIDED BY THE ENGINEER ON THE CONSTRUCTION DRAWINGS

	DIMENSIONS	ELEV
EMERGENCY SPILLWAY		
TOP OF DAM WIDTH		
ANTI-SEEP COLLAR		
RIP RAP DISSIPATOR PAD		
TOP OF RISER		
OUTLET PIPE INVERT IN		
OUTLET PIPE INVERT OUT		
ANTI-FLOATATION DEVICE		
SKIMMER SIZE		
ORIFICE SIZE		

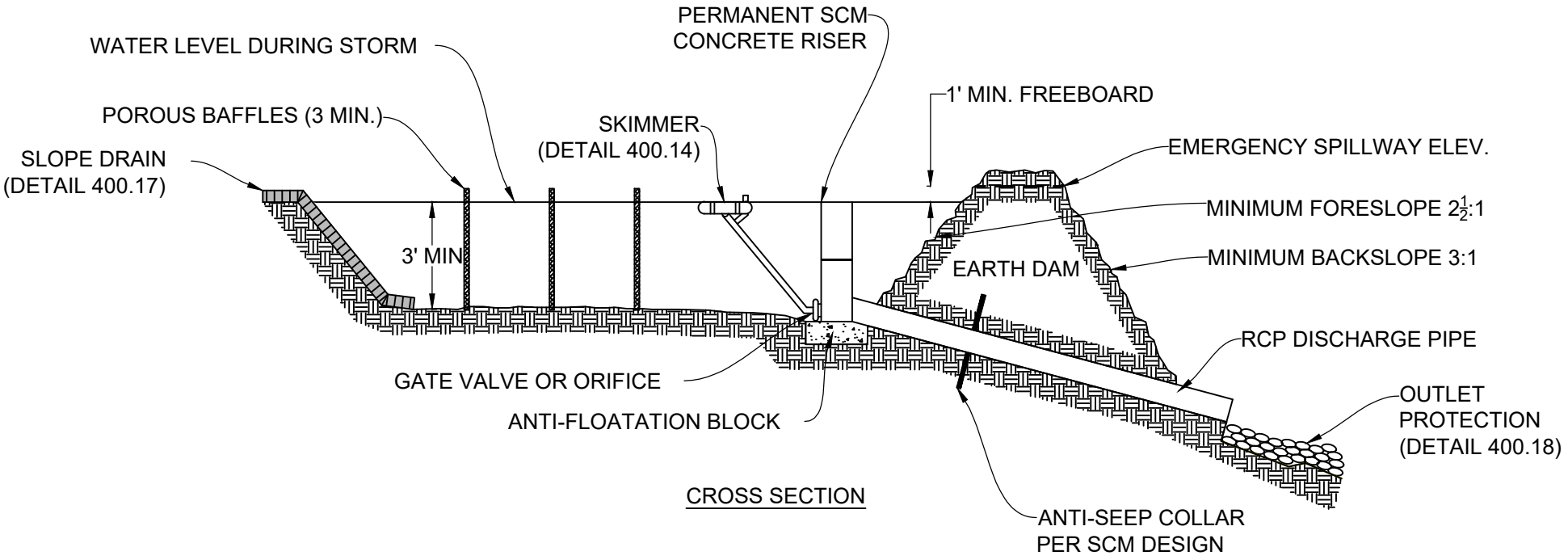


GENERAL NOTES:

1. SEDIMENT STORAGE: 3,600 CF/DISTURBED ACRE
2. SURFACE AREA : 435 SF/CFS FOR THE Q25
3. INSTALL SEDIMENT CLEANOUT ELEVATION STAKES.
4. BAFFLES SHALL INCLUDE 700 G/SM COIR EROSION BLANKET. WOOD POSTS ARE NOT ACCEPTABLE.
5. FLOW ENTERING THE BASIN MUST BE DIRECTED TO AVOID EROSION ALONG THE SLOPE AND SCOUR IN THE BASIN. APPROPRIATELY SIZED SLOPE DRAINS, PER STD. DETAIL 400.17, ARE RECOMMENDED.
6. THE PERMANENT SCM RISER STRUCTURE AND OUTLET PIPE WITH ANTI-SEEP COLLAR MUST BE INSTALLED DURING THE INITIAL SEDIMENT BASIN CONSTRUCTION. TEMPORARILY MODIFY PERMANENT RISER STRUCTURE AS NEEDED TO ATTAIN DESIGN SEDIMENT VOLUME AND DEPTH.
7. EARTH DAM SHALL BE STABILIZED WITH VEGETATION ACCORDING TO TOWN SPECIFICATIONS.

MAINTENANCE NOTES:

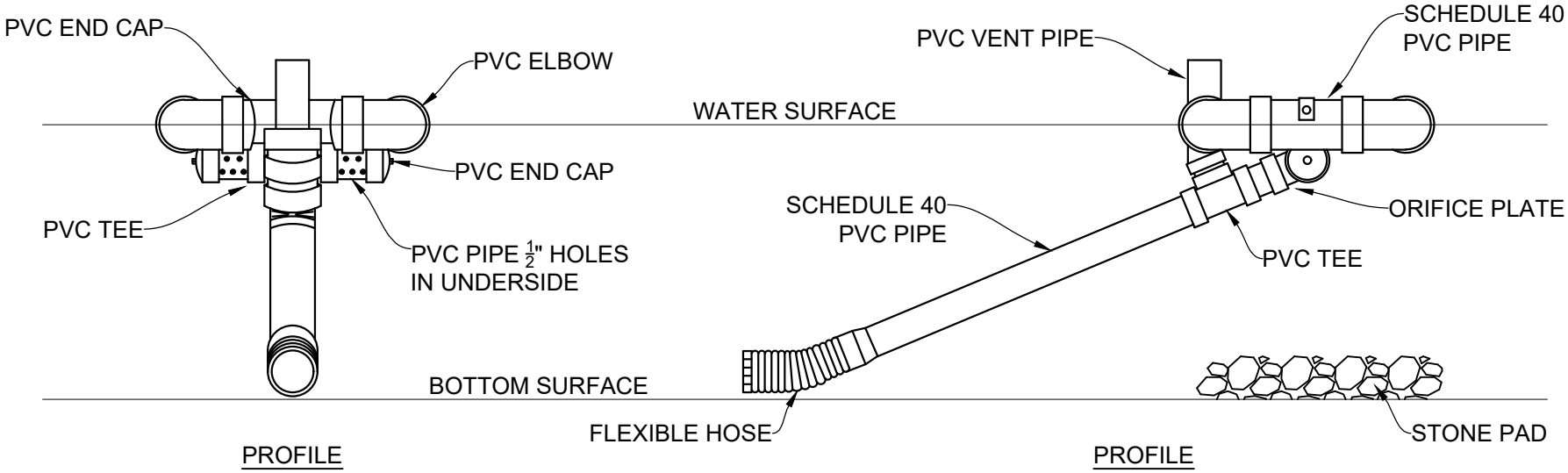
1. INSPECT SEDIMENT BASINS AND EMPTY SKIMMER OF ALL DEBRIS AFTER EACH PERIOD OF RUNOFF-PRODUCING RAINFALL. REMOVE SEDIMENT AND RESTORE BASIN TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE BASIN. PLACE THE SEDIMENT THAT HAS BEEN REMOVED IN A DESIGNATED DISPOSAL AREA. REPAIR AND/OR REPLACE BAFFLES.
2. CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.0 FOOT BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
3. FILTER BAG REQUIRED WHEN DEWATERING BASIN PER STD. DETAIL 400.22.

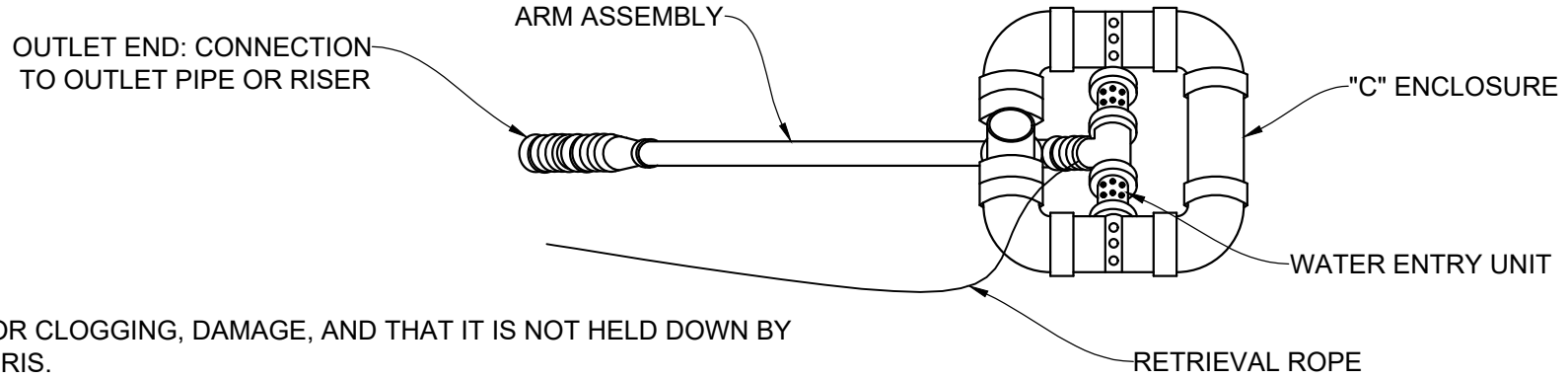


TOWN OF APEX STANDARDS	RISER BARREL SEDIMENT BASIN	STD. NO. 400.12
EFFECTIVE: JUNE 11, 2024	- Page 551 -	SHEET 2 OF 2

GENERAL NOTES:

1. SKIMMER SHOULD BE PLACED ON 4'X4' STONE PAD OF RIPRAP TO PREVENT STICKING.
2. ENSURE SKIMMER IS NOT INSTALLED UPSIDE DOWN.
3. ATTACH RETRIEVAL ROPE TO SKIMMER TO HELP MAINTAIN.
4. SKIMMER SHOULD RISE TO LEVEL OF WEIR HEIGHT IN TEMPORARY BASIN OR TO RISER INLET.
5. SKIMMER SHALL BE A DEVICE THAT DEWATERS FROM THE SURFACE OVER 2-5 DAYS.





MAINTENANCE NOTES:

1. INSPECT SKIMMER FOR CLOGGING, DAMAGE, AND THAT IT IS NOT HELD DOWN BY VEGETATION OR DEBRIS.
2. IF DEBRIS HAS CLOGGED SKIMMER, TUGGING ON RETRIEVAL ROPE WILL HELP DISLODGE. IF THIS DOES NOT WORK, DISASSEMBLE ORIFICE & REMOVE OBSTRUCTIONS. SKIMMER ARM & BARREL MAY NEED TO BE PLUMBED OR FLUSHED.

TOWN OF APEX STANDARDS	SKIMMER DETAIL	STD. NO.
EFFECTIVE: JUNE 11, 2024	- Page 552 -	400.14
		SHEET 1 OF 1

GENERAL NOTES:

1. TO BE USED WHERE EXCESSIVE STORMWATER VELOCITIES PROHIBIT VEGETATIVE LININGS AND WHEREVER STORMWATER OUTFALLS OVERLAP SEWER EASEMENTS.

2. STONE SIZE, TRENCH DEPTH, AND OVERALL WIDTH PER DESIGN.

3. FILTER FABRIC MUST BE INSTALLED BETWEEN RIPRAP AND SOIL FOUNDATION.

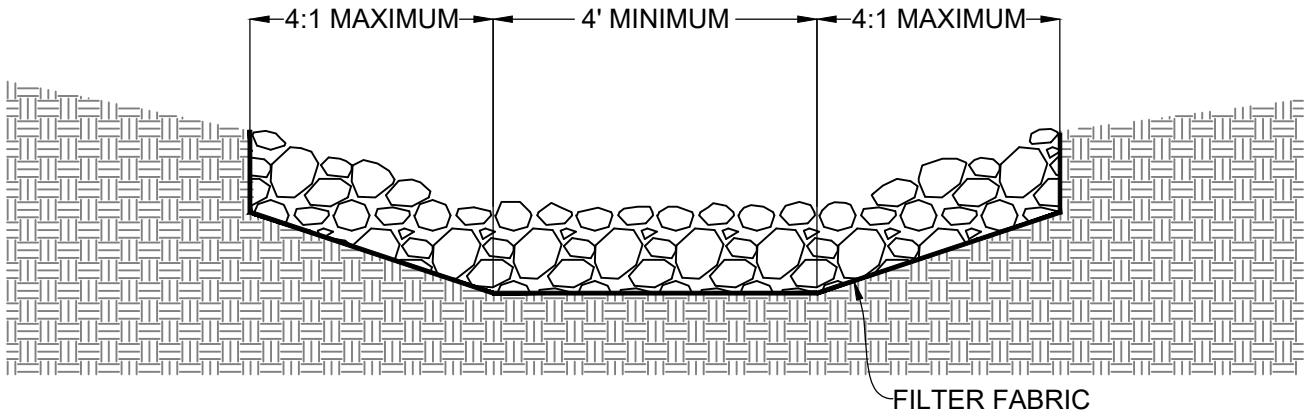
4. RIP RAP SHALL EMBEDDED IN THE CHANNEL CUT, NOT SIMPLY PLACED ON TOP OF EXISTING GROUND.

MAINTENANCE NOTES:

1. INSPECT RIP RAP CHANNEL WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIP RAP HAS OCCURRED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

2. IF EROSION IS EVIDENT PAST END OF RIPRAP CHANNEL DUE TO RUNOFF DISCHARGING FROM CHANNEL, INCREASE DIMENSIONS OF RIP RAP PAD PROVIDED SPACE IS AVAILABLE WITH THE APPROVED LIMITS OF DISTURBANCE.

3. MAINTAIN ALL VEGETATION ADJACENT TO CHANNEL IN A HEALTHY, VIGOROUS CONDITION TO PROTECT CHANNEL FROM EROSION AND SCOUR DURING OUT-OF-BANK FLOW.



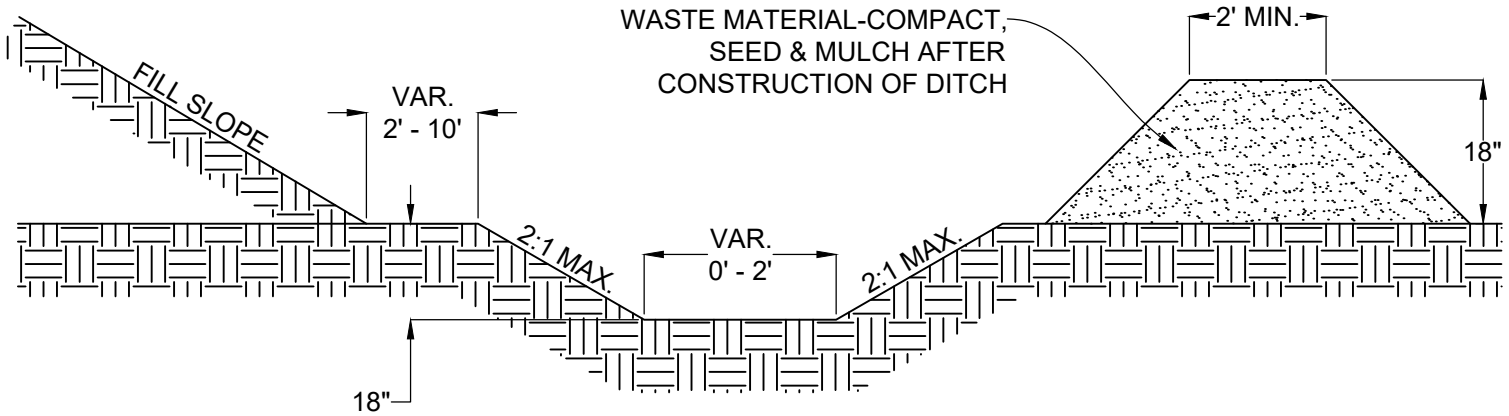
TOWN OF APEX STANDARDS	RIP RA[Page 553]ED CHANNELS	STD. NO. 400.15
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

GENERAL NOTES:

1. TEMPORARY SILT DITCH TO BE USED WHERE TOE OF FILL SLOPES EXCEEDS 3 FEET IN VERTICAL HEIGHT AND ALONG STREAMS TO INTERCEPT FLOW AND/OR DIVERT TO A CONTROLLED OUTLET.

MAINTENANCE NOTES:

1. INSPECT DITCH WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS.
2. SILT SHALL BE REMOVED WHEN SILT DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.



CROSS SECTIONAL VIEW

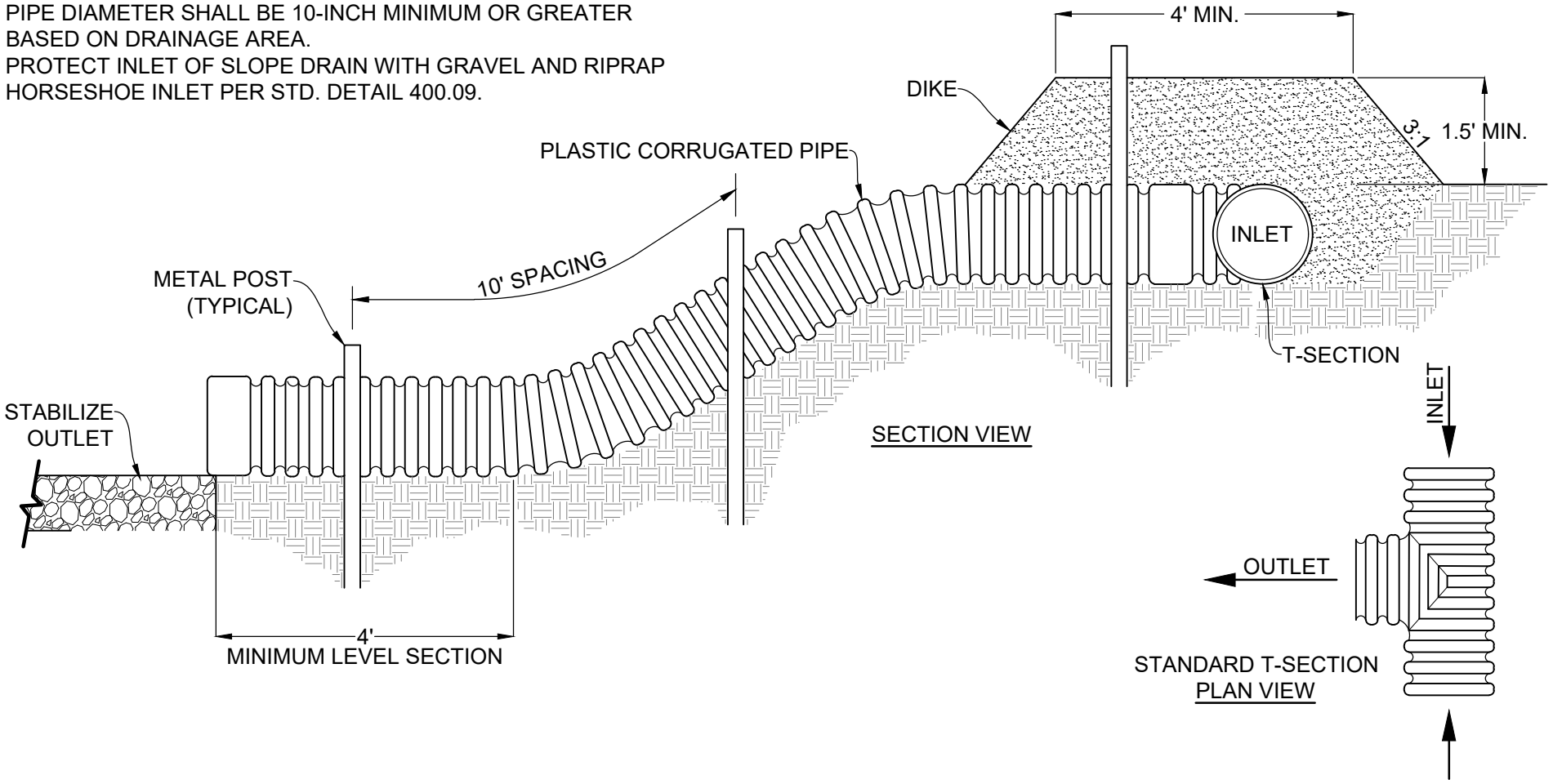
TOWN OF APEX STANDARDS	TEMPORARY SILT DITCH	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.16
		SHEET 1 OF 1

GENERAL NOTES:

1. CONSTRUCT AN EARTHEN DIVERSION WITH A DIKE RIDGE TO DIRECT SURFACE RUNOFF INTO THE TEMPORARY SLOPE DRAIN.
2. MAKE THE HEIGHT OF THE RIDGE OVER THE DRAIN CONDUIT A MINIMUM OF 1.5 FEET AND AT LEAST 6 INCHES HIGHER THAN THE ADJOINING RIDGE ON EITHER SIDE.
3. THE LOWEST POINT OF THE DIVERSION RIDGE SHOULD BE A MINIMUM OF 1 FOOT ABOVE THE TOP OF THE DRAIN TO ALLOW THE DESIGN FLOW TO FREELY ENTER THE PIPE.
4. PROTECT THE OUTLET OF THE SLOPE DRAIN FROM EROSION.
5. PIPE DIAMETER SHALL BE 10-INCH MINIMUM OR GREATER BASED ON DRAINAGE AREA.
6. PROTECT INLET OF SLOPE DRAIN WITH GRAVEL AND RIPRAP HORSESHOE INLET PER STD. DETAIL 400.09.

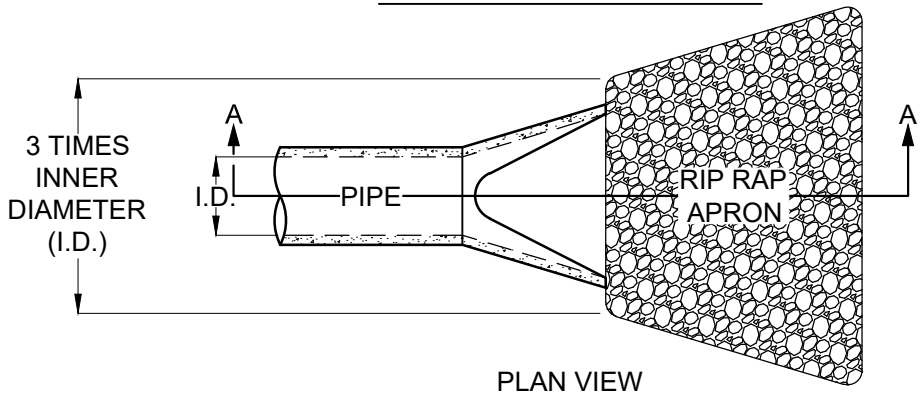
MAINTENANCE NOTES:

1. INSPECT DITCH WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS.
2. REMOVE SEDIMENT FROM INLET PROTECTION OF SLOPE DRAIN WHEN SEDIMENT IS HALF HEIGHT OF PROTECTION.
3. MAINTAIN OUTLET PROTECTION THROUGHOUT CONSTRUCTION AND REPAIR EROSION ALONG SLOPE DRAIN.

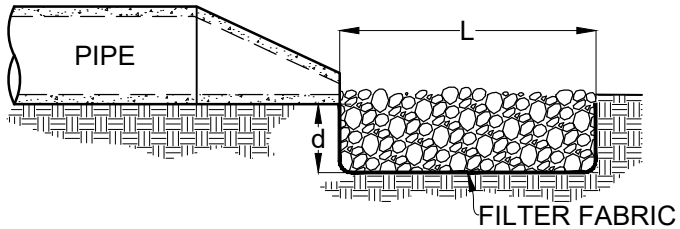


TOWN OF APEX STANDARDS	TEMPORARY SLOPE DRAIN	STD. NO. 400.17
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

PIPE OUTLET TO FLAT AREA
NO WELL-DEFINED CHANNEL

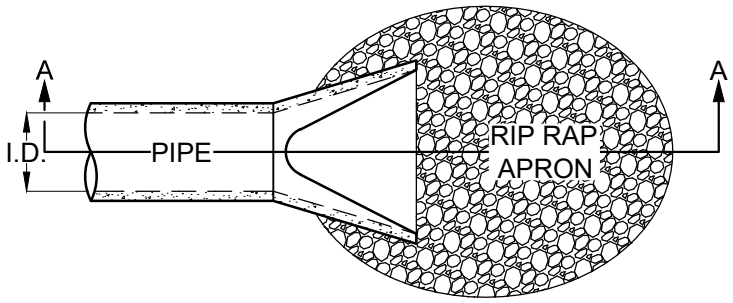


PLAN VIEW

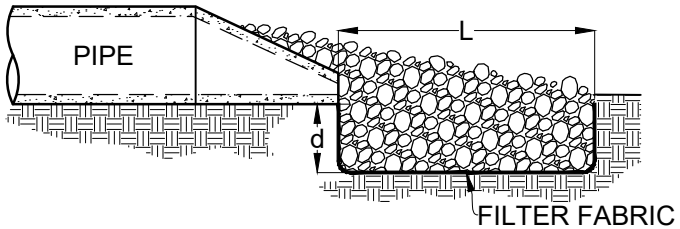


SECTION 'A-A'

PIPE OUTLET TO WELL-DEFINED CHANNEL



PLAN VIEW



SECTION 'A-A'

GENERAL NOTES:

1. L = THE LENGTH OF THE RIPRAP APRON
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 12 INCHES
3. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP RAP AND SOIL FOUNDATION.
4. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO 6 INCHES ABOVE THE MAXIMUM TAILWATER DEPTH OR THE TOP OF THE BANK, WHICHEVER IS LESS.

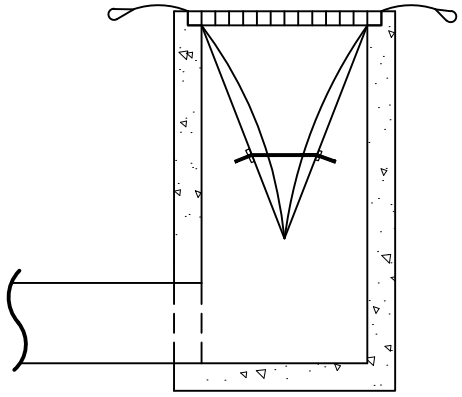
MAINTENANCE NOTES:

1. INSPECT OUTLET WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS OCCURRED, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

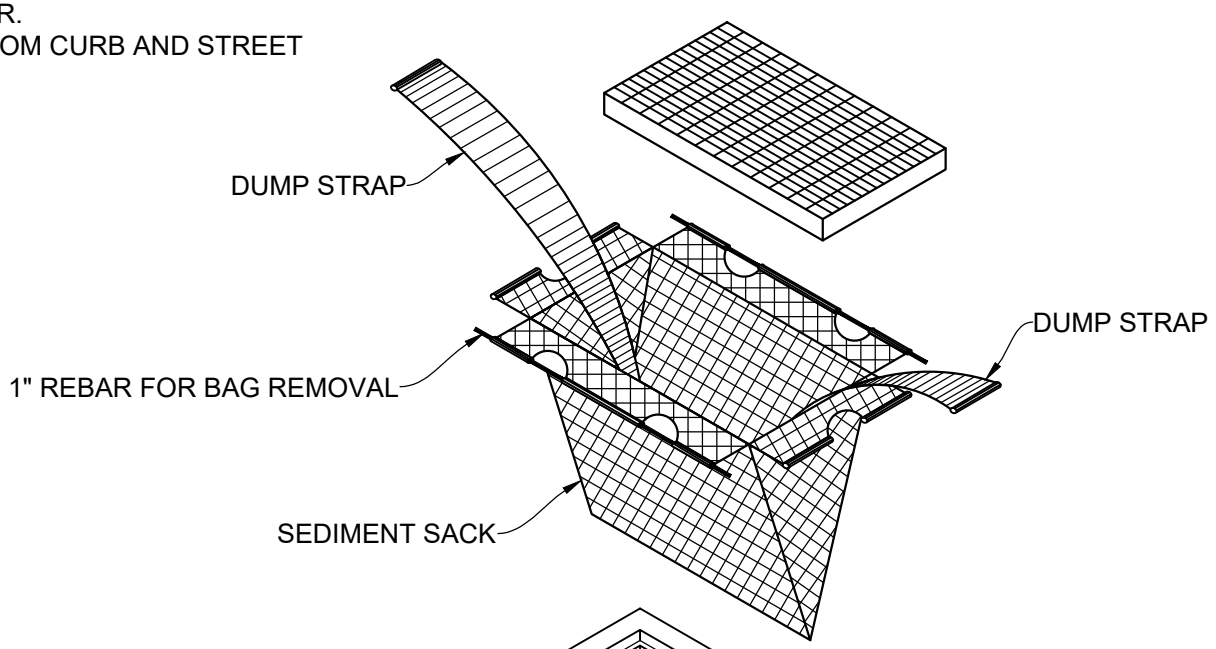
TOWN OF APEX STANDARDS	PIPE OUTLET	STD. NO. 400.18
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

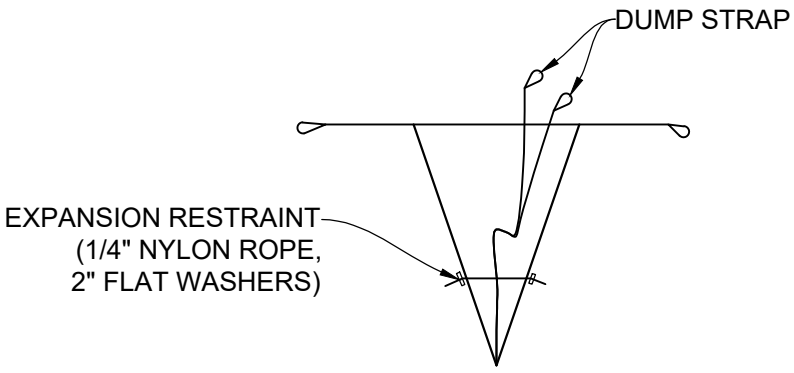
MAINTENANCE NOTES:

1. INSPECT OUTLET WEEKLY AND AFTER RUNOFF-PRODUCING EVENTS.
2. REMOVE SEDIMENT FROM SACK WHEN HALF FULL
3. REPLACE SACK IF TEARS OR HOLES OCCUR.
4. PERFORM SEDIMENT/DEBRIS REMOVAL FROM CURB AND STREET AFTER RAIN EVENTS.

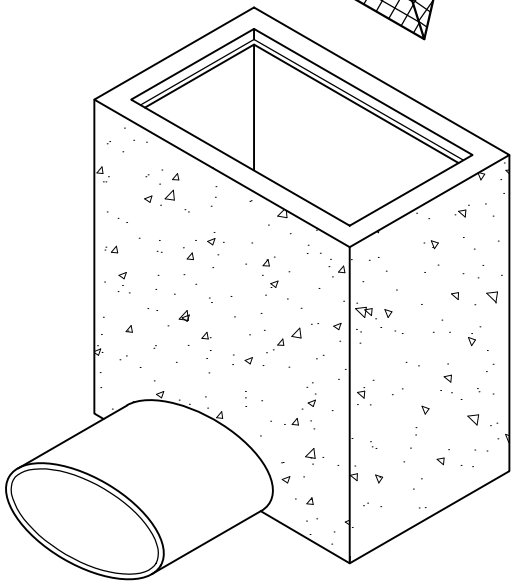


INSTALLATION DETAIL

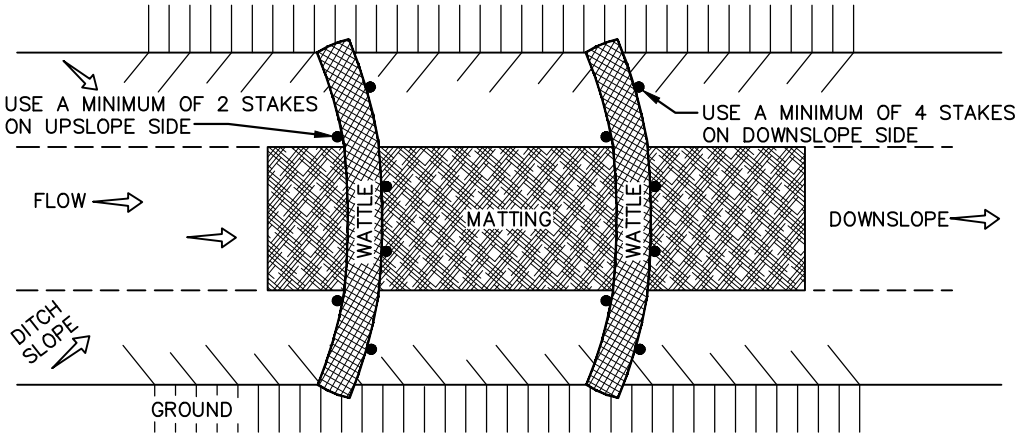




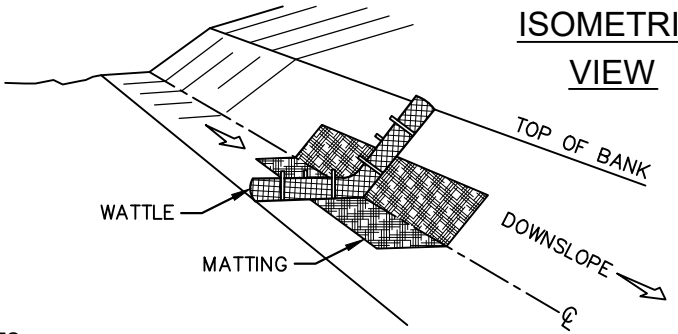
BAG DETAIL



TOWN OF APEX STANDARDS	INLET SEDIMENT CONTROL DEVICE	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.19
		SHEET 1 OF 1



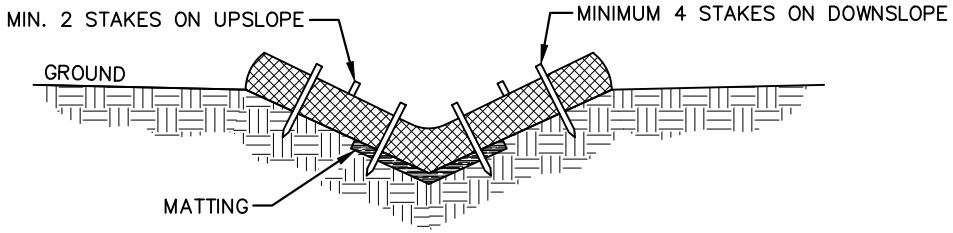
PLAN VIEW



ISOMETRIC VIEW

GENERAL NOTES:

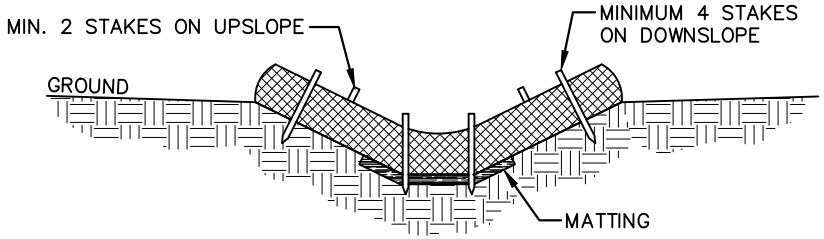
1. USE A MINIMUM 12-INCH DIAMETER EXCELSIOR WATTLE.
2. USE 24-INCH LONG WOODEN STAKES WITH A 2"x2" NOMINAL CROSS SECTION.
3. INSTALL WATTLE(S) TO A HEIGHT ON SLOPE SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR SLOPES, OR AS DIRECTED.
4. INSTALL A MINIMUM OF TWO UPSLOPE STAKES AND FOUR DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND AT BOTTOM.
5. PROVIDE STAPLES MADE OF 0.125-INCH DIAMETER STEEL WIRE FORMED INTO A U-SHAPE NOT LESS THAN 12 INCHES IN LENGTH.
6. INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
7. AFTER INSTALLATION OF STAPLES, CHINK ANY GAPS BETWEEN WATTLE AND GROUND WITH MATTING.



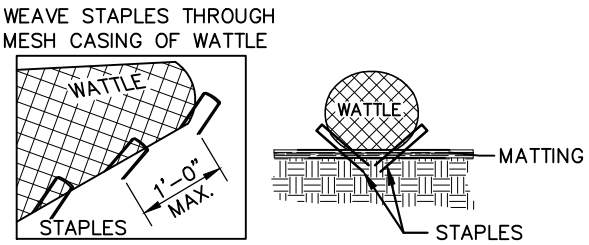
V-DITCH SECTION VIEW

MAINTENANCE NOTES:

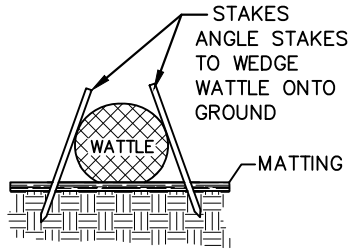
1. REMOVE SEDIMENT WHEN AT HALF HEIGHT OF WATTLE.
2. CORRECT DEFICIENCIES IF EROSION OCCURS AROUND EDGES OF WATTLE.
3. REPAIR OR REPLACE WATTLES AS NEEDED.



TRAPEZOIDAL DITCH SECTION VIEW

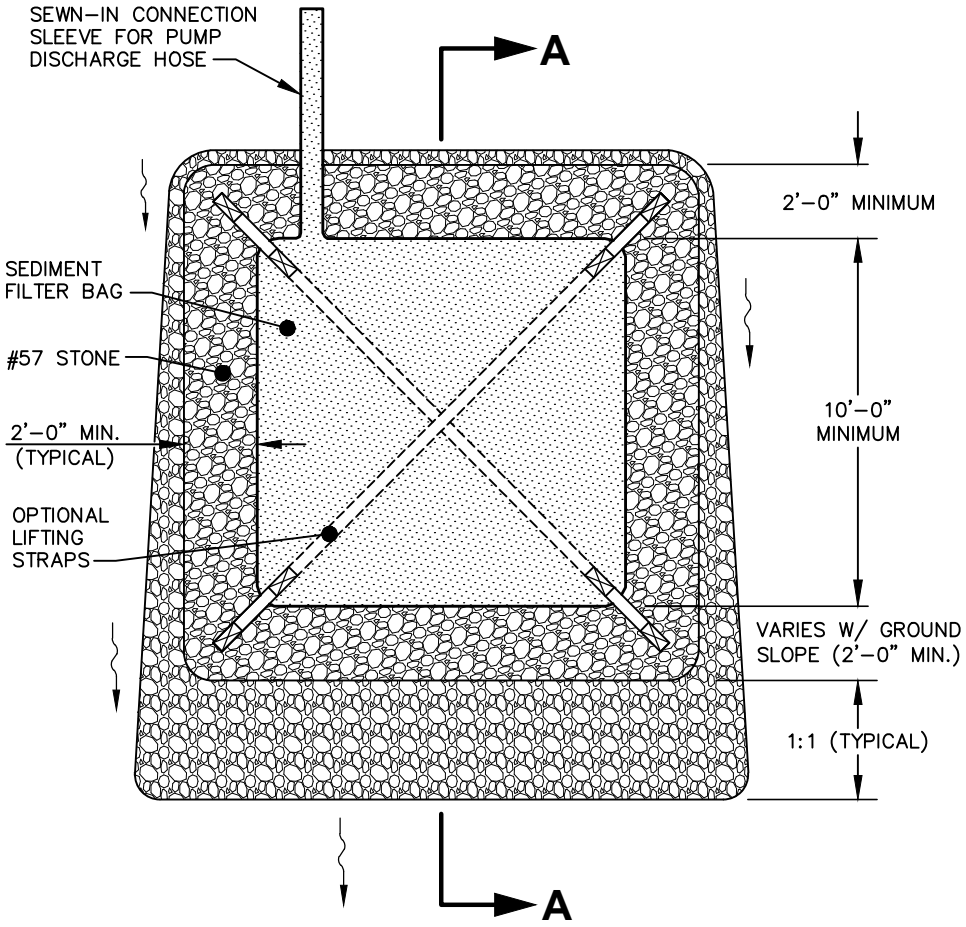


STAPLE INSTALLMENT SECTIONS

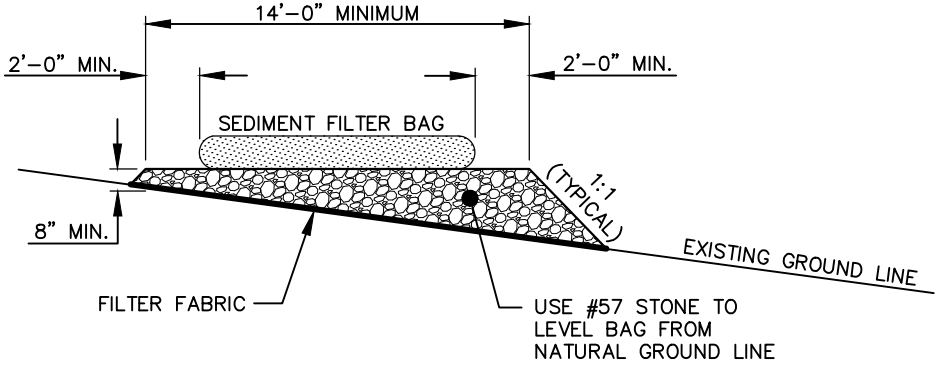


STAKE INSTALLMENT CROSS SECTION

TOWN OF APEX STANDARDS	WATTLE	STD. NO.
EFFECTIVE: JUNE 11, 2024	- Page 558 -	400.21
		SHEET 1 OF 1



PLAN VIEW



SECTION A-A

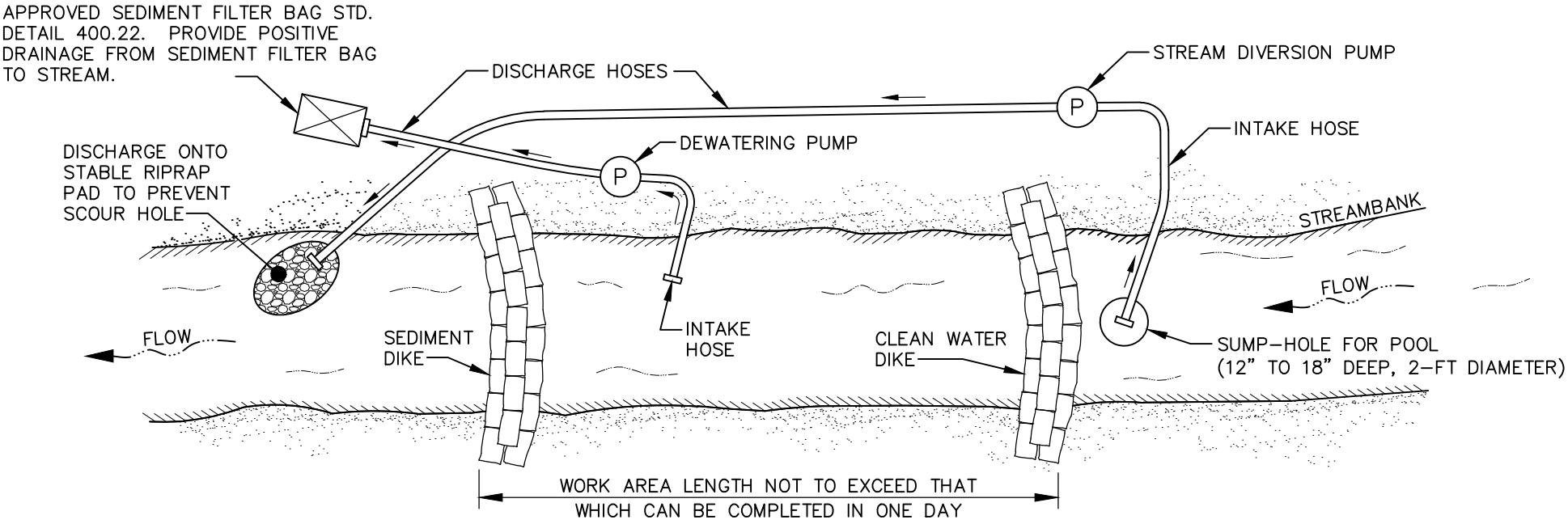
GENERAL NOTES:

1. CONTRACTOR SHALL EXERCISE CAUTION NOT TO BURST OR DAMAGE THE SEDIMENT FILTER BAG WHEN PUMPING.
2. THE LENGTH AND WIDTH OF THE TEMPORARY SEDIMENT BAG SHOWN ON THIS DRAWING MAY VARY PER VENDOR SPECIFICATIONS. THE MINIMUM "FOOTPRINT" OF THE BAG SHALL BE 10 x 15 FEET.
3. SEDIMENT FILTER BAGS SHALL BE EQUIPPED WITH A SEWN-IN SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MINIMUM 4-INCH DIAMETER PUMP DISCHARGE HOSE. THE DISCHARGE HOSE SHOULD BE EXTENDED INTO THIS SLEEVE A MINIMUM OF 6 INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE. HOSE CONNECTION THROUGH A SLIT IN THE BAG WILL NOT BE ACCEPTABLE.
4. THE PUMP DISCHARGE HOSE CONNECTION SLEEVE SHALL BE SECURELY TIED OFF DURING DISPOSAL OF THE SEDIMENT FILTER BAG IN ORDER TO PREVENT LEAKAGE OF COLLECTED SEDIMENTS.
5. SEDIMENT FILTER BAG MUST BE LOCATED INSIDE THE APPROVED LIMITS OF DISTURBANCE.

MAINTENANCE NOTES:

1. SEDIMENT FILTER BAG SHALL BE MAINTAINED AND REPLACED WHEN ONE HALF FULL OF SEDIMENT OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2. INSPECT FILTER BAG AND GRAVEL PAD DAILY.

TOWN OF APEX STANDARDS	FILTER BAG WITH GRAVEL PAD	STD. NO.
EFFECTIVE: JUNE 11, 2024	- Page 559 -	400.22
		SHEET 1 OF 1



MAINTENANCE NOTES:

1. INITIAL SETUP OF BYPASS PUMPING SHOULD BE PERFORMED WHEN 3-4 DAYS OF DRY WEATHER IS FORECASTED.
2. INSPECT STREAM DIVERSION DAILY. CORRECT ANY DEFICIENCIES IMMEDIATELY.
3. AREAS ADJACENT TO WORK AREA SHOULD BE STABILIZED.

TEMPORARY PUMP AROUND SEQUENCE

1. SET UP PUMP WITH SUCTION AND DISCHARGE HOSE.
2. INSTALL UP-STREAM SANDBAG DAM.
3. INSTALL DOWN-STREAM SANDBAG DAM.
4. THE PUMP MUST RUN CONTINUOUSLY WHILE WORKING IN THE STREAM.
5. STREAM BANKS MUST BE STABILIZED AT THE END OF EACH DAY.

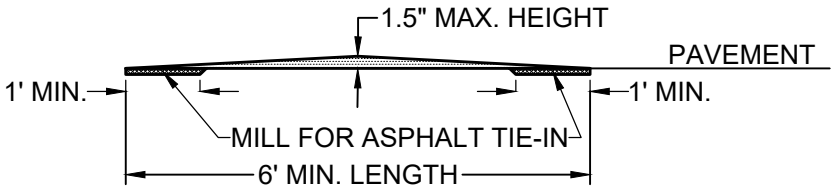
GENERAL NOTES:

1. DIKES SHALL BE SITUATED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE WORK AREA, AND STREAM FLOW SHALL BE PUMPED AROUND THE WORK AREA. THE PUMP SHOULD DISCHARGE ONTO A STABLE VELOCITY DISSIPATER CONSTRUCTED OF RIPRAP OR SANDBAGS.
2. WATER FROM THE WORK AREA SHALL BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A SEDIMENT BAG OR OTHER APPROVED DEVICE. THE MEASURE SHALL BE LOCATED SUCH THAT THE WATER DRAINS BACK INTO THE CHANNEL BELOW THE DOWNSTREAM SANDBAG DIKE WITHOUT CAUSING EROSION BETWEEN THE SEDIMENT FILTER BAG AND THE STREAM BANK.

TOWN OF APEX STANDARDS	TEMPORARY PUMP AROUND	STD. NO.
EFFECTIVE: JUNE 11, 2024		400.23
		SHEET 1 OF 1

GENERAL NOTES:

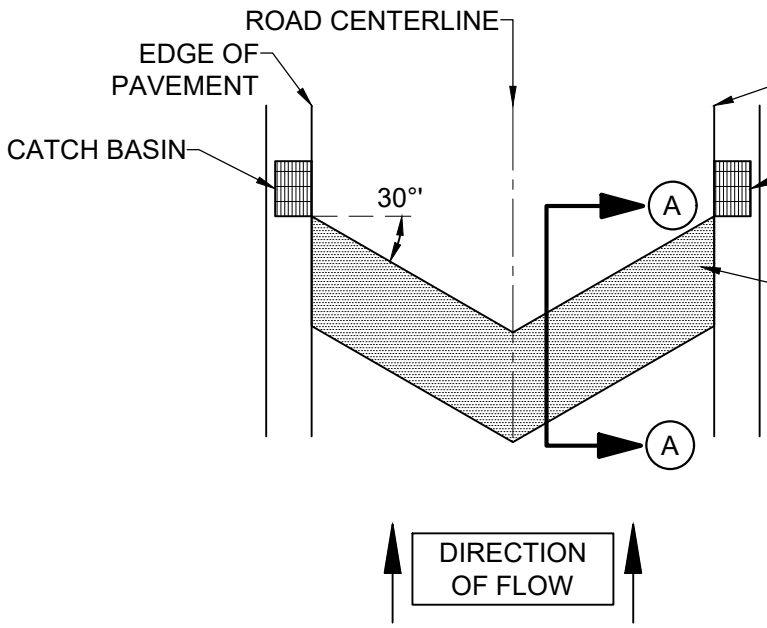
1. TEMPORARY ASPHALT DIVERSIONS SHALL BE INSTALLED IMMEDIATELY FOLLOWING INITIAL ASPHALT SURFACE LIFT IN LOCATIONS AS DIRECTED BY THE TOWN IN ORDER TO ACHIEVE POSITIVE DRAINAGE INTO STORM SYSTEM.
2. EXISTING ROADWAY SHALL BE CLEARED FREE OF ALL LOOSE DEBRIS; AREA TO BE PAVED SHALL BE COATED WITH TACK PRIOR TO PAVING OPERATIONS. COLD PATCH ASPHALT SHALL NOT BE USED.
3. DIVERSIONS SHALL BE REMOVED PRIOR TO PLACEMENT OF FINAL ASPHALT SURFACE LIFT.



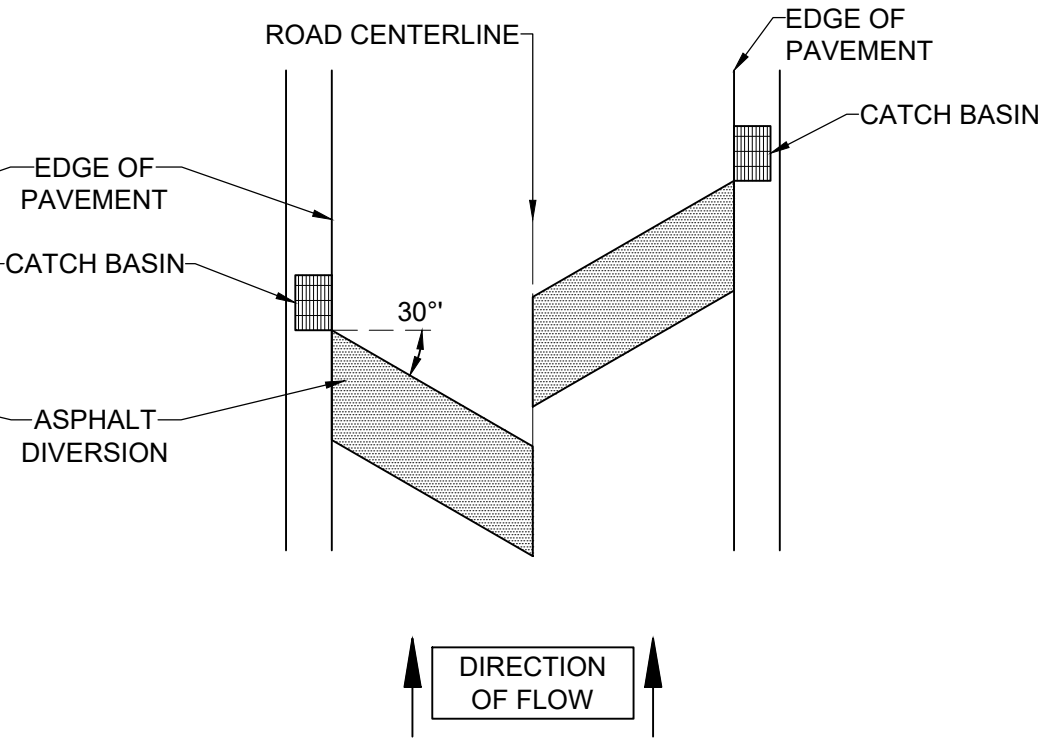
SECTION A-A

MAINTENANCE NOTES:

1. REMOVE ACCUMULATED SEDIMENT AS NEEDED.
2. REPAIR OR REPLACE AS NEEDED.

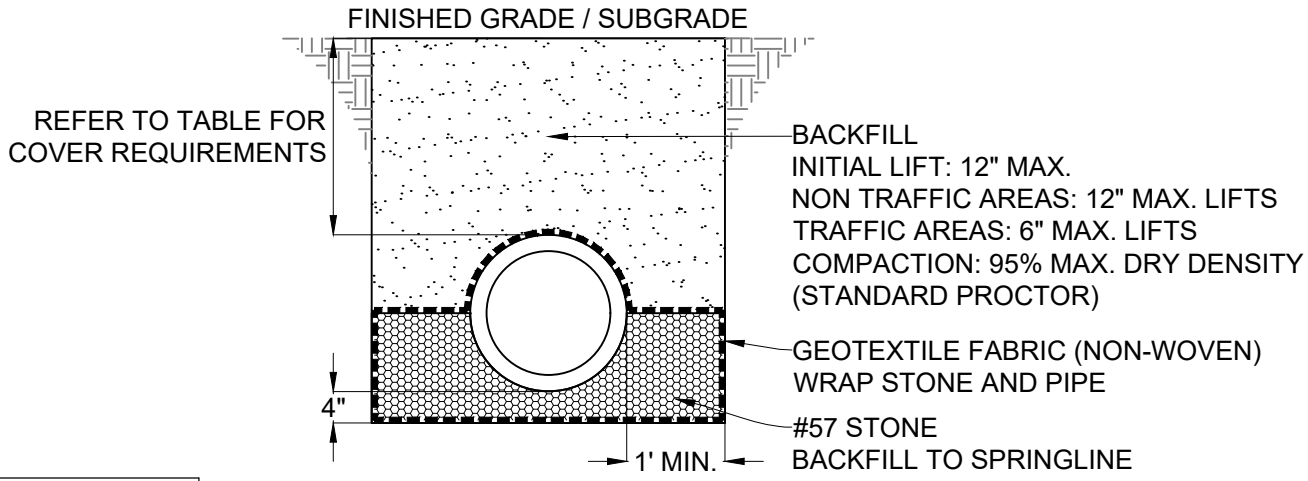


PLAN VIEW - CATCH BASINS ALIGNED



PLAN VIEW - CATCH BASINS OFFSET / ONE SIDE ONLY

TOWN OF APEX STANDARDS	TEMPORARY ASPHALT DIVERSION	STD. NO.
EFFECTIVE: JUNE 11, 2024	- Page 561 -	400.25
		SHEET 1 OF 1



	RCP	
CLASS	**MIN (ft)**	**MAX (ft)**
III	2	20
IV	1	30

	PP		CSP		CAAP	
Pipe Diameter (in)	**MIN (in)**	**MAX (ft)**	**MIN (in)**	**MAX (ft)**	**MIN (in)**	**MAX (ft)**
15	12	28	12	158	12	98
18	12	28	12	131	12	81
21			12	113	12	69
24	12	26	12	98	12	60
30	12	26	12	79	12	57
36	12	20	12	65	12	47
42	12	20	12	55	12	40
48	12	20	12	48	12	35
54			12	56	15	31
60	24	20	12	50	15	28

NOTES:

1. EXCAVATE TO 4 INCHES BELOW THE PROPOSED PIPE ELEVATION.
2. PROVIDE 4 INCHES STONE BEDDING AND STONE BACKFILL TO SPRINGLINE.
3. WHERE BELL AND SPIGOT PIPE IS USED, PROVIDE RECESSES TO RECEIVE PIPE BELL.
4. UNDERCUT UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER AND BACKFILL WITH STONE OR OTHER APPROVED MATERIAL.
5. BACKFILL MATERIAL SHALL BE APPROVED SUITABLE MATERIAL.
6. WHERE NECESSARY, TEMPORARILY DIVERT SURFACE WATER TO MAINTAIN A DRY CONDITION IN THE PIPE FOUNDATION. DIRECT THIS TEMPORARY FLOW INTO SUITABLE EROSION CONTROL DEVICES.

TOWN OF APEX STANDARDS

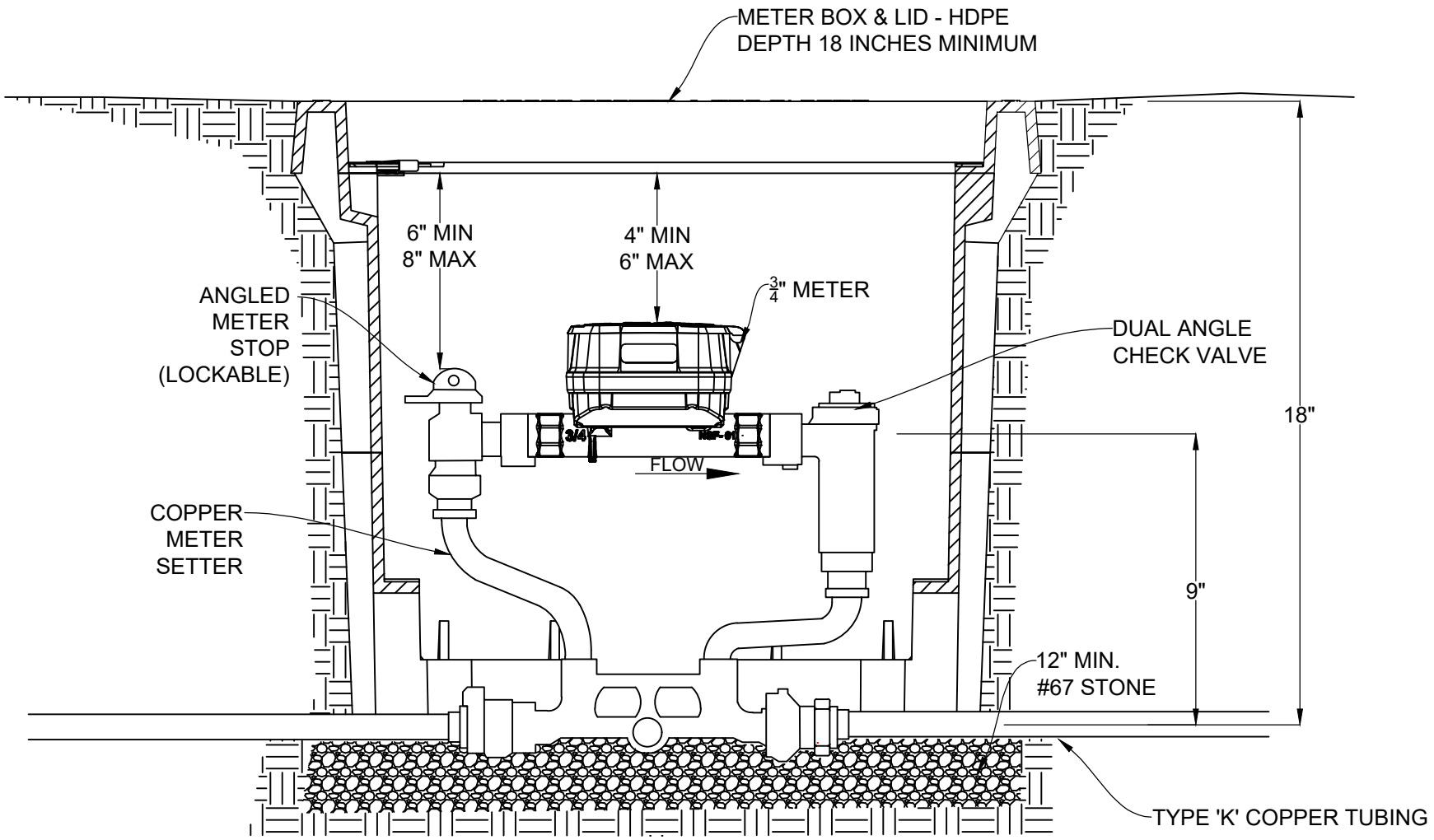
EFFECTIVE: JUNE 11, 2024

STORM DRAIN PIPE BEDDING & BACKFILLING

STD. NO.

500.09

SHEET 1 OF 1

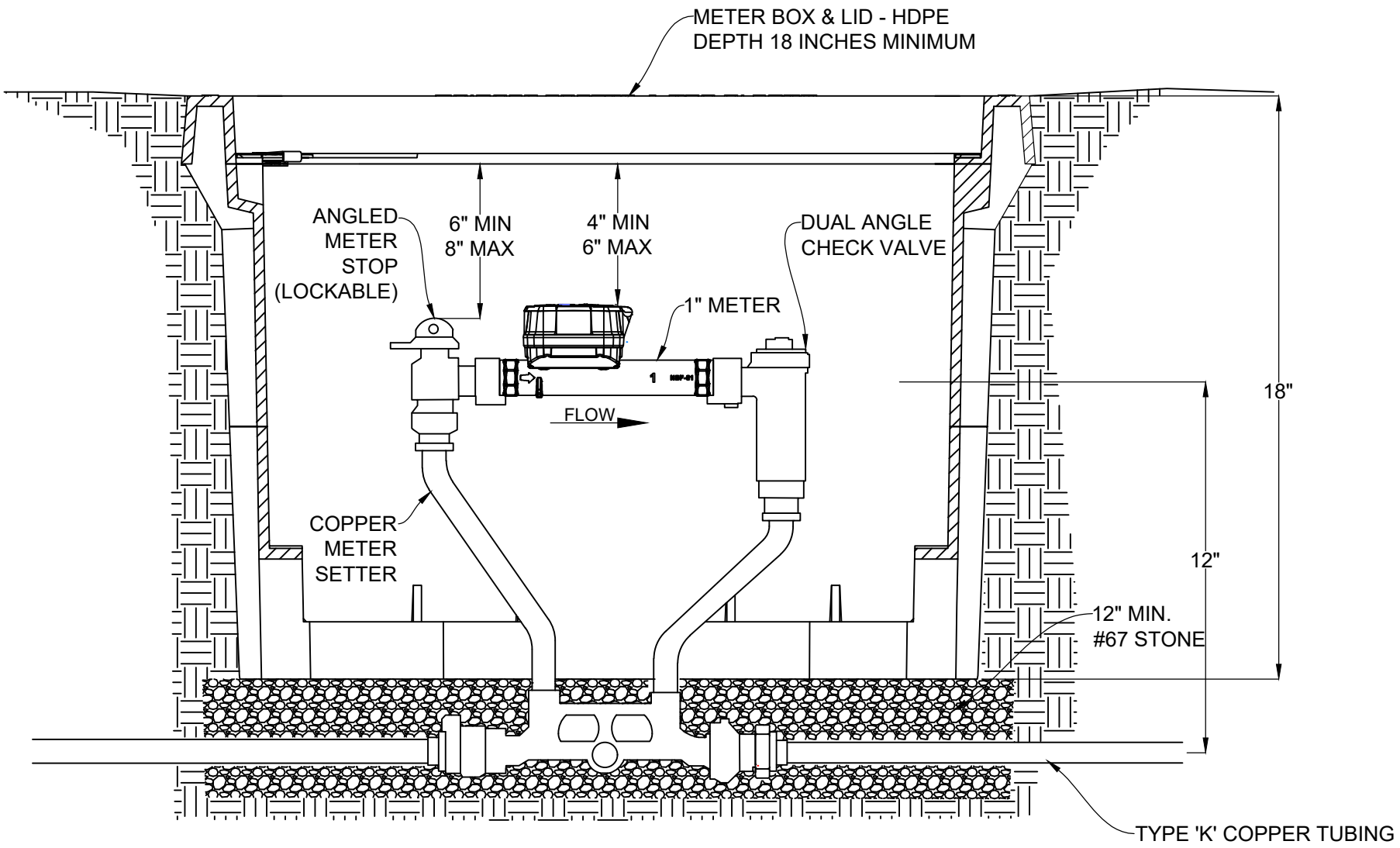


3/4" WATER SERVICE

NOTES:

1. SEE APPROVED MATERIAL LIST; SECTION 600.
2. METER BOX LID SHALL HAVE A 4-1/8 INCH DIAMETER RECESSED HOLE FOR TRANSMITTER.

TOWN OF APEX STANDARDS	3/4" & 1" WATER SERVICE & METER BOX	STD. NO. 600.01
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 3

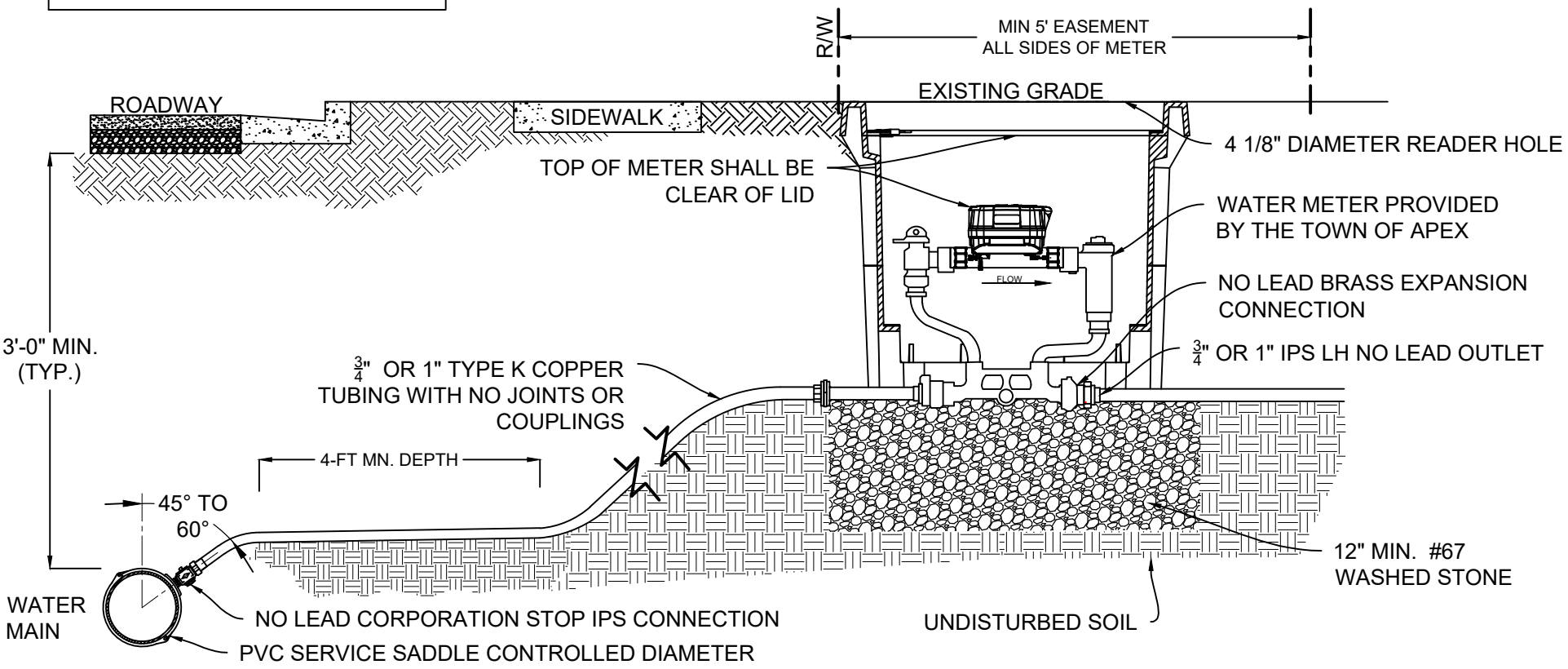


1" WATER SERVICE

NOTES:

1. SEE APPROVED MATERIAL LIST; SECTION 600.
2. METER BOX LID SHALL HAVE A 4-1/8 INCH DIAMETER RECESSED HOLE FOR TRANSMITTER

TOWN OF APEX STANDARDS	3/4" & 1" WATER SERVICE & METER BOX	STD. NO. 600.01
EFFECTIVE: JUNE 11, 2024		SHEET 2 OF 3



NOTES:

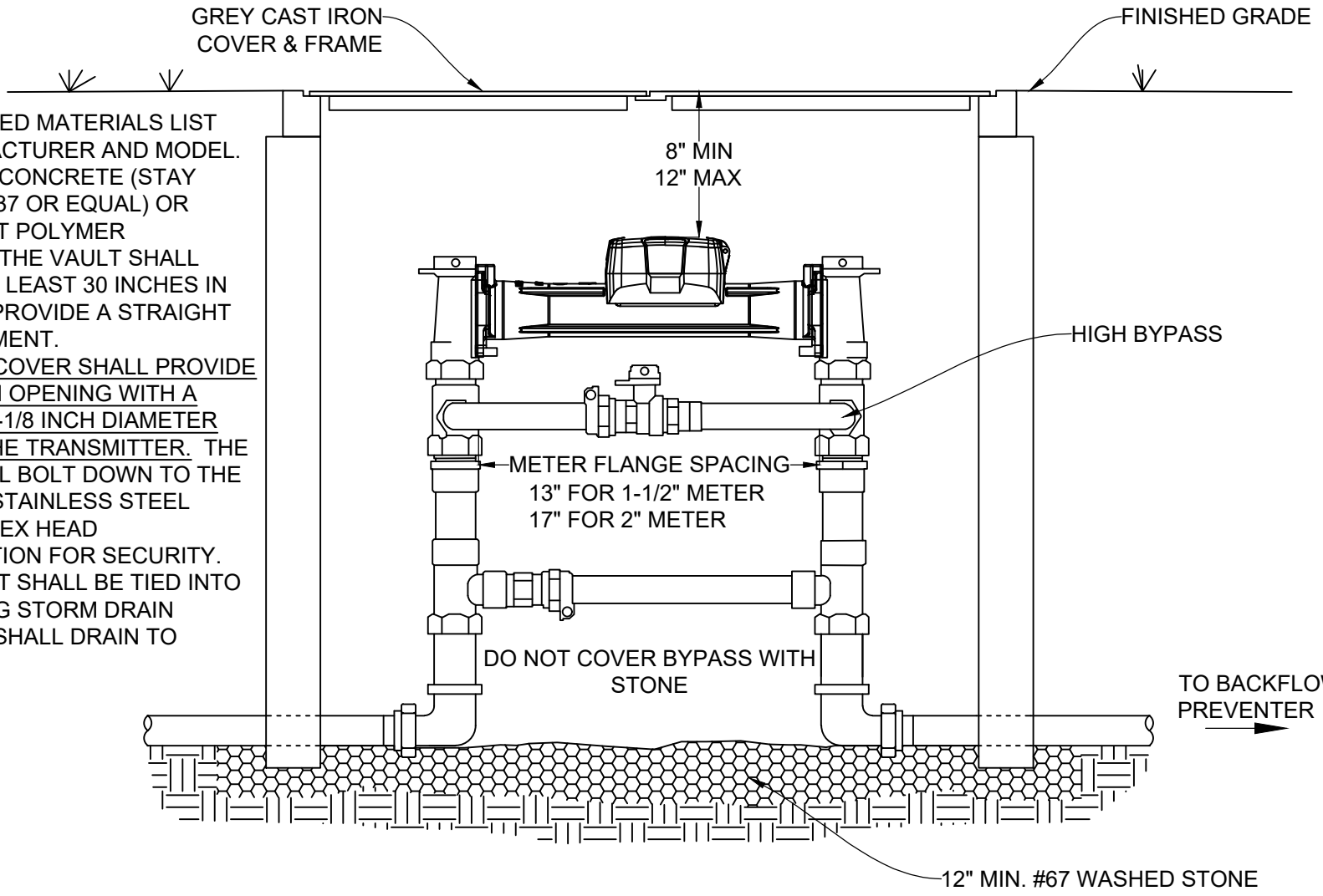
1. WATER METER SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.
2. ALL SERVICE LINES, VALVES AND FITTINGS SHALL COMPLY WITH AWWA C800.
3. THE INTERIOR AND EXTERIOR OF THE BOX AND LID SHALL BE COLORED BLACK.
4. ALL RELOCATIONS OF EXISTING OR PERMITTED INFRASTRUCTURE INCLUDING SERVICE PIPING AND METER BOXES SHALL BE PERMITTED AND INSPECTED IN CONFORMANCE WITH TOWN POLICIES AND PROCEDURES.
5. BOX AND LID SHALL BE HDPE.
6. COPPER TUBING SHALL BE LEAD FREE, TYPE K SOFT COPPER TUBING CONFORMING TO ASTM STANDARD B58.
7. MARKING TAPE SHALL BE INSTALLED FOR ALL SERVICE CONNECTIONS FROM THE MAIN LINE TO THE METER FOR ALL NEW CONSTRUCTION OR RETROFIT INSTALLATIONS USING OPEN TRENCH METHODS.
8. METER BOX LID SHALL HAVE A 4-1/8 INCH DIAMETER RECESSED HOLE FOR TRANSMITTER.
9. SEE APPROVED MATERIAL LIST; SECTION 600.

NO WATER SERVICES ARE PERMITTED ON HYDRANT LEGS, WITHIN 3' OF PIPE BELL, OR WITHIN 20' OF DEAD END.

TOWN OF APEX STANDARDS	3/4" & 1" WATER SERVICE & METER BOX	STD. NO. 600.01
EFFECTIVE: JUNE 11, 2024		SHEET 3 OF 3

NOTES:

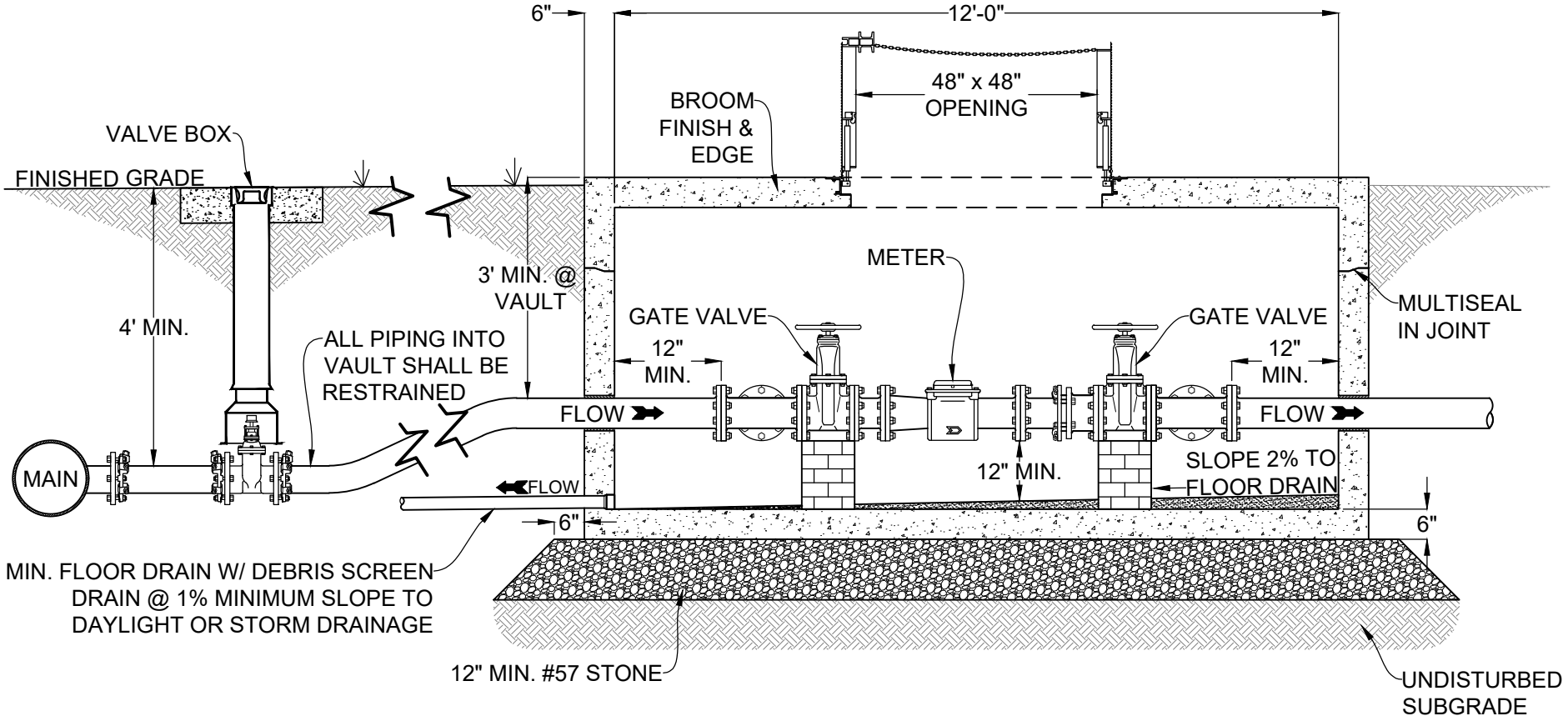
1. SEE APPROVED MATERIALS LIST FOR MANUFACTURER AND MODEL.
2. BOX MAY BE CONCRETE (STAY RIGHT MB 2737 OR EQUAL) OR LIGHTWEIGHT POLYMER CONCRETE. THE VAULT SHALL MEASURE AT LEAST 30 INCHES IN DEPTH AND PROVIDE A STRAIGHT WALL ALIGNMENT.
3. METER BOX COVER SHALL PROVIDE A 24X36 INCH OPENING WITH A RECESSED 4-1/8 INCH DIAMETER HOLE FOR THE TRANSMITTER. THE COVER SHALL BOLT DOWN TO THE BOX WITH 2 STAINLESS STEEL BOLTS IN A HEX HEAD CONFIGURATION FOR SECURITY.
4. METER VAULT SHALL BE TIED INTO THE EXISTING STORM DRAIN SYSTEM OR SHALL DRAIN TO DAYLIGHT.



TOWN OF APEX STANDARDS	1-1/2" & 2" METER INSTALLATION & VAULT	STD. NO. 600.02
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

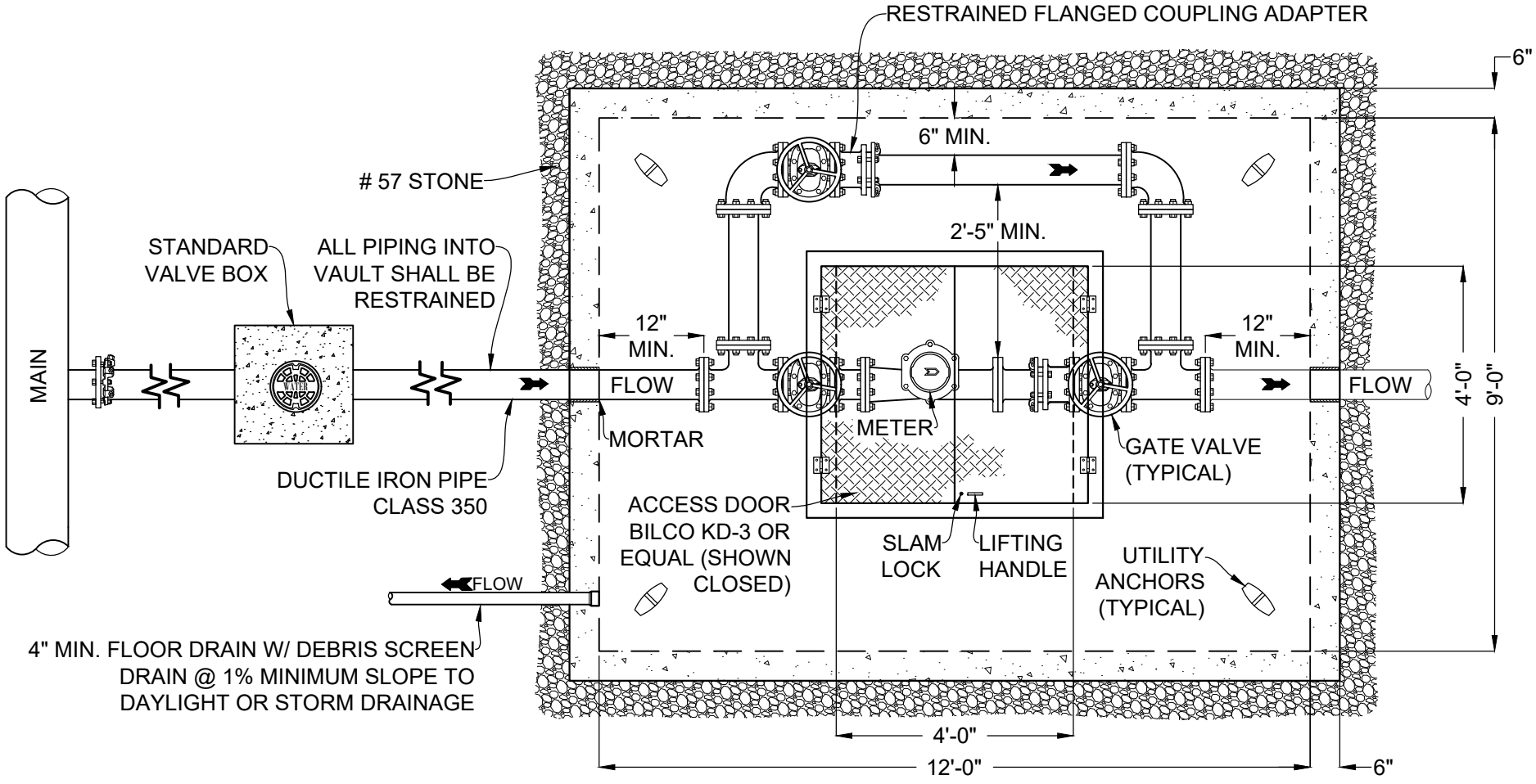
NOTES:

1. INSTALLATIONS LARGER THAN 3" SHALL REQUIRE A SPECIAL DETAIL AND PRIOR APPROVAL FROM THE WATER RESOURCES DEPARTMENT.
2. ALL PIPE SHALL BE DUCTILE IRON. A BYPASS LINE MUST BE INCLUDED.
3. THERE SHALL BE A MINIMUM 5' EASEMENT AROUND ALL SIDES OF THE WATER METER VAULT.
4. CONTACT WATER RESOURCES OPERATIONS FOR COST OF METERS 3" AND GREATER AND THE OPENING REQUIRED FOR INSTALLATION OF METER.
5. VAULT PIPE INLET AND OUTLET SHALL BE SEALED AROUND PIPE WITH CONCRETE OR WITH BRICK AND MORTAR.
6. METER VAULT TOP SHALL HAVE A 4-1/8" DIAMETER RECESSED HOLE FOR TRANSMITTER.



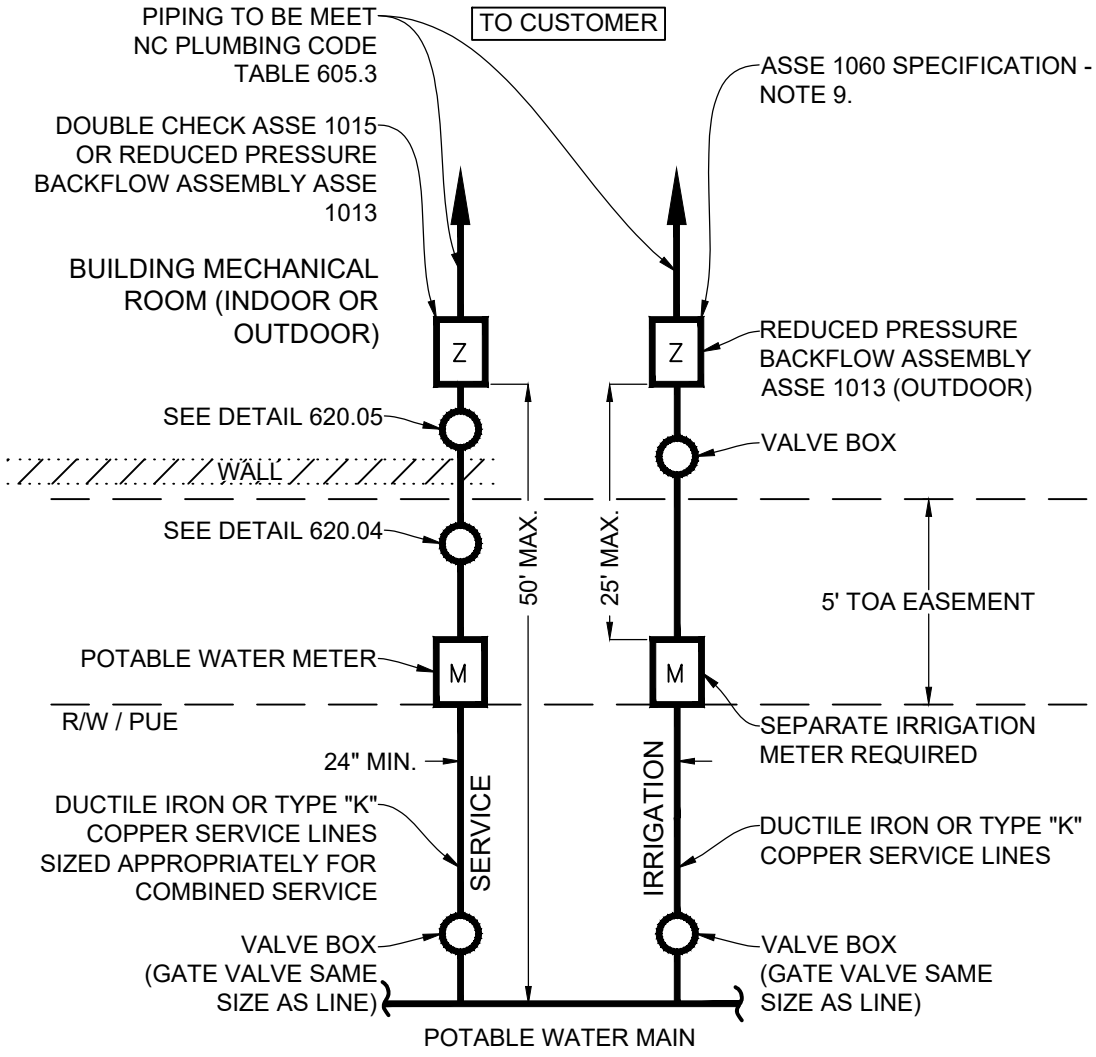
SECTION VIEW

TOWN OF APEX STANDARDS	3" & LARGER METER INSTALLATION & VAULT	STD. NO. 600.03
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 2



PLAN VIEW

TOWN OF APEX STANDARDS	3" & LARGER METER INSTALLATION & VAULT	STD. NO. 600.03
EFFECTIVE: JUNE 11, 2024		SHEET 2 OF 2



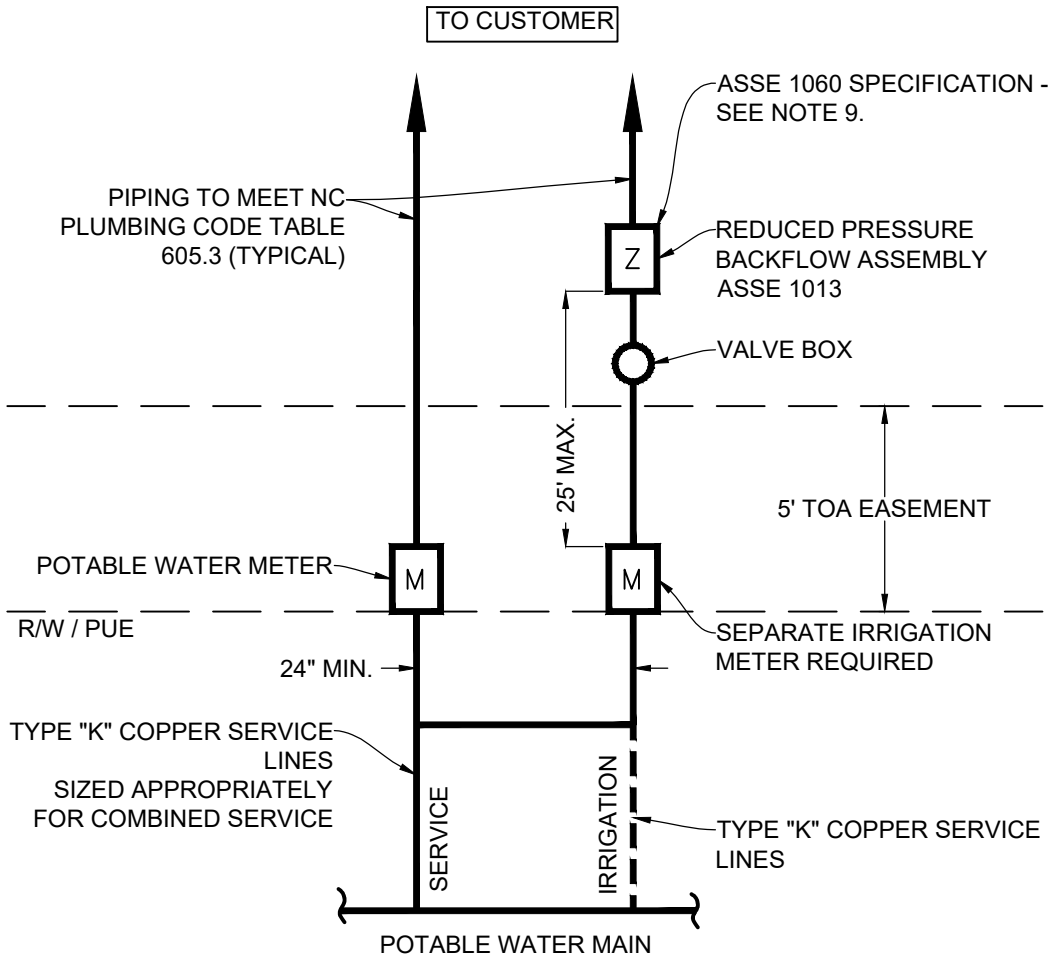
COMMERCIAL

NOTE:

1. DOUBLE CHECK ASSE 1015 OR REDUCED PRESSURE BACKFLOW ASSEMBLY ASSE 1013 SHALL MEET CURRENT TOWN OF APEX CROSS CONNECTION ORDINANCE AND USC CODE.
2. INLET PIPE TO WATER METER SHALL BE SAME SIZE AS OUTLET PIPE BEHIND BACKFLOW PREVENTER.
3. THERE SHALL BE NO TAPS, BYPASS PIPING, HYDRANTS, FIRE DEPT. CONNECTION POINTS OR OTHER WATER-USING APPURTENANCES CONNECTED TO THE SUPPLY LINE BETWEEN ANY WATER METER AND ITS REQUIRED BACKFLOW PREVENTER.
4. EACH BACKFLOW PREVENTER CONNECTED TO TOWN OF APEX WATER SUPPLY (CONTAINMENT) SHALL BE TESTED BY AN APPROVED TESTER BEFORE PLACING THE WATER SYSTEM IN SERVICE AND SHALL BE TESTED ANNUALLY OR AS REQUESTED BY THE TOWN OF APEX.
5. IRRIGATION BACKFLOW PREVENTERS SHALL BE INSTALLED OUTSIDE.
6. AUTOMATICALLY CONTROLLED IRRIGATION SYSTEMS ARE REQUIRED TO INSTALL A RAIN SENSOR SET TO $\frac{1}{4}$ INCH OR LESS PER TOWN OF APEX ORDINANCE.
7. ENCLOSURE SHALL HAVE THE FOLLOWING INFORMATION MARKED:
   A. NAME OF MANUFACTURER OR TRADE MARK
   B. MODEL NUMBER
   C. DATE CODE OR SERIAL NUMBER
   D. CLASS DESIGNATION AND LOWEST TEMPERATURE RANGE
   E. ASSE STANDARD #1060
   F. PHYSICAL ADDRESS
   G. MARKINGS SHALL BE 6 MM (1/4") SIZE LETTER HEIGHT AND CAST, ETCHED, STAMPED OR ENGRAVED ON THE ENCLOSURE, OR ON A CORROSION RESISTANT PLATE SECURELY ATTACHED TO THE ENCLOSURE.
   H. 2" SIZE NUMBERS TO BE PLACED ON THE BACK OF THE COVER FOR EACH BACKFLOW LOCATION (COMMERCIAL ONLY).
8. ALL BACKFLOW PREVENTERS SHALL BE "LEAD FREE".
9. ASSE 1060 CLASS 1 OR 2 INSULATED ENCLOSURE IS REQUIRED FOR IRRIGATION SYSTEMS THAT DO NOT HAVE THREADED UNIONS TO ALLOW FOR REMOVAL FOR THE WINTER SEASON. SHUT OFF VALVES (SOV) ARE REQUIRED AND MUST NOT BE SUBJECT TO FREEZING.

SCALE: N.T.S.

TOWN OF APEX STANDARDS	TYPICAL SERVICE & IRRIGATION CONNECTIONS	STD. NO. 620.01
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 2

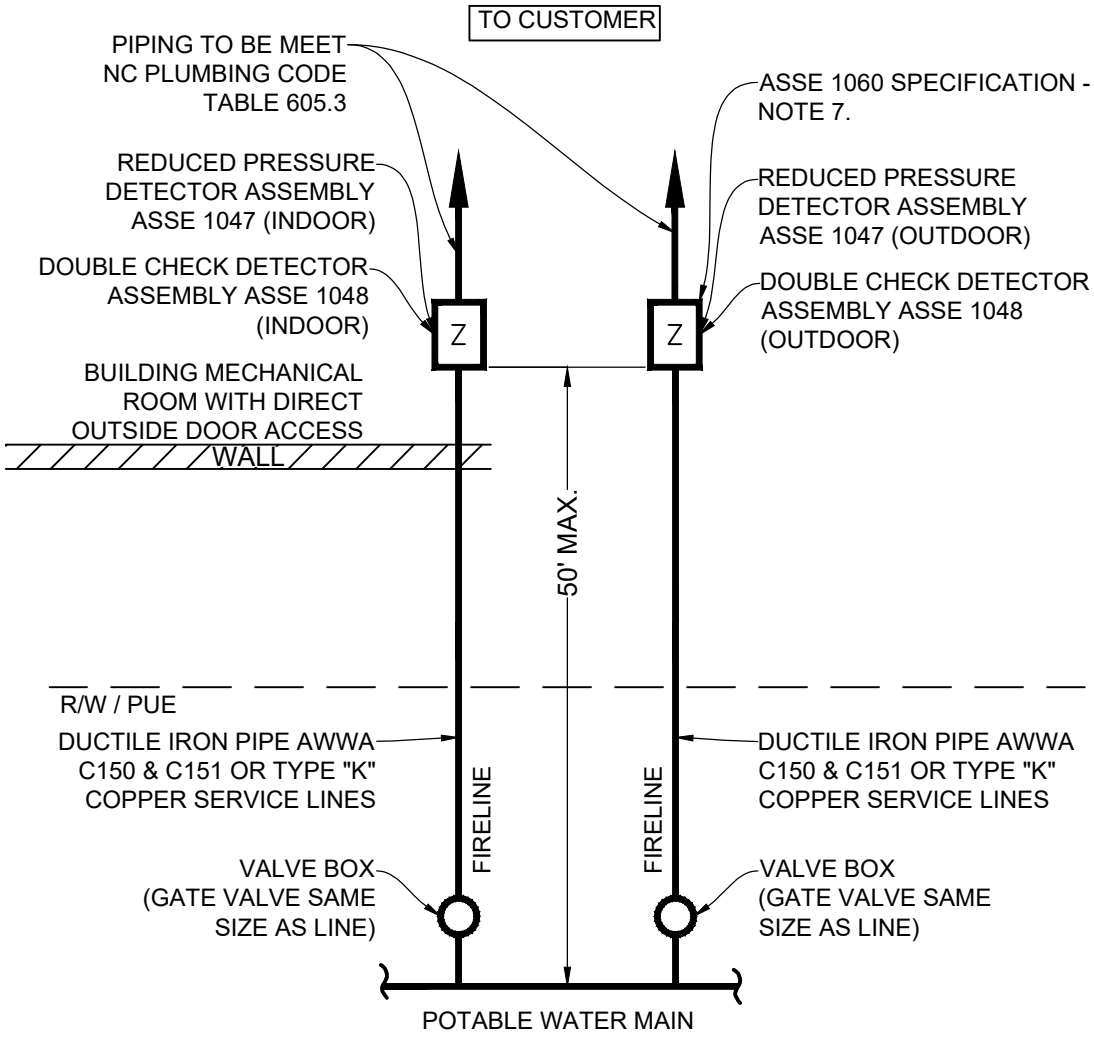


RESIDENTIAL

SCALE: N.T.S.

NOTE:

1. REDUCED PRESSURE BACKFLOW ASSEMBLY ASSE 1013 SHALL MEET CURRENT TOWN OF APEX CROSS CONNECTION ORDINANCE AND USC CODE.
2. INLET PIPE TO WATER METER SHALL BE SAME SIZE AS OUTLET PIPE BEHIND BACKFLOW PREVENTER.
3. THERE SHALL BE NO TAPS, BYPASS PIPING, HYDRANTS, FIRE DEPT. CONNECTION POINTS OR OTHER WATER-USING APPURTENANCES CONNECTED TO THE SUPPLY LINE BETWEEN ANY WATER METER AND ITS REQUIRED BACKFLOW PREVENTER.
4. EACH BACKFLOW PREVENTER CONNECTED TO TOWN OF APEX WATER SUPPLY (CONTAINMENT) SHALL BE TESTED BY AN APPROVED TESTER BEFORE PLACING THE WATER SYSTEM IN SERVICE AND SHALL BE TESTED ANNUALLY OR AS REQUESTED BY THE TOWN OF APEX.
5. IRRIGATION BACKFLOW PREVENTERS SHALL BE INSTALLED OUTSIDE.
6. AUTOMATICALLY CONTROLLED IRRIGATION SYSTEMS ARE REQUIRED TO INSTALL A RAIN SENSOR SET TO $\frac{1}{4}$ INCH OR LESS PER TOWN OF APEX ORDINANCE.
7. ENCLOSURE SHALL HAVE THE FOLLOWING INFORMATION MARKED:
   A. NAME OF MANUFACTURER OR TRADE MARK
   B. MODEL NUMBER
   C. DATE CODE OR SERIAL NUMBER
   D. CLASS DESIGNATION AND LOWEST TEMPERATURE RANGE
   E. ASSE STANDARD #1060
   F. MARKINGS SHALL BE 6 MM (¼") SIZE LETTER HEIGHT AND CAST, ETCHED, STAMPED OR ENGRAVED ON THE ENCLOSURE, OR ON A CORROSION RESISTANT PLATE SECURELY ATTACHED TO THE ENCLOSURE.
   G. 2" SIZE NUMBERS TO BE PLACED ON THE BACK OF THE COVER FOR EACH BACKFLOW LOCATION (COMMERCIAL ONLY).
8. ALL BACKFLOW PREVENTERS SHALL BE "LEAD FREE".
9. ASSE 1060 CLASS 1 OR 2 INSULATED ENCLOSURE IS REQUIRED FOR IRRIGATION SYSTEMS THAT DO NOT HAVE THREADED UNIONS TO ALLOW REMOVAL DURING THE WINTER SEASON. SHUT OFF VALVES (SOV) ARE REQUIRED AND CANNOT BE SUBJECT TO FREEZING.
10. BACKFLOW PREVENTERS SHALL NOT BE INSTALLED BEHIND FENCES, UNDER FOUNDATIONS, DECKS OR INSIDE DWELLINGS.
11. BACKFLOW PREVENTERS SHALL NOT BE INSTALLED 10' PAST THE FRONT FACADE OF THE DWELLING.



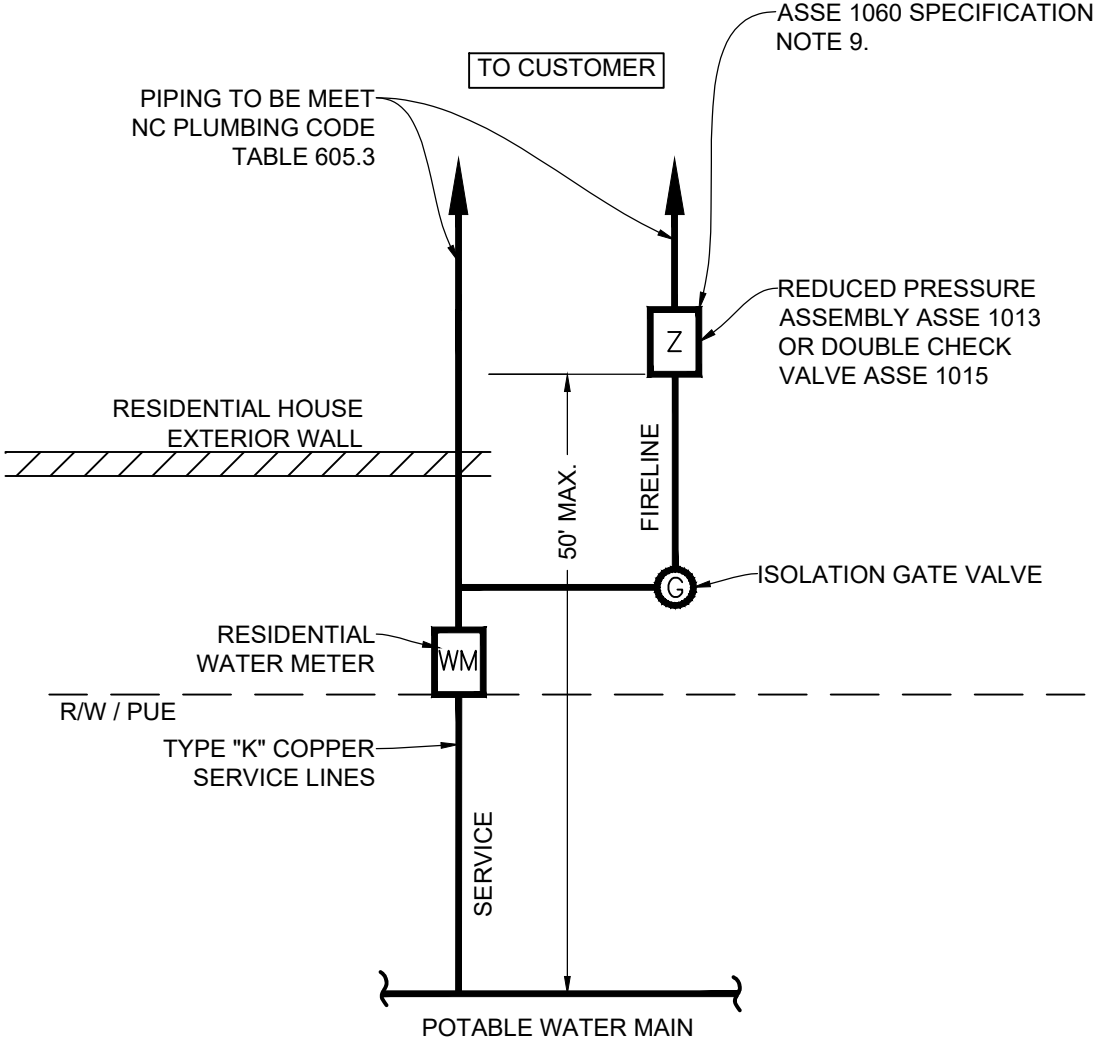
COMMERCIAL

NOTE:

1. REDUCED PRESSURE DETECTOR ASSEMBLY ASSE 1047 SHALL MEET CURRENT TOWN OF APEX CROSS CONNECTION ORDINANCE AND USC CODE.
2. INLET PIPE TO WATER METER SHALL BE SAME SIZE AS OUTLET PIPE BEHIND BACKFLOW PREVENTER.
3. THERE SHALL BE NO TAPS, BYPASS PIPING, HYDRANTS, FIRE DEPT. CONNECTION POINTS OR OTHER WATER-USING APPURTENANCES CONNECTED TO THE SUPPLY LINE BETWEEN ANY WATER METER AND ITS REQUIRED BACKFLOW PREVENTER.
4. EACH BACKFLOW PREVENTER CONNECTED TO TOWN OF APEX WATER SUPPLY (CONTAINMENT) SHALL BE TESTED BY AN APPROVED TESTER BEFORE PLACING THE WATER SYSTEM IN SERVICE AND SHALL BE TESTED ANNUALLY OR AS REQUESTED BY THE TOWN OF APEX.
5. ENCLOSURE SHALL HAVE THE FOLLOWING INFORMATION MARKED:
   A. NAME OF MANUFACTURER OR TRADE MARK
   B. MODEL NUMBER
   C. DATE CODE OR SERIAL NUMBER
   D. CLASS DESIGNATION AND LOWEST TEMPERATURE RANGE
   E. ASSE STANDARD #1060
   F. PHYSICAL ADDRESS
   G. MARKINGS SHALL BE 6 MM (¼") SIZE LETTER HEIGHT AND CAST, ETCHED, STAMPED OR ENGRAVED ON THE ENCLOSURE, OR ON A CORROSION RESISTANT PLATE SECURELY ATTACHED TO THE ENCLOSURE.
   H. 2" SIZE NUMBERS TO BE PLACED ON THE BACK OF THE COVER FOR EACH BACKFLOW LOCATION (COMMERCIAL ONLY).
6. ALL BACKFLOW PREVENTERS SHALL BE "LEAD FREE".
7. ASSE 1060 CLASS 1 OR 2 ENCLOSURE WITH PERMANENT, HARD PIPED ELECTRICAL SERVICE, AND A THERMOSTATICALLY CONTROLLED HEATER OR HEAT TRACE.

SCALE: N.T.S.

TOWN OF APEX STANDARDS	TYPICAL FIRE CONNECTIONS	STD. NO.
EFFECTIVE: JUNE 11, 2024		620.02
		SHEET 1 OF 2

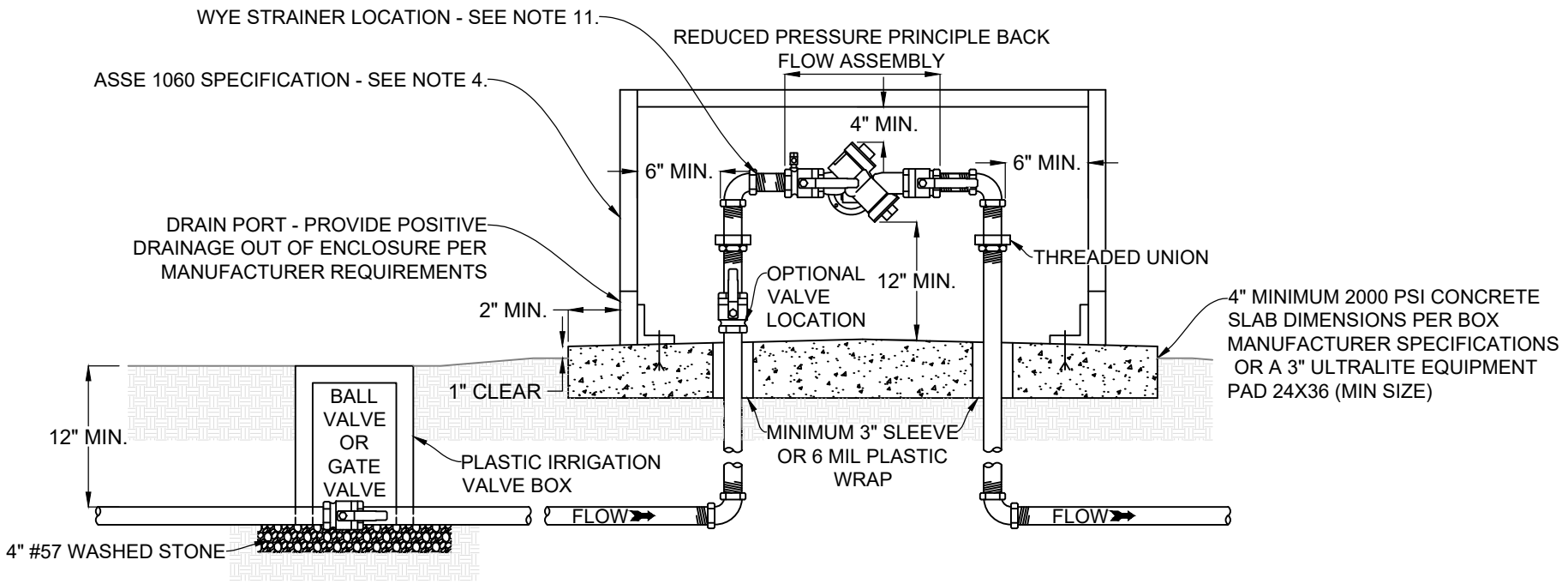


RESIDENTIAL

NOTE:

1. REDUCED PRESSURE ASSEMBLY ASSE 1013 OR DOUBLE CHECK VALVE ASSE 1015 SHALL MEET CURRENT TOWN OF APEX CROSS CONNECTION ORDINANCE AND USC CODE.
2. INLET PIPE TO WATER METER SHALL BE SAME SIZE AS OUTLET PIPE BEHIND BACKFLOW PREVENTER.
3. THERE SHALL BE NO TAPS, BYPASS PIPING, HYDRANTS, FIRE DEPT. CONNECTION POINTS OR OTHER WATER-USING APPURTENANCES CONNECTED TO THE SUPPLY LINE BETWEEN ANY WATER METER AND ITS REQUIRED BACKFLOW PREVENTER.
4. EACH BACKFLOW PREVENTER CONNECTED TO TOWN OF APEX WATER SUPPLY (CONTAINMENT) SHALL BE TESTED BY AN APPROVED TESTER BEFORE PLACING THE WATER SYSTEM IN SERVICE AND SHALL BE TESTED ANNUALLY OR AS REQUESTED BY THE TOWN OF APEX.
5. ENCLOSURE SHALL HAVE THE FOLLOWING INFORMATION MARKED:
   A. NAME OF MANUFACTURER OR TRADE MARK
   B. MODEL NUMBER
   C. DATE CODE OR SERIAL NUMBER
   D. CLASS DESIGNATION AND LOWEST TEMPERATURE RANGE
   E. ASSE STANDARD #1060
   F. PHYSICAL ADDRESS
   G. MARKINGS SHALL BE 6 MM (¼") SIZE LETTER HEIGHT AND CAST, ETCHED, STAMPED OR ENGRAVED ON THE ENCLOSURE, OR ON A CORROSION RESISTANT PLATE SECURELY ATTACHED TO THE ENCLOSURE.
6. ALL BACKFLOW PREVENTERS SHALL BE "LEAD FREE".
7. INTERIOR INSTALLATIONS ARE NOT PERMITTED IN WALLS, FLOORS, OR CEILINGS / ATTICS.
8. EXTERIOR INSTALLATIONS ARE NOT PERMITTED IN CRAWL SPACES / FOUNDATIONS OR BENEATH PERMANENT STRUCTURES.
9. ASSE 1060 CLASS 1 OR 2 ENCLOSURE WITH PERMANENT, HARD PIPED ELECTRICAL SERVICE, AND A THERMOSTATICALLY CONTROLLED HEATER OR HEAT TRACE.

SCALE: N.T.S.



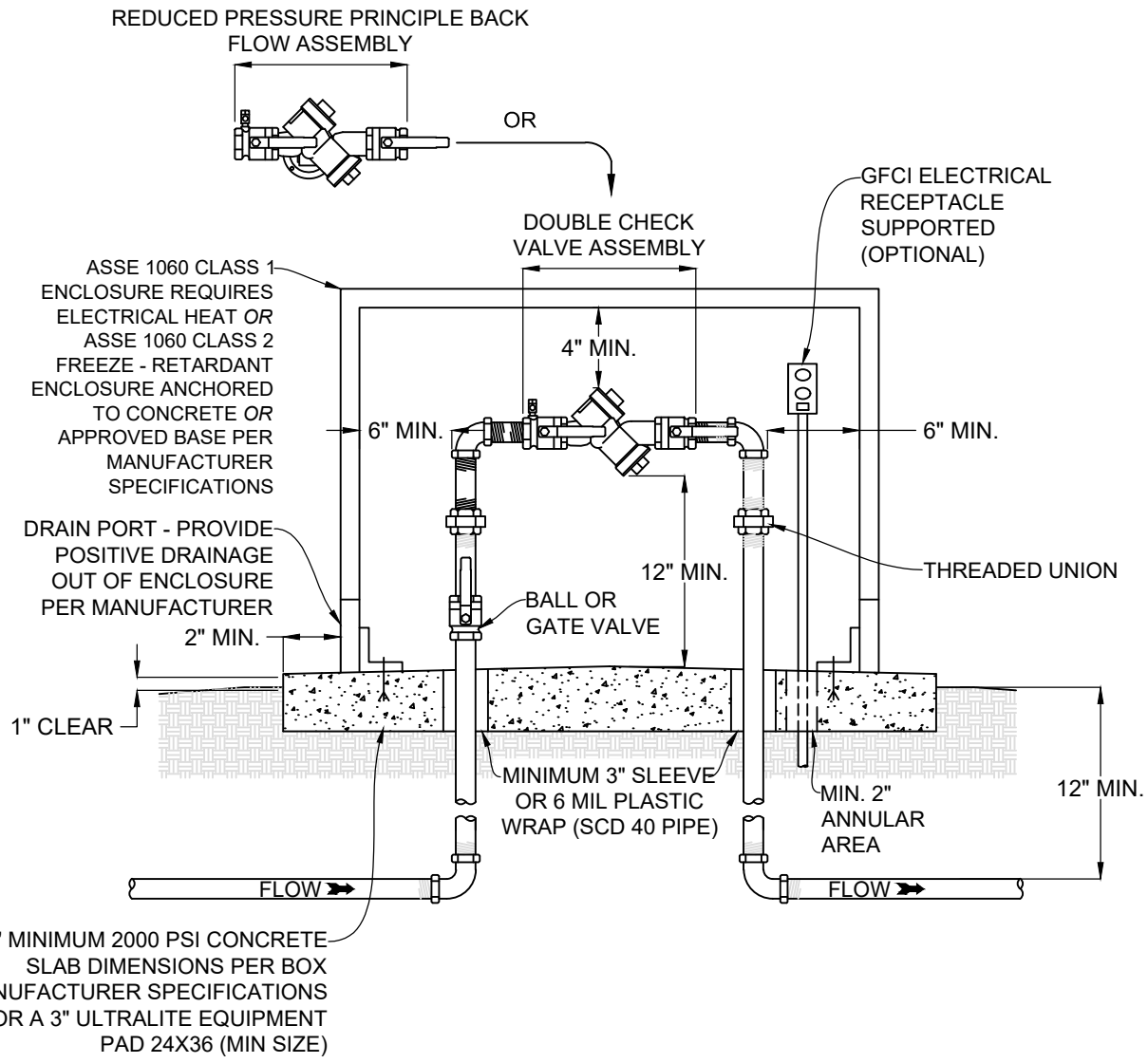
NOTES:

1. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1013 & AWWA C511.
2. BACKFLOW ASSEMBLY SHALL BE CENTERED ON CONCRETE OR APPROVED BASE PER MANUFACTURER SPECIFICATION.
3. ASSE 1060 CLASS 1 OR 2 INSULATED ENCLOSURE IS REQUIRED FOR IRRIGATIONS SYSTEMS THAT DO NOT HAVE THREADED UNIONS TO ALLOW FOR REMOVAL DURING THE WINTER SEASON. SHUTOFF VALVES ARE REQUIRED AND CANNOT BE SUBJECT TO FREEZING.
4. PIPE MATERIAL SHALL MEET CURRENT NC PLUMBING CODE SPECIFICATION TABLE 605.3.
5. INSTALLATION SHALL BE IN COMPLIANCE WITH ALL APPLICABLE TOWN ORDINANCES AND SPECIFICATIONS, USCFCCCHR CODE AND THE NC PLUMBING CODE.
6. INSTALLATIONS ARE NOT ALLOWED IN TOWN RIGHT-OF-WAYS, TOWN EASEMENTS, UNDER STRUCTURES OR WITHIN FOUNDATIONS. INSTALLATIONS MUST BE WITHIN 25' OF WATER METER BUT NOT TO EXCEED 10' PAST THE FRONT CORNER OF THE PERMANENT STRUCTURE.
7. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AND OPERATION OF BACKFLOW PREVENTION ASSEMBLY AND COMPLIANCE WITH REPORTING AND TESTING REQUIREMENTS.
8. ALL BACKFLOW PREVENTERS SHALL MEET CURRENT UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION AND HYDRAULIC RESEARCH REQUIREMENTS.
9. ALL BACKFLOWS SHALL BE "LEAD FREE".
10. A WYE STRAINER SHALL BE INSTALLED IMMEDIATELY UPSTREAM OF THE BACKFLOW PREVENTER'S #1 SHUTOFF VALVE AND THE UPSTREAM DISCONNECT UNION.
11. BACKFLOW PREVENTER INSTALLATION SHALL MEET DETAIL 620.01 (1 OF 2) OR (2 OF 2).

TOWN OF APEX STANDARDS	¾" - 2" RESIDENTIAL & COMMERCIAL IRRIGATION BACKFLOW ASSEMBLY (OUTDOOR ONLY)	STD. NO.
EFFECTIVE: JUNE 11, 2024		620.03
		SHEET 1 OF 1

NOTES:

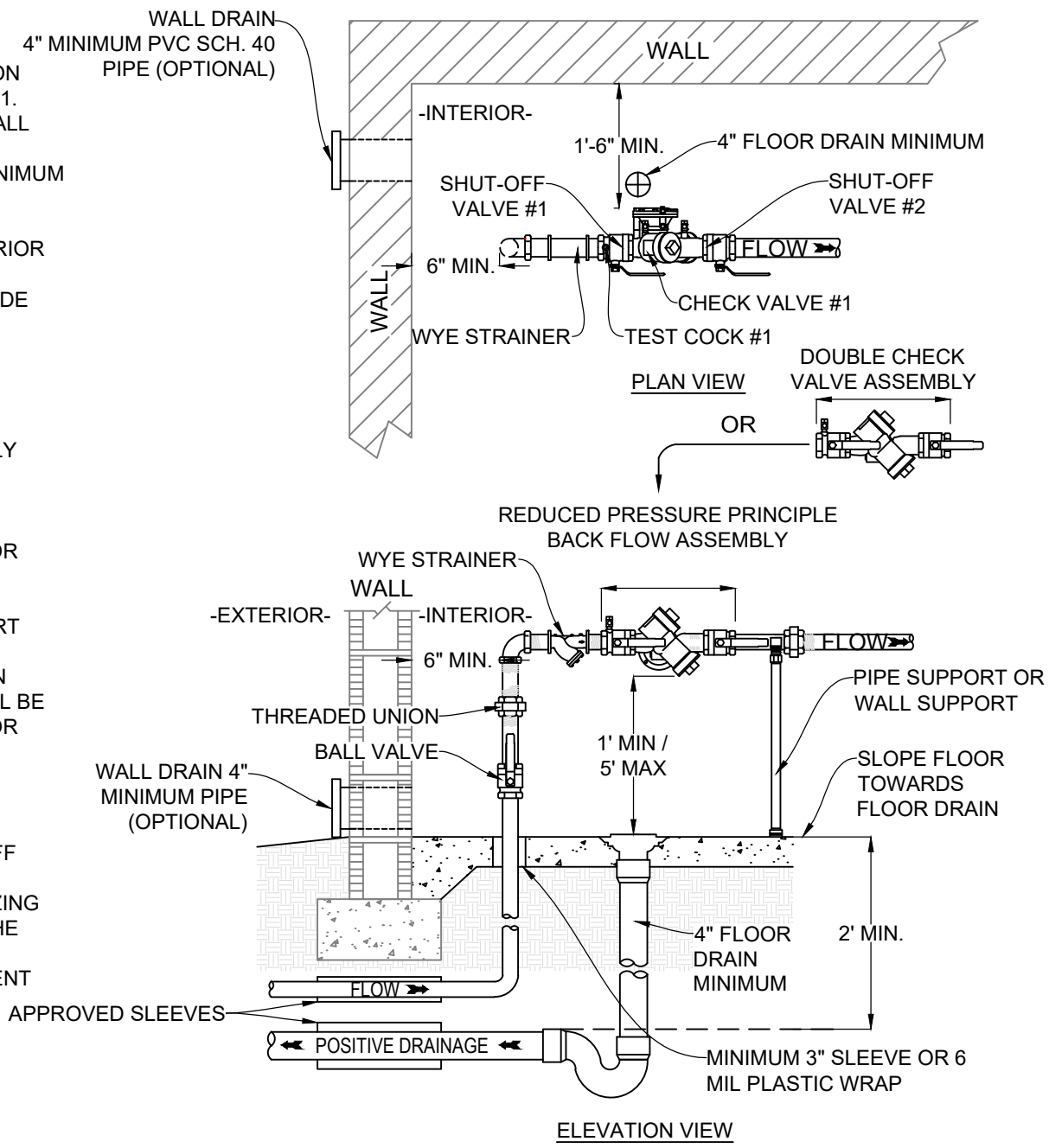
1. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1013 & AWWA C511.
2. DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1015 & AWWA C510.
3. BACKFLOW PREVENTION ASSEMBLY SHALL BE CENTERED ON CONCRETE OR APPROVED BASE PER MANUFACTURER SPECIFICATION.
4. ASSE 1060 CLASS 2 FREEZE-RETARDANT ENCLOSURE - ELECTRICAL HEAT NOT REQUIRED.
5. 120V GFCI ELECTRICAL RECEPTACLE REQUIRED TO BE INSTALLED IN ACCORDANCE WITH THE NC ELECTRICAL CODE FOR OUTDOOR OPERATION WITH ASSE 1060 CLASS 1 ENCLOSURE.
6. PIPE MATERIAL SHALL MEET CURRENT NC PLUMBING CODE TABLE 605.3.
7. INSTALLATION SHALL BE IN COMPLIANCE WITH ALL APPLICABLE TOWN ORDINANCES AND SPECIFICATIONS, USCFCCCHR CODE AND THE NC PLUMBING CODE.
8. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AND OPERATION OF BACKFLOW ASSEMBLY AND COMPLIANCE WITH REPORTING AND TESTING REQUIREMENTS.
9. ALL BACKFLOW PREVENTERS SHALL MEET CURRENT UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION AND HYDRAULIC RESEARCH REQUIREMENTS.
10. ALL BACKFLOWS SHALL BE "LEAD FREE".
11. A WYE STRAINER SHALL BE INSTALLED ON THE IMMEDIATE UPSTREAM OF THE BACKFLOW PREVENTER'S #1 SHUTOFF VALVE AND THE UPSTREAM DISCONNECT UNION.
12. BACKFLOW PREVENTER'S SHALL MEET DETAIL 620.01 (1 OF 2).
13. BACKFLOW PREVENTER'S SHALL NOT BE IN INSTALLED IN TOWN R/W OR TOWN EASEMENT.



TOWN OF APEX STANDARDS	¾" - 2" COMMERCIAL OUTDOOR BACKFLOW ASSEMBLY (DOMESTIC SERVICE)	STD. NO.
EFFECTIVE: JUNE 11, 2024		620.04
		SHEET 1 OF 1

NOTES:

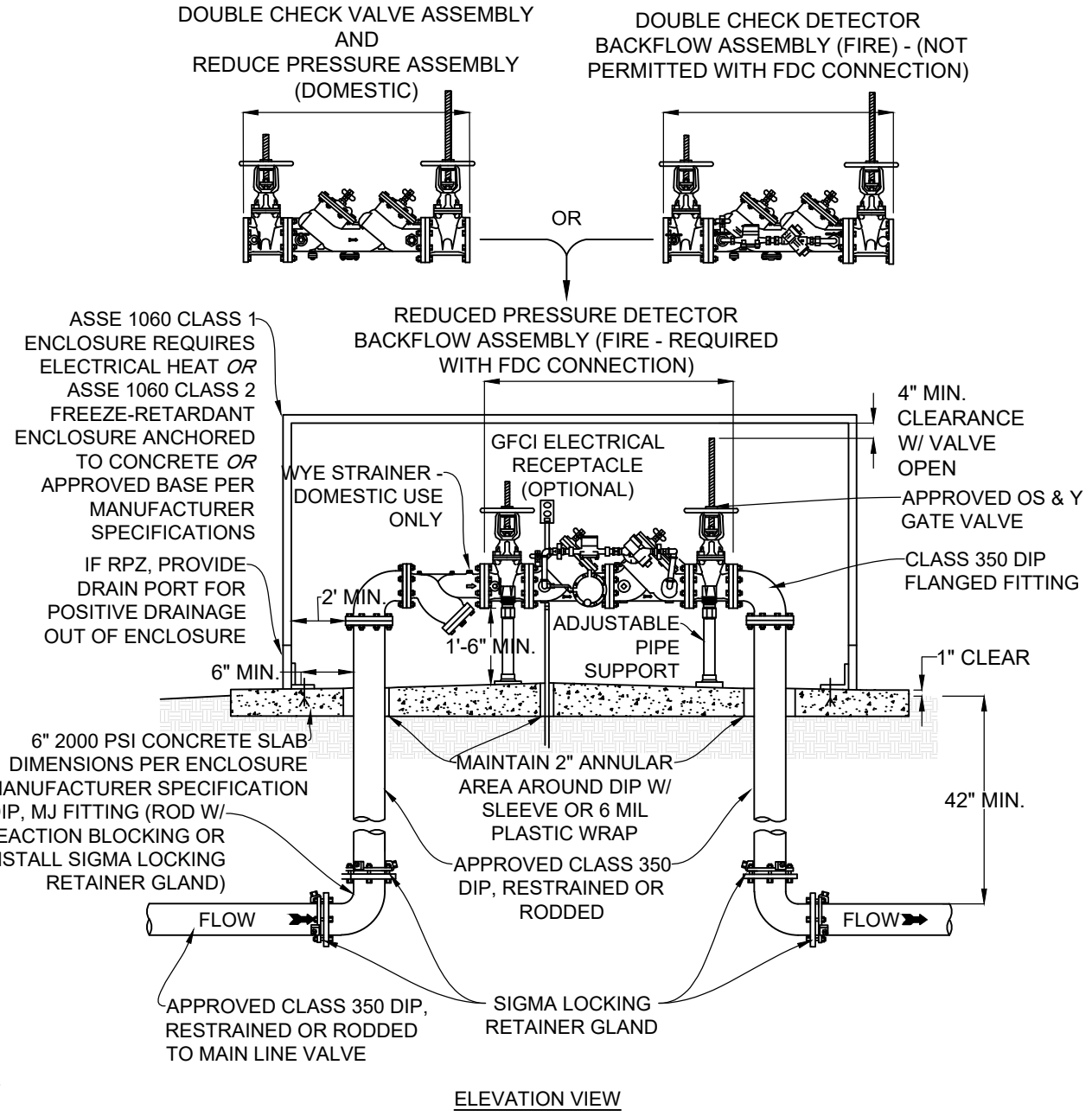
1. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1013 & AWWA C511.
2. DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1015 & AWWA C510.
3. BACKFLOW PREVENTION ASSEMBLY SHALL MAINTAIN MINIMUM CLEARANCES FROM WALLS AND FLOOR AS SPECIFIED.
4. ALL BACKFLOW PREVENTERS SHALL BE LOCATED IN A LOWEST FLOOR ROOM (1HR FIRE RATED) WITH AN EXTERIOR DOOR WITH DIRECT ACCESS FROM THE OUTSIDE.
5. PIPE MATERIAL SHALL MEET CURRENT NC PLUMBING CODE TABLE 605.3 (OUTSIDE) AND TABLE 605.4 (INSIDE).
6. INSTALLATION SHALL BE IN COMPLIANCE WITH ALL APPLICABLE TOWN ORDINANCES AND SPECIFICATIONS, USCFCCCHR CODE AND THE NC PLUMBING CODE.
7. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AND OPERATION OF BACKFLOW ASSEMBLY AND COMPLIANCE WITH REPORTING AND TESTING REQUIREMENTS.
9. ALL BACKFLOW PREVENTERS SHALL MEET CURRENT UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION AND HYDRAULIC RESEARCH REQUIREMENTS.
10. ALL DRAINS SHALL BE DESIGNED TO HANDLE A FULL PORT DISCHARGE FROM THE ASSEMBLY. AN APPROVED, PRE-FABRICATED, APPROPRIATELY SIZED AIR GAP DRAIN MUST BE USED AND ALL RELIEF PORT DRAIN LINES SHALL BE PIPED TO DIRECT FLOW TOWARD INDIRECT WASTE FLOOR DRAIN, FULL SIZE TO THEIR POINT OF TERMINATION AT A SLOPE CONFORMING WITH NC PLUMBING CODE 704.1.
11. ALL BACKFLOW PREVENTERS SHALL BE "LEAD FREE".
12. A WYE STRAINER SHALL BE INSTALLED IMMEDIATELY UPSTREAM OF THE BACKFLOW PREVENTER'S #1 SHUTOFF VALVE AND THE UPSTREAM DISCONNECT UNION.
13. AN ISOLATION SHUT-OFF VALVE NOT SUBJECT TO FREEZING SHALL BE REQUIRED TO BE INSTALLED UPSTREAM OF THE BACKFLOW PREVENTER.
14. ALL BACKFLOW INSTALLATIONS SHALL MEET THE CURRENT DETAIL 620.01, 1 OF 2.



TOWN OF APEX STANDARDS	¾" - 2" COMMERCIAL INDOOR BACKFLOW ASSEMBL[illegible]MESTIC SERVICE)	STD. NO.
EFFECTIVE: JUNE 11, 2024	- Page 575 -	620.05
		SHEET 1 OF 1

NOTES:

1. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1013 & AWWA C511.
2. REDUCED PRESSURE DETECTOR BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1047. UNIT SHALL BE USED FOR ALL FIRE PREVENTION SYSTEMS WITH FDC, CHEMICAL, PROCESSED OR BOOSTERED.
3. DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1015 & AWWA C510.
4. DOUBLE CHECK DETECTOR BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1048.
5. BACKFLOW ASSEMBLY SHALL BE CENTERED ON CONCRETE PAD AND CENTERED WITHIN ENCLOSURE OR BASED ON MANUFACTURER SPECIFICATION.
6. ASSE 1060 CLASS 1 OR 2 FREEZE-RETARDANT ENCLOSURE REQUIRED.
7. STANDARD 120V GFCI ELECTRICAL RECEPTACLE TO BE INSTALLED IN ACCORDANCE WITH THE NC ELECTRICAL CODE IF AN ASSE 1060 CLASS 1 BOX IS INSTALLED ON DOMESTIC SERVICE. ELECTRICAL RECEPTACLE AND A CONTROL HEATER OR HEAT TRACER REQUIRED.
8. PIPE MATERIAL SHALL BE CLASS 350 DIP AWWA C150 AND C151 APPROVED BY THE TOWN.
9. INSTALLATION SHALL BE IN COMPLIANCE WITH ALL APPLICABLE TOWN ORDINANCES, SPECIFICATIONS, UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS - CONNECTION CONTROL AND HYDRAULIC RESEARCH AND THE NC PLUMBING CODE.
10. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AND OPERATION OF BACKFLOW PREVENTION ASSEMBLY AND COMPLIANCE WITH REPORTING AND TESTING REQUIREMENTS.
11. ALL BACKLOW PREVENTERS SHALL BE "LEAD FREE".
12. ALL BACKFLOW INSTALLATIONS SHALL MEET DETAIL 620.01, 1 OF 2.
13. A WYE STRAINER SHALL BE INSTALLED ON THE IMMEDIATE UPSTREAM OF THE BACKFLOW PREVENTER'S #1 SHUTOFF VALVE AND THE UPSTREAM DISCONNECT UNION. THE WYE STRAINER SHALL BE FOR DOMESTIC SERVICE CONNECTIONS ONLY.
14. AN ISOLATION GATE VALVE SHALL BE INSTALLED ON THE TOWN OF APEX PUBLIC WATERLINE FOR BACKFLOW ISOLATION PURPOSES.

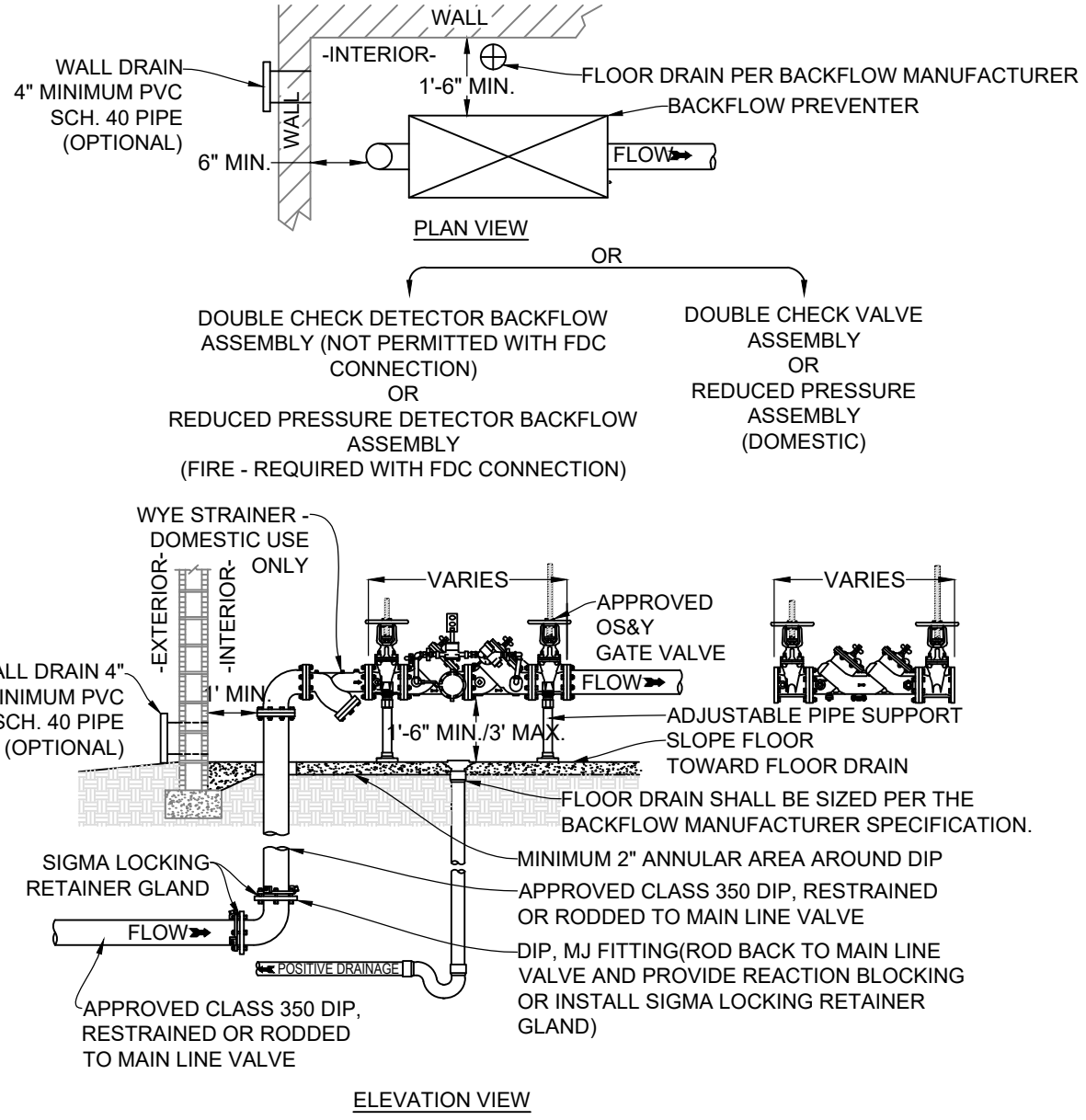


ELEVATION VIEW

TOWN OF APEX STANDARDS	≥3" COMMERCIAL OUTDOOR BACKFLOW ASSEMBLY	STD. NO. 620.06
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

NOTES:

1. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1013 & AWWA C511.
2. REDUCED PRESSURE DETECTOR ASSEMBLY SHALL COMPLY WITH ASSE 1047. UNIT SHALL BE USED FOR ALL FIRE PREVENTION SYSTEMS.
3. DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1015 & AWWA C510.
4. DOUBLE CHECK DETECTOR BACKFLOW PREVENTION VALVE ASSEMBLY SHALL COMPLY WITH ASSE 1048.
5. BACKFLOW PREVENTERS CANNOT BE LOCATED INSIDE WALLS, CABINETS OR FOUNDATIONS.
6. ALL BACKFLOW PREVENTERS SHALL BE LOCATED IN A LOWEST FLOOR ROOM (2HR FIRE RATED) WITH AN EXTERIOR DOOR WITH DIRECT ACCESS FROM THE OUTSIDE.
7. PIPE MATERIAL SHALL BE CLASS 350 DIP AWWA C150 AND C151 APPROVED BY THE TOWN. PIPE MATERIAL BEHIND THE BACKFLOW PREVENTER SHALL MEET NC PLUMBING CODE TABLE 605.4
8. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AND OPERATION OF BACKFLOW ASSEMBLY AND COMPLIANCE WITH REPORTING AND TESTING REQUIREMENTS.
9. ALL BACKFLOW PREVENTERS SHALL MEET CURRENT UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS-CONNECTION AND HYDRAULIC RESEARCH REQUIREMENTS.
10. ALL DRAINS SHALL BE DESIGNED TO HANDLE A FULL PORT DISCHARGE FROM THE ASSEMBLY. AN APPROVED, PRE-FABRICATED APPROPRIATELY SIZED AIR GAP DRAIN MUST BE USED AND ALL RELIEF PORT DRAIN LINES SHALL BE PIPED TO DIRECT FLOW TOWARD INDIRECT WASTE FLOOR DRAINS.
11. ALL BACKFLOWS SHALL BE "LEAD FREE".
12. A WYE STRAINER SHALL BE INSTALLED IMMEDIATELY UPSTREAM OF THE BACKFLOW PREVENTER'S #1 SHUTOFF VALVE AND THE UPSTREAM DISCONNECT UNION. THE WYE STRAINER SHALL BE FOR DOMESTIC SERVICE CONNECTIONS ONLY.
13. AN ISOLATION GATE VALVE SHALL BE INSTALLED ON THE TOWN OF APEX PUBLIC WATERLINE FOR BACKFLOW ISOLATION PURPOSES.



TOWN OF APEX STANDARDS	≥3" COMMERCIAL INDOOR BACKFLOW ASSEMBLY	STD. NO. 620.07
EFFECTIVE: JUNE 11, 2024		SHEET 1 OF 1

Proclamation

Apex Pollinator Week 2024

from the Office of the Mayor

WHEREAS, Pollinators serve a vital purpose in the environment by helping 90% of the world's flowering species reproduce, and include species such as bees, wasps, flies, butterflies, moths, beetles, and some birds, bats, and small mammals; and,

WHEREAS, The presence of pollinator species is indicative of thriving communities with healthy air, water, soils, food supply, and ecosystems; and,

WHEREAS, National Pollinator Week has been recognized since 2007 in an effort to recognize the importance of pollinators to ecosystem health and to increase awareness about pollinators and the need to protect and sustain them; and,

WHEREAS, Many pollinator species are at risk of extinction due to loss of habitat, improper use of pesticides and herbicides, predation, and diseases, and the Town has committed to doing its part to prevent this through the signing of the Mayor's Monarch Pledge and the continued certification of the town as a Bee City USA Town since 2020; and,

WHEREAS, The Parks, Recreation and Cultural Resources Department is proud to present their inaugural Pollinator Week event on June 20, 2024 at the Apex Nature Park with a goal of educating the public on the importance of pollination.

NOW, THEREFORE, I, Jacques K. Gilbert, Mayor of Apex, North Carolina, do hereby proclaim the week of June 17th – June 23rd, 2024, "Apex Pollinator Week" in the Town of Apex, and encourage all residents to do their part in taking care of our environment and protecting these species we rely upon for much of our green space.

I hereby set my hand and have caused the Seal of the Town of Apex, North Carolina, to be affixed this the 11th day of June 2024

Jacques Gilbert, Mayor

Proclamation

Apex Public Works Week 2024

from the Office of the Mayor

WHEREAS, Public Works professionals in the Town of Apex perform a broad spectrum of duties, including solid waste and yard waste services, facilities maintenance, street maintenance, and vehicle and fleet management; and,

WHEREAS, The Town's Public Works Department is home to many skilled employees who strive daily to ensure the town is able to provide essential services and that daily operations run smoothly; and,

WHEREAS, The Town of Apex Public Works Department maintains around 200 miles of town-owned roads, manages solid waste services and provides yard waste services to nearly 23,000 homes, maintains facilities in dozens of town buildings, and performs inspections and repairs on over 500 town-owned vehicles; and,

WHEREAS, The work that Public Works performs on town roads and building ensures residents and visitors feel welcome in our town and have positive experiences with public infrastructure; and,

WHEREAS, The American Public Works Association's 2024 theme is "Advancing Quality of Life For All", and the Town of Apex is fortunate to have a Public Works Department dedicated to ensuring their work contributes to that goal.

NOW, THEREFORE, I, Jacques K. Gilbert, Mayor of Apex, North Carolina, do hereby proclaim the week of June 13th – June 19th, 2024, "Apex Public Works Week" in the Town of Apex, and extend my gratitude to our excellent Public Works Professionals who ensure the quality of life in the Town of Apex remains excellent.

I hereby set my hand and have caused the Seal of the Town of Apex, North Carolina, to be affixed this the 11th day of June 2024

Jacques Gilbert, Mayor

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: PRESENTATION

Meeting Date: June 11, 2024

Item Details

Presenter(s): Jacques K. Gilbert, Mayor

Department(s): Governing Body

Requested Motion

Special recognition honoring six (6) students from Apex Friendship High School who won the WRAL Brain Game Championship on Saturday, June 1, 2024 against Broughton High School.

Approval Recommended?

Yes

Item Details

Mayor Gilbert and members of the Town Council will congratulate six students from Apex Friendship High School. More details regarding the recognition will be provided at the Town Council meeting.

Attachments

- N/A

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: NEW BUSINESS

Meeting Date: June 11, 2024

Item Details

Presenter(s): Amanda Grogan, Director

Department(s): Budget & Performance Management

Requested Motion

Possible motion to adopt the Fiscal Year 2024-2025 Annual Budget Ordinance and Fiscal Year 2024-2025 Fee Schedule

Approval Recommended?

Yes

Item Details

The proposed Budget is summarized as follows:

General Fund	118,063,600
Electric Fund	60,103,900
Water/Sewer Fund	28,805,900
Stormwater	3,055,300
Other/Special Funds	11,405,400
TOTAL	221,434,100

The proposed Budget as presented includes a tax rate of $0.34 per one hundred dollars ($100) This is a decrease from the current tax rate of $0.44 and an increase of $0.038 over the revenue neutral rate of $0.302. There are proposed changes to the electric, water, sewer and solid waste rates.

Attachments

- NB1-A1: Budget Message - Fiscal Year 2024-2025 Annual Operating Budget and Fee Schedule
- NB1-A2: Fiscal Year 2024-2025 Budget Ordinance - Fiscal Year 2024-2025 Annual Operating Budget and Fee Schedule
- NB1-A3: Fiscal Year 2024-2025 Fee Schedule - Fiscal Year 2024-2025 Annual Operating Budget and Fee Schedule
- NB1-A4: Additional Full-Time (FTE) Positions - Fiscal Year 2024-2025 Annual Operating Budget and Fee Schedule

Town of Apex, North Carolina
FY 2024 – 2025 Annual Budget

Budget Message

The Honorable Jacques K. Gilbert, Mayor
Members of the Apex Town Council

Dear Mayor Gilbert and Apex Town Council:

In accordance with the Local Government Budget and Fiscal Control Act and NC General Statute 159-11, I am pleased to present the proposed Annual Budget for Fiscal Year 2024-2025 for your consideration.

Multiple factors influence the annual budget process, including the condition of the national, state, and local economies and the needs identified in our community by elected officials, staff, advisory boards, and residents. The Town continues to maintain AAA bond ratings from Standard & Poor's Corporation and Aaa with Moody's Investors Service, and we will continue to strive to provide outstanding services by looking for opportunities for improvement. Considering the external effects of the economy and the needs identified for our community, the proposed budget represents the Town's ability to meet its obligations, fulfill its goals, and remain fiscally healthy.

While considering economic factors, staff has remained focused on incorporating strategic plan initiatives supporting the Mayor and Town Council's approved goals and objectives. The Town's strategic plan, Game Plan Apex, is incorporated into departmental plans and has guided staff in developing a proactive budget that balances improving current Town programs and services with developing new programs and projects. The budget highlights Town Council's strategic goals throughout and presents elements from Game Plan Apex and selected performance indicators.

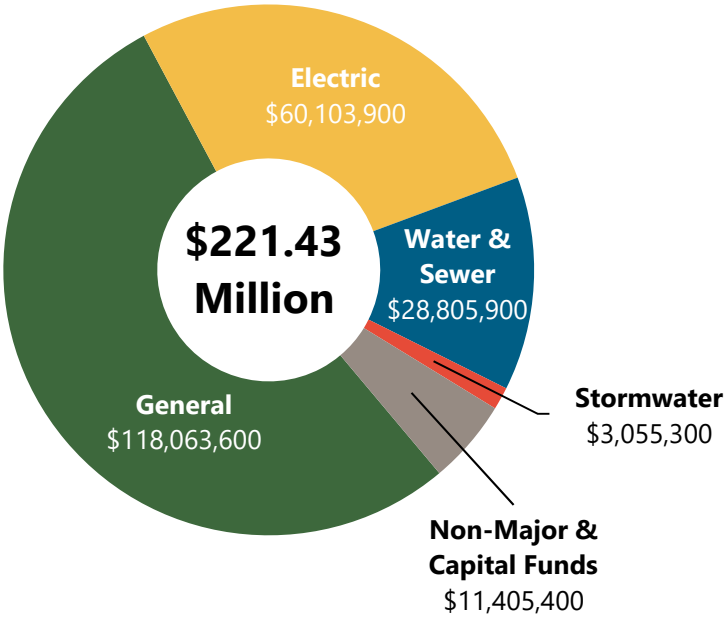
Game Plan Apex – Strategic Goals	
	**Welcoming Community** Create a safe and welcoming environment fostering community connections and high-quality recreational and cultural experiences supporting a sense of belonging.
	**High Performing Government** Deliver exceptional service valuing an engaged workforce with an emphasis on efficiency, collaboration, innovation, and inclusion.
	**Environmental Leadership** Commit to sustaining natural resources and environmental well-being.
	**Responsible Development** Encourage equitable and sustainable development that provides accessibility and connectivity throughout the community.
	**Economic Vitality** Improve and sustain an environment that invites and retains a diversity of residents, employment opportunities, and businesses.

The Town continues to prioritize enhanced service delivery with innovative approaches to engage with our residents. A few highlights incorporated in the FY24-25 Budget include expanding vibrant recreation and cultural programs, introducing a comprehensive language access plan, and enhancing pedestrian safety with upgraded crosswalk beacons to advance our Welcoming Community goal. Apex continues to be a High Performing Government as we welcome customer support staff for our Community Connections Center (311) and add athletic court availability technology at parks. Our dedication to Environmental Leadership is highlighted with funding allocated to shaping the proposed environmental education center, solar installations across Town facilities, and additional electric vehicle charging stations, underscoring our pledge to a sustainable future. New affordable housing initiatives and bike-friendly infrastructure projects demonstrate our unwavering commitment to Responsible Development. Downtown parking expansion with innovative parking availability applications and utility system expansions will accommodate residential and commercial growth and reflect our focus on Economic Vitality.

Recommended Budget

The FY24-25 Recommended Budget totals $221,434,100 for all Town operations, capital improvements, and debt service requirements. This is $5,339,963 (2.35 percent) less than the FY23-24 Amended Budget as of April 1, 2024. Following Town Council's direction, the budget is balanced with a tax rate of $0.34, a decrease of $0.10 from the current tax rate ($0.44). The budget includes a $0.12 base rate increase and a fourteen percent energy charge increase in electric rates, a four percent base rate and volumetric increase in both water and sewer rates, and use of $1,660,000 in fund balance from the General Fund and $1,935,800 in fund balance in the General Fund Debt Service Fund.

Town Expenditures by Fund FY24-25



Budget Highlights

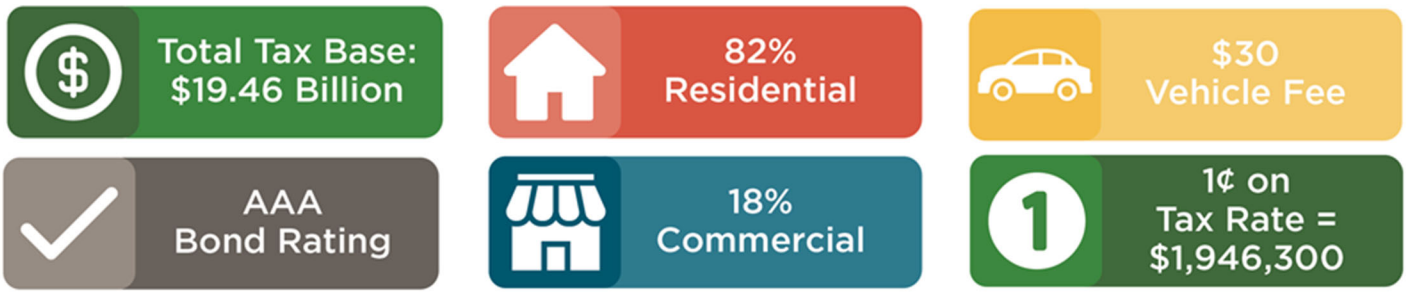
Property Tax Rate
$0.34 per $100 valuation
Property tax rate is $0.10 less than the FY23-24 rate of $0.44
$0.038 more than the revenue neutral rate of $0.302

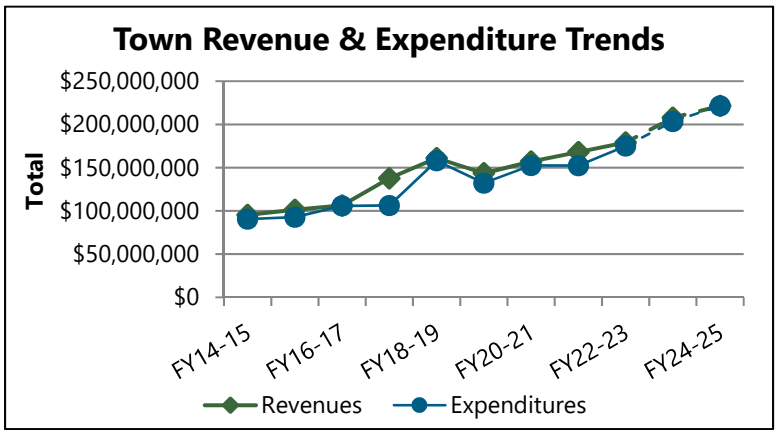
Electric Rates
Residential: $26.50 base charge, $0.1133 per kWh energy charge
Electric base rate increase of $0.12 and kWh energy charge increase of 14%

Water & Sewer Rates
Water: $6.24 base charge, $4.60 - $7.13 per 1000 gal. consumption (tiered)
Sewer: $11.63 base charge, $8.06 per 1000 gal. consumption
Water & sewer base rate and volumetric rate increases of 4%

Waste & Recycling Fees
Residential cart: $10.10; Recycling cart: $5.34
Solid waste & recycling increases of 2.5%, no change in recycling processing fee

Stormwater Fees
Non-residential and residential >5,400 sq. ft.: $5.00 per ERU (Equivalent Residential Unit)
Residential <5,400 sq. ft.: $1.50-$10.00 (tiered)
No change in rates





While North Carolina law requires all counties to revalue real property at least once every eight years, Wake County transitioned from an 8-year to a 4-year revaluation cycle in 2016 to ensure property values more accurately reflect their market value and the property tax burden is spread more equitably across all taxpayers. The 2024 revaluation resulted in a 56 percent overall change in assessed value in the Town of Apex, increasing the tax base from $12.49 billion to an estimated $19.46 billion. As part of the budget process, local governments are required to determine a revenue neutral rate, which is the tax rate that is estimated to produce revenue for the next fiscal year equal to the revenue that would have been produced for the next fiscal year by the current tax rate if no revaluation had occurred. The purpose of the revenue-neutral tax rate is to provide residents with comparative information. The revenue neutral rate calculation is $0.302 using an average growth factor of 6.55 percent.

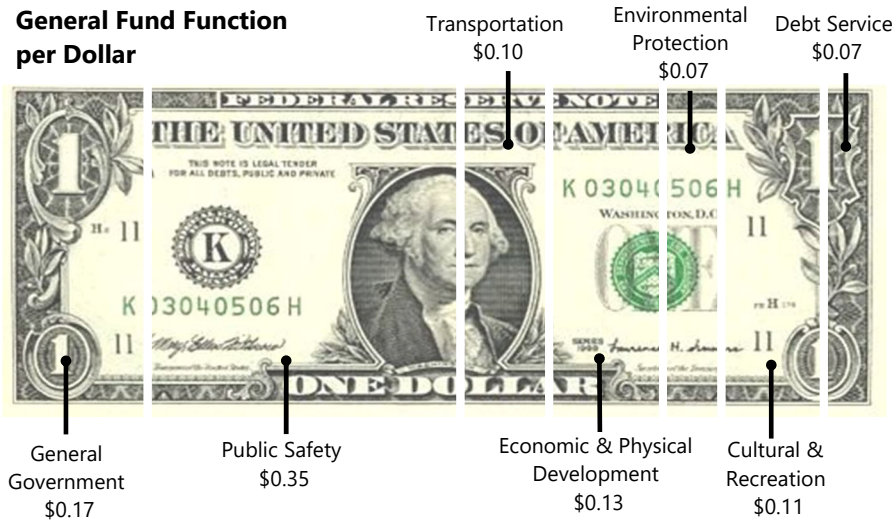
Inflation and supply chain issues continue to create challenges for all departments, and we anticipate these factors will continue to create lingering effects in the new fiscal year. Inflation remains elevated above the Federal Reserve's two percent target. For March, the Consumer Price Index for All Urban Consumers (CPI-U) increased 0.4 percent above February and was up 3.5 percent from the prior year. Electric, Water, and Wastewater utility departments are feeling additional pressure from average chemical cost increases of 12 percent and construction and infrastructure material cost increases of over 30 percent over the past two years.

General Fund

The General Fund accounts for resources not required legally or by sound financial management to be accounted for in another fund. The General Fund includes services that cannot be operated as a business enterprise and rely on tax dollars as their primary source of revenue. The FY24-25 Recommended Budget for the General Fund totals $118,063,600, which is 9.68 percent greater than the FY23-24 Amended Budget of $107,642,065 as of April 1, 2024.

General Fund Expenditures

Apex's population continues to grow. While the five-year average remains high at 7.2 percent, the population growth rate dropped to 4.2 percent in FY21-22 and 3.9 percent in FY22-23. The FY23-24 rate is estimated between four and five percent. That is still a healthy growth rate, but the slowing pace affects the rate of revenue growth and has to be considered when preparing the budget. Growth brings about increasing demands on Town services. To keep pace with this demand and provide new services, the Town must provide necessary resources in the budget. These resources include personnel, supplies, equipment, and investment in facilities and infrastructure. The Town of Apex is dedicated to sound financial management and diligently evaluates all expenditures to maintain a responsible budget and demonstrate good stewardship of public funds. The Town's



22 General Fund departments and divisions are grouped into six primary function areas, as seen in the dollar bill graphic. More than one-third of every dollar spent in the General Fund goes toward public safety, which includes Police, Fire, and Emergency Communications.

Comparing the FY24-25 Recommended Budget to the FY23-24 Amended Budget reflects a decrease in operating capital expenditures and debt service from FY23-24 while increases in personnel costs and operating expenses drive the year-over-year increase. The apparent decrease in General Fund debt service does not accurately reflect the Town's debt service commitments because almost $2 million is offset by a fund balance allocation in the General Debt Service Fund rather than the General Fund. The decrease in capital is tied to purchases of vehicles and specialty equipment in FY23-24; primarily in Streets; Fire; Solid Waste; and Parks, Recreation, & Cultural Resources, some vehicles and equipment were carried over from the prior year due to extended order and delivery dates. Other Uses, including transfers to other funds, increased by 1.03 percent as the Town invests in additional capital projects and transfers funds to project funds in order to account for them.

The combination of 37 new positions, compensation adjustments, health insurance increases, and retirement rate increases all contribute to the 14.78 percent increase in personnel costs. The 37 new General Fund positions include 15 public safety related positions: six police officers, a school resource officer, two civilian traffic crash investigators, two telecommunicators, an intelligence analyst, an accreditation specialist, assistant attorney, and a public safety information technology specialist. New positions also include five positions for Community Development and Neighborhood Connections as the Community Connections Center and Community Engagement programs are built out. Six new positions tied to construction and development are recommended for the Planning, Transportation and Infrastructure Development, and Building Inspections and Permitting Departments, and six new positions support operations in Parks, Recreation, & Cultural Resources.

General Fund Expenditures by Type

Type	FY22-23 Actual	FY23-24 Budget	FY23-24 Estimate	FY24-25 Budget	Percent Change
Personnel	47,115,549	56,567,259	53,480,536	64,929,600	14.78%
Operating	22,902,633	27,399,619	25,903,337	31,342,700	14.39%
Capital	21,442,505	14,212,187	13,243,973	12,955,500	-8.84%
Debt Service	7,810,963	9,463,000	9,463,000	8,835,800	-6.63%
Total	**$99,271,650**	**$107,642,065**	**$102,090,847**	**$118,063,600**	**9.68%**

General Fund Department/Division Budgets

Department/Division	FY22-23 Actual	FY23-24 Budget	FY24-25 Budget	Percent Change	FY23-24 Variance
Governing Body	220,889	556,200	405,700	-27.06%	(150,500)
Clerk	277,178	493,200	856,000	73.56%	362,800
Administration	1,260,943	1,537,300	1,910,900	24.30%	373,600
Human Resources	2,224,514	2,893,700	3,159,700	9.19%	266,000
Information Technology	2,919,875	3,720,726	4,051,100	8.88%	330,374
Legal Services	610,431	629,200	808,200	28.45%	179,000
Economic Development	576,209	849,950	810,800	-4.61%	(39,150)
Communications	523,160	682,900	734,500	7.56%	51,600
Budget & Performance Management	665,485	874,700	1,011,500	15.64%	136,800
Finance	1,075,684	1,259,550	2,027,100	60.94%	767,550
Community & Neighborhood Connections	184,623	834,100	1,522,500	82.53%	688,400
Planning	3,381,243	3,925,906	4,924,500	25.44%	998,594
Facility Services	3,860,054	2,533,566	2,068,300	-18.36%	(465,266)
Police	15,201,065	19,393,022	22,224,400	14.60%	2,831,378
911 Communications	1,189,001	1,872,472	1,949,600	4.12%	77,128

General Fund Department/Division Budgets (cont.)					
Department/Division	**FY22-23 Actual**	**FY23-24 Budget**	**FY24-25 Budget**	**Percent Change**	**FY23-24 Variance**
Fire	15,537,393	17,381,548	17,208,100	-1.00%	(173,448)
Transportation & Infrastructure Dev.	2,509,279	4,130,950	3,986,100	-3.51%	(144,850)
Streets	5,810,349	6,012,955	7,354,500	22.31%	1,341,545
Solid Waste	5,558,331	7,165,097	7,742,800	8.06%	577,703
Fleet Services	703,530	769,603	1,073,000	39.42%	303,397
Inspections & Permitting	2,834,879	3,240,900	3,949,400	21.86%	708,500
Parks, Recreation, & Cultural Resources	8,450,336	10,277,375	12,137,100	18.10%	1,859,725
Cemetery	19,992	25,000	25,000	0.00%	-
Special Appropriations	207,753	371,145	78,000	-78.98%	(293,145)
Other Uses	15,658,491	6,648,000	7,109,000	6.93%	461,000
Debt Service	7,810,963	9,463,000	8,835,800	-6.63%	(627,200)
Contingency	-	100,000	100,000	0.00%	-
Total	**$99,271,650**	**$107,642,065**	**$118,063,600**	**9.68%**	**10,421,535**

General Fund Capital Highlights

The Town intends to maintain outstanding services to the community through our infrastructure and other capital investments during FY24-25. General Fund capital expenditures for FY24-25 are 11.0 percent as opposed to 14.5 percent in FY21-22, 24.3 percent in FY22-23, and 13.2 percent in FY23-24. The FY22-23 original adopted budget included capital spending at nine percent, but the FY22-23 capital spending percentage is skewed due to budget amendments that increased capital spending by $9.9 million during the fiscal year. The FY24-25 Budget for capital includes funds for design work and studies to prepare for bidding and construction in subsequent years. Project costs have increased substantially in the past two years in response to inflation and other market pressures. Council has set a goal to increase capital spending to a level comparable to past years at 12 percent of the overall General Fund budget. Analysis and projections to achieve this goal along with more information about capital projects, including project descriptions, expected funding sources, debt and operating impacts, and schedules, are located in the Capital Improvement Plan section of the budget document. Highlighted below are some of the significant capital projects included in the FY24-25 Recommended Budget. These projects are all related to General Fund activities and may be included in the General Fund budget or a corresponding capital project fund.

Annual Pavement Management – Street Resurfacing ($4,000,000)

The Town is responsible for maintaining 240 miles of municipal streets with an annual resurfacing contract providing for most pavement maintenance needs. Street mileage is growing annually with ongoing development. A recent survey of our streets revealed that deferred maintenance needs to be addressed. This ongoing program focuses on deficiencies in pavement condition throughout Apex and addresses issues, such as potholes, alligator cracking, and rutting, to provide a safe and reliable transportation system. This program also includes lower cost pavement preservation tools to extend pavement life cycle and reduce long term resurfacing costs while ensuring curb ramps on all resurfacing projects comply with state and federal mandates. Powell Bill funding is allocated from the State for road maintenance, but current and future resurfacing costs continue to exceed Powell Bill allocations, requiring General Fund revenues to be allocated.

Olive Chapel Road at Apex Barbecue Road Improvements ($450,000)

This project addresses traffic congestion and reduces potential crashes at the intersection of Olive Chapel Road at Apex Barbecue Road by adding a 150-foot westbound left turn lane, 6-foot paved shoulders allowing for future bike lanes, rumble strips along the edge lines, a wider eastbound right turn radius, and a wood-pole traffic signal on Olive Chapel Road at Apex Barbecue Road. This project completes a sidewalk gap with 500' 10-foot side path eastward along the north side of Olive Chapel Road.

South Salem Street Bicycle Connection ($740,000)

This project includes sharrows (road markings that indicate a shared environment for bicycles and vehicles) along Salem Street from Apex Peakway to Hunter Street and bike lanes along South Salem Street from Pleasant Park to Apex Peakway. This project was the second highest priority identified in Bike Apex: The Comprehensive Bicycle Plan.

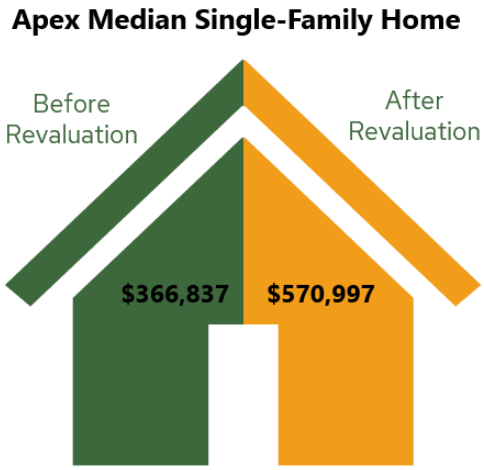
Environmental Education Center ($1,000,000)

This project includes the design and development of a 7,000+ square foot facility at the Nature Park. This design will focus on providing space for nature and environmental education, connecting with the shelter and restroom, and supporting amphitheater programming.

Town Facility Solar Initiative ($670,000)

In alignment with the Town's strategic goal of environmental leadership, this project funds the design and construction of solar panels on Town facilities over a three-year period. Prioritization of solar projects are informed by the Town's Solar Panel Assessment. The budget for this project is for twelve Town facilities that meet the criteria for potential solar panel locations identified in the assessment.

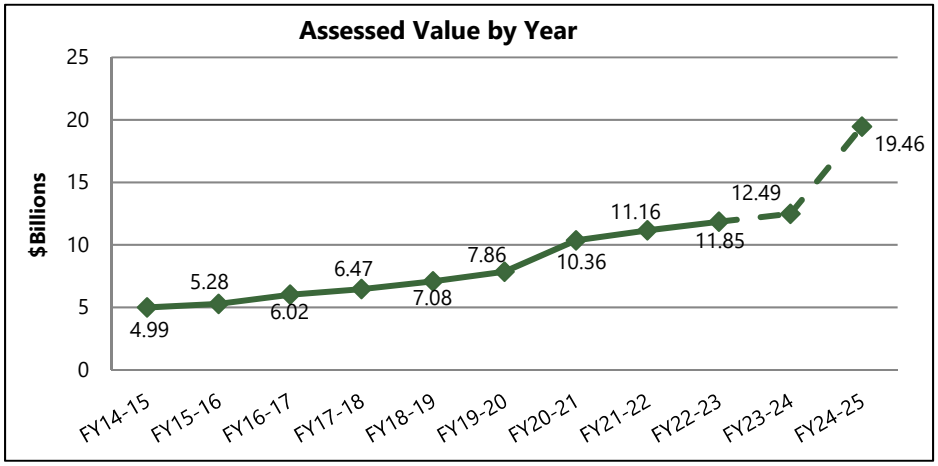
General Fund Revenues



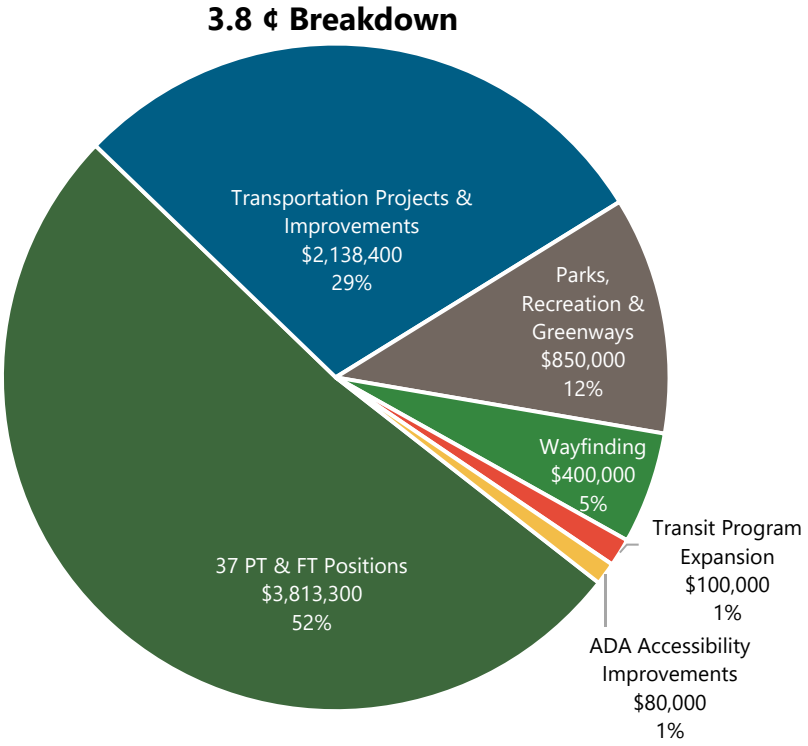
The Town of Apex continues to experience growth in its primary revenue sources – ad valorem taxes and sales tax. Increases in population, development, and property values have naturally contributed to a growing tax base that helps Apex retain a modest tax rate while providing exceptional services. Apex's tax base is still growing, but recent trends indicate a slower pace of growth. The Town issued 1,062 residential certificates of occupancy (COs) in FY21-22 and 1,026 in FY22-23. This corresponds to the population increase and additional property value, but FY22-23 was the third straight year that new COs declined, with FY23-24 anticipated to be the fourth. The Town's assessed value increased by 7.02 percent from 2021 to 2022, 6.1 percent from 2022 to 2023 and 5.6 percent from 2023 to 2024. Due to the 2024 Wake County revaluation, Apex's FY24-25 tax base is projected to grow by 55.4 percent from $6.94 billion to $19.46 with each penny on the tax rate equivalent to $1,946,300 in revenue. The revaluation resulted in an increased value of 57 percent for residential properties and 53 percent for commercial properties. The median single-family home in Apex prior to revaluation was valued at $366,837 and $570,997 after revaluation. Excluding property tax, sales tax revenues, other financing sources, and use of fund balance, all other General Fund revenues collectively represent a 19.4 percent increase from the FY23-24 Amended Budget. Overall, the FY24-25 Budget reflects a 9.68 percent increase in revenues when compared to the FY23-24 Amended Budget.

Ad Valorem Tax

Property taxes represent 55.65 percent of General Fund revenues. For FY24-25, the ad valorem tax base is an estimated $19.46 billion, which will generate $65.7 million in property tax revenue with a tax rate of **$0.34 per $100 valuation** at a 99.1 percent collection rate. This represents an increase in ad valorem revenue of $11.40 million (21.0 percent). **The tax rate is $0.10 less than the FY23-24 tax rate but represents a $.038 increase over the revenue neutral rate of $0.302 from the 2024 Wake County revaluation.**



The $0.038 above the revenue neutral rate generates an additional $7.38 million in revenue. The additional revenue is allocated into six primary categories supporting the Town's strategic plan and initiatives. More than half of this revenue funds additional staffing across 18 departments supporting various services and initiatives, including adding 13 new staff members in Police, Emergency Communications, and Fire. Town Council has prioritized transportation projects and improvements by allocating an additional $1.5 million to pavement management, $250,000 to sidewalk connections, $100,000 to Vision Zero intersection improvement projects, and $288,400 for bike lane easement acquisition, markings, and signag. Allocation to greenway connections increased $200,000, and $650,000 will fund the street hockey rink and an inclusive playground at Apex Community Park. The budget also includes funding for the next phase of the Town's Wayfinding plan, transit program expansion for GoApex Route 2, and ADA accessibility improvements in parks and on sidewalks.



Local Option Sales Tax

Sales tax represents the Town's second largest revenue source in the General Fund at $22.5 million (19.06 percent). The State of North Carolina collects sales tax and distributes it to the local units. Sales tax revenues are distributed on a proportional population basis in Wake County. The population growth in Apex has allowed the Town to increase its share of sales tax revenues. For FY22-23, the Town did not realize its full share of sales tax due to an error in the 2020 Census that excluded approximately 2,200 households that had been annexed into the Town. The Census has acknowledged the error and corrected the population estimate, which added 4,783 people to the Town's 2020 population. The revised numbers were certified as of October 2023, and the additional sales tax revenue is included in the FY24-25 Budget. Sales tax revenues increased significantly the past several years as the economy rebounded from the pandemic and with the natural growth in Wake County. The impacts of inflation and other economic pressures have tempered sales tax projections for the coming year. The Town, however, has continued to see a positive trend during FY23-24 with sales tax revenues up 12.4 percent over the previous year through the January collections. The FY24-25 sales tax estimates reflect this positive trend with a more modest growth rate of six percent over the current end of year projections.

Solid Waste, Recycling, & Yard Waste Fees

The Town currently contracts with a private hauler for solid waste and recycling collections with user fees offsetting the Town's contract cost. Solid waste fees will generate $3,293,400 and recycling fees will generate $1,643,000 in FY24-25. The Town conducts its own yard waste collection and covers the cost with a monthly yard waste fee. The yard waste fee will generate $2,357,300. **Solid waste and recycling fees will increase by 2.5 percent in accordance with our service contract in FY24-25.** A $1.34 per unit processing fee added to recycling services remains unchanged in FY 24-25.

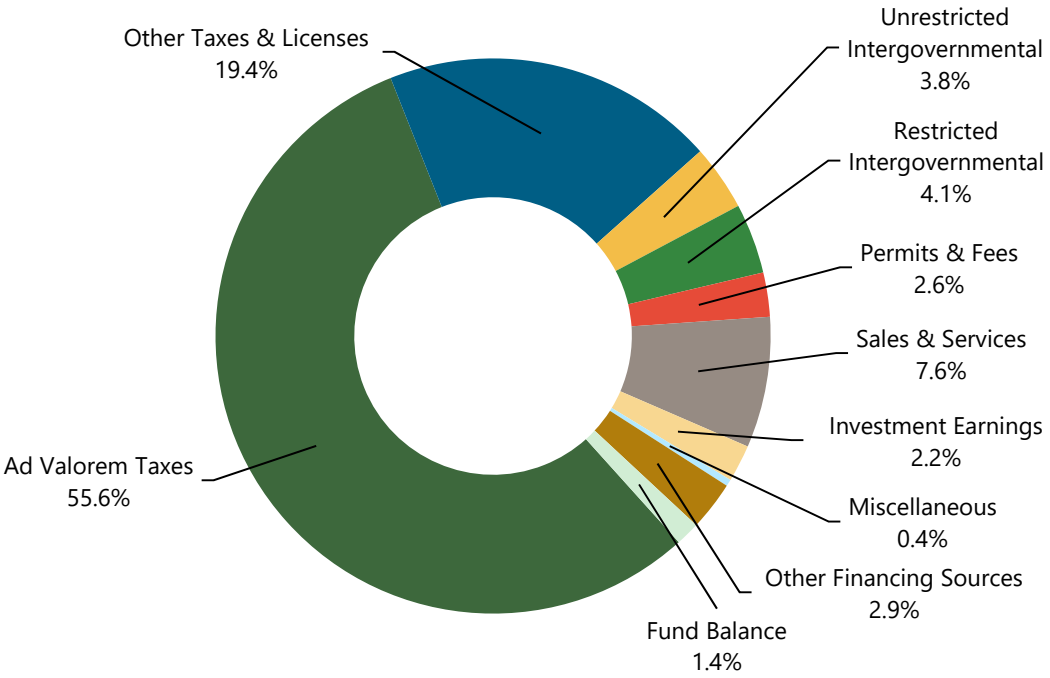
Solid Waste, Recycling, & Yard Waste Monthly Charges		
	FY22-23	**FY24-25**
Yard Waste Collection	$7.83	$7.83
Residential Roll-Out Cart	$9.85	$10.10
Commercial Roll-Out Cart	$20.62	$21.13
Recycling (per Bin or Cart)	$5.24	$5.34
4-CY Dumpster Service	$145.86	$149.72
6-CY Dumpster Service	$173.32	$177.65
8-CY Dumpster Service	$198.85	$203.82

Fund Balance Appropriation

Fund balance is, simply explained, the amount of assets in excess of liabilities in a given fund. These funds enable the Town to meet financial obligations without interruptions due to cash flow, generate investment income, eliminate the need for short-term borrowing, and provide a reserve of funds to respond to emergencies or opportunities. Occasionally, the Town will use money from fund balance to cover one-time expenses, such as specific capital items. The Town evaluates any decision to use fund balance carefully and often plans the use in advance to ensure adherence to the Town's fund balance policy. **The FY24-25 Recommended Budget includes a fund balance allocation of $1,660,000 in the General Fund,** including $670,000 for phase 1 of Town facility solar installation; $740,000 for design of the Salem Street Bicycle Connection; and $250,000 for design of the Kidstowne Park renovation.

General Fund Revenues by Source					
Source	**FY22-23 Actual**	**FY23-24 Budget**	**FY23-24 Estimate**	**FY24-25 Budget**	**Percent Change**
Ad Valorem Taxes	48,234,835	54,294,000	54,155,889	65,696,600	21.00%
Other Taxes & Licenses	19,871,951	21,078,500	21,579,857	22,947,000	8.86%
Unrestricted Intergovernmental	4,261,249	4,330,000	4,135,000	4,506,000	4.06%
Restricted Intergovernmental	3,806,524	4,259,790	3,938,367	4,833,200	13.46%
Permits & Fees	3,710,146	2,514,000	3,509,337	3,038,200	20.85%
Sales & Services	7,677,681	7,803,400	8,517,560	8,998,700	15.32%
Investment Earnings	2,544,666	1,320,850	2,820,000	2,545,000	92.68%
Miscellaneous	804,309	191,500	841,491	467,000	143.86%
Other Financing Sources	4,122,338	2,025,000	2,025,000	3,371,900	66.51%
Fund Balance	-	9,825,025	3,167,925	1,660,000	-83.10%
Total	**$95,033,698**	**$107,642,065**	**$104,694,926**	**$118,063,600**	**9.68%**

General Fund Revenues by Source FY24-25



Enterprise Funds

The Town of Apex operates three major funds as enterprises – the Electric Fund, the Water & Sewer Fund, and the Stormwater Fund. Enterprise funds provide governmental services that can operate similar to a business and are self-sustaining with user rates that generate all revenues to cover expenditures.

Electric Fund

The Electric Fund comprises all revenues and expenditures that result from the Town's electric utility operations. Customer charges and fees generate revenue to support the fund completely. The FY24-25 Recommended Budget for the Electric Fund totals $60,103,900, a 10.91 percent increase from the FY23-24 Amended Budget of $54,191,359 as of April 1, 2024.

Electric Fund Expenditures

The increase in the FY24-25 Electric Fund Budget is primarily due to increases in personnel and operating costs as well as an increase in costs to purchase power. Personnel cost increases reflect two new dedicated positions, an assistant director and a line technician as well as support staff allocations from other departments such as Human Resources and utility billing housed in the Finance Department. The inflationary impact on materials and equipment continue to impact operations and capital costs as evidenced in increases for system expansion and utility maintenance and repair costs. The FY24-25 Budget takes the cost of inflation into consideration. Material costs have increased more than 30 percent over the past two years while the cost of transformers increased 406 percent in 2023 and another 12 percent from 2023 to 2024.

While the utility has been able to minimize rate increases in prior years, FY24-25 presents new challenges. Along with demand and energy rate increases from North Carolina Eastern Municipal Power Agency (NCEMPA), the FY24-25 budget includes an additional $2.3 million resulting from the addition of two riders, or additional charges, resulting from true-up agreements in the power purchase agreement between NCEMPA and Duke Energy Progress. Supply chain issues coupled with delayed material and equipment delivery have resulted in purchase order carryovers, inflating the appearance of capital expenditures over the past few years. The FY24-25 decrease in capital is tied to purchase order carryovers for infrastructure materials with delayed delivery times and a midyear budget amendment to allocate $2.23 million in FY23-24 for system expansion that is offset with developer paid fees.

Proposed purchase rate increases from ElectriCities and increasing operational costs will likely create a need for rate increase over the next couple of years.

Electric Fund Expenditures by Type

Type	FY22-23 Actual	FY23-24 Budget	FY23-24 Estimate	FY24-25 Budget	Percent Change
Personnel	6,148,789	7,147,900	7,106,384	8,215,700	14.94%
Operating	2,492,167	2,715,074	2,456,064	3,200,900	17.89%
Sales Tax	3,015,809	3,054,300	3,258,544	3,882,600	27.12%
Purchase for Resale	29,307,764	32,150,000	31,946,512	38,064,000	18.40%
Capital	4,162,879	7,874,285	7,971,800	6,131,000	-22.14%
Debt Service	1,248,731	1,249,800	1,249,800	609,700	-51.22%
Total	**$46,376,138**	**$54,191,359**	**$53,989,104**	**$60,103,900**	**10.91%**

Electric Capital Highlights

Similar to the General Fund, the Town accounts for large capital projects associated with the electric utility system in a capital project fund. The Electric Fund capital budget includes $4.2 million for annual system expansion, $175,000 for system fault indicators, $230,000 for Mount Zion substation upgrades, and $500,000 for LED street light replacements and upgrades.

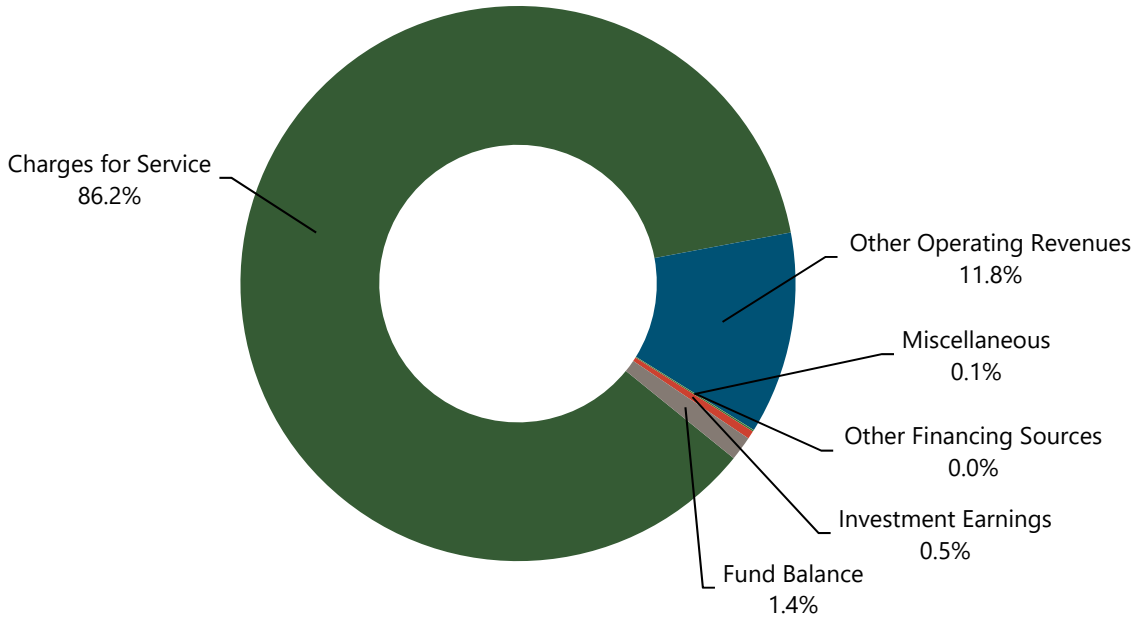
Electric Fund Revenues

Electric Fund revenues for FY24-25 are up 10.91 percent from FY23-24. The Electric Fund generates charges for service through a base rate to cover fixed costs and an energy/demand rate to cover variable costs. The FY24-25 Recommended Budget includes $51.8 million in revenue from charges for service with **a $0.12 increase in the residential electric base charge coupled with an increase of 14 percent in the energy charge.** The rate change will increase the residential base charge to $26.50 per month. Even with the rate increase, Apex electric rates are lower than other local electric utilities. The average residential electric customer can expect an increase of $16.12 per month on their electric bill.

Electric Fund Revenues by Source

Source	FY22-23 Actual	FY23-24 Budget	FY23-24 Estimate	FY24-25 Budget	Percent Change
Charges for Service	41,254,456	44,664,700	46,792,726	51,821,400	16.02%
Other Operating Revenues	4,242,699	6,107,300	7,213,158	7,087,500	16.05%
Other Financing Sources	38,128	10,000	24,012	10,000	0.00%
Miscellaneous	114,756	95,800	33,374	50,000	-47.81%
Investment Earnings	277,748	292,000	334,331	285,000	-2.40%
Fund Balance	-	3,021,559	1,221,559	850,000	-71.87%
Total	**$45,927,786**	**$54,191,359**	**$55,619,161**	**$60,103,900**	**10.91%**

Electric Fund Revenues by Source FY24-25



Water & Sewer Fund

The Water & Sewer Fund comprises all revenues and expenditures that result from the Town's water and sewer utility operations. Customer charges and fees generate enough revenue to support the fund completely. The FY24-25 Recommended Budget for the Water & Sewer Fund totals $28,805,900, a 9.87 percent decrease from the FY23-24 Amended Budget of $31,959,137 as of April 1, 2024.

Water & Sewer Fund Expenditures

The FY24-25 Water & Sewer Fund Budget reflects an increase in all expenditure categories except capital. The Water & Sewer Fund budget includes two new position for FY24-25, a utilities engineering manager in Water Sewer Administration and a field crew supervisor in Water Maintenance. Similar to the Electric Utility, personnel increases are also attributable to increases in personnel and benefits costs for support staff from other departments, such as Human Resources and utility billing housed in the Finance department, because these costs are distributed to the utility funds. Increases in operating expenses reflect an average of 12 percent for treatment chemicals and increased material costs. Water meter and transmitter costs have risen by 18 and 46 percent respectively. The Town purchases this equipment regularly throughout the year in order to effectively account for treated water and identify costly water losses. The FY24-25 Recommended Budget includes $135,000 as part of the Town's continued annual commitment to watershed protection. Capital appears to decrease due to a one-time allocation of $4.1 million in FY23-24 to the Town's Advanced Metering Infrastructure (AMI) project and a $1.25 million transfer to the American Rescue Plan Project Fund for the water tower project. Removing the $5.3 million transferred to these large capital projects, capital expenditures for FY24-25 remain consistent. The overall operating budget for the Water & Sewer Fund, however, would reflect a $2.2 million increase or 8.25 percent.

Water & Sewer Fund Expenditures by Type

Type	FY22-23 Actual	FY23-24 Budget	FY23-24 Estimate	FY24-25 Budget	Percent Change
Personnel	7,731,514	8,615,400	8,260,356	9,681,600	12.38%
Operating	4,148,285	6,343,239	5,527,012	7,004,000	10.42%
Purchase for Resale	5,029,231	5,614,600	5,319,800	5,786,000	3.05%
Capital	4,865,569	7,609,198	7,607,298	2,457,500	-67.70%
Debt Service	3,738,864	3,776,700	3,776,700	3,876,800	2.65%
Total	**$25,513,465**	**$31,959,137**	**$30,491,166**	**$28,805,900**	**-9.87%**

Water & Sewer Fund Department/Division Budgets by Type

Department/Division	FY22-23 Actual	FY23-24 Budget	FY23-24 Estimate	FY24-25 Recommend	Percent Change
Water-Sewer Administration	4,668,238	5,682,052	4,913,004	6,088,800	7.16%
Water Treatment	2,531,058	3,466,300	3,270,052	3,446,500	-0.57%
Water Maintenance	3,628,423	4,179,137	3,988,293	4,174,500	-0.11%
Sewer Treatment	4,570,242	4,456,461	4,318,585	5,121,000	14.91%
Sewer Maintenance	3,631,230	4,948,487	4,874,533	4,430,300	-10.47%
Debt Service	3,738,864	3,776,700	3,776,700	3,876,800	2.65%
Other Financing Uses	2,745,410	5,350,000	5,350,000	1,568,000	-70.69%
Contingency	-	100,000	-	100,000	0.00%
Total	**$25,513,465**	**$31,959,137**	**$30,491,166**	**$28,805,900**	**-9.87%**

Water & Sewer Capital Highlights

Similar to the General Fund, the Town accounts for large capital projects associated with the water and sewer utility system in a capital project fund as well as within the operating fund itself. The Water & Sewer Capital Project Fund for FY24-25 includes the Old Raleigh Road water line replacement ($850,000), Little Beaver Creek gravity sewer extension ($300,000), Wimberly Road water supply vault ($200,000), and Western Wake Water Reclamation Facility and Cary-Apex Water Treatment Plant projects ($916,500). Of this list, coverage for the Old Raleigh Road water line replacement and Wimberly Road water supply vault projects will come from the Water & Sewer operating fund. The Water & Sewer operating budget includes additional capital expenditures totaling $694,500 for compactor and dosing system improvements at the wastewater treatment plant, miscellaneous water meter installations and water main connections, and various vehicle and equipment replacements.

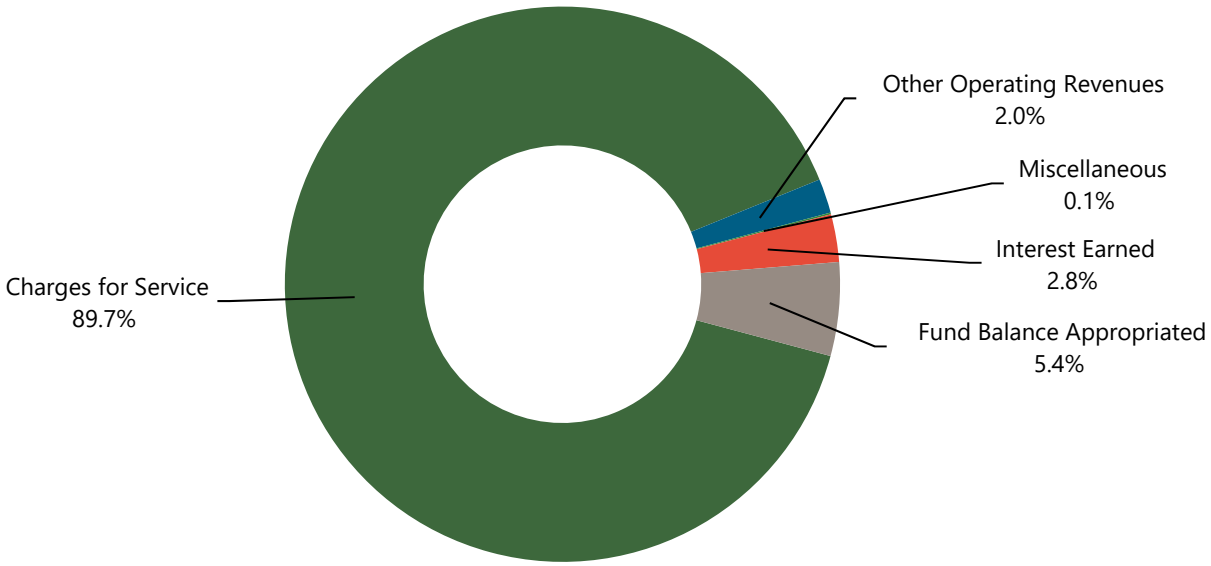
Water & Sewer Fund Revenues

Projections for Water & Sewer Fund revenues rely on many of the same variables as the Electric Fund, thus the similar theme of fixed-cost recovery through base rate charges. The FY24-25 Recommended Budget includes $25,833,900 in revenues from water and sewer charges, an increase of 8.34 percent. New customer growth has averaged just over four percent the past three years. The continued customer growth rate and an increase in water and sewer fees account for the increase in charges for service.

Water & Sewer Fund Revenues by Source

Source	FY22-23 Actual	FY23-24 Budget	FY23-24 Estimate	FY24-25 Budget	Percent Change
Charges for Service	23,241,622	23,846,200	24,279,611	25,833,900	8.34%
Other Operating Revenues	607,078	513,000	648,108	574,000	11.89%
Other Financing Sources	-	206,716	616,716	-	-100.00%
Miscellaneous	59,340	40,000	25,000	30,000	-25.00%
Interest Earned	860,375	475,000	940,800	800,000	68.42%
Fund Balance Appropriated	-	6,878,221	4,100,000	1,568,000	-77.20%
Total	**$24,768,415**	**$31,959,137**	**$30,610,235**	**$28,805,900**	**-9.87%**

Water & Sewer Fund Revenues by Source FY24-25



Water & Sewer Rates

In 2022, the Town performed a new rate study to evaluate existing rates and rates structure. The resulting study and model found that the sewer utility was generating a deficit while the water utility was generating a surplus. Using the rate model, staff reviews water and sewer rates annually and recommends adjustments that ensure the utilities remain self-sufficient while avoiding the need for a significant increase in any one year.

The budget includes a recommendation to **increase the water base rate, water volumetric rate, sewer base rate, and sewer volumetric rate by four percent.** The increases in the base rates are to recover fixed costs and minimize the need for larger changes in the volumetric rates in the future. Water and sewer rates are double for customers outside the Town limits. While utility rates support the increasing personnel and operating costs, capital reserves established through the payment of system development fees by developers offset capital expenses tied to system expansion, which ultimately minimizes rate increases.

Water & Sewer Monthly Rates					
Water Rates	**FY22-23**	**FY24-25**	**Sewer Rates**	**FY22-23**	**FY24-25**
Inside Base Charge	$6.00	$6.24	Inside Base Charge	$11.18	$11.63
Tier 1: < 6,000 gallons	$4.42	$4.60	Outside Base Charge	$22.36	$23.26
Tier 2: 6,000-12,000 gallons	$5.09	$5.29	Inside Volumetric	$7.75	$8.06
Tier 3: > 12,000 gallons	$6.85	$7.13	Outside Volumetric	$15.50	$16.12

It is important to note that the volumetric rate increases effect households based on their usage while the base rate changes affect all households the same. For example, an average family of four or five that uses 5,000 gallons a month will see an increase of $3.14 on their monthly water and sewer bill. Additionally, when comparing Apex to other utility systems in the area, the Town's rates are consistently in the lowest quartile while still providing adequate cost recovery and providing for future capital needs. It is important for the Town to continue to evaluate rates annually to ensure the financial sustainability of the water and sewer utilities.

Stormwater Fund

As of January 1, 2022, the Town began operating its stormwater activities as a self-supporting utility and incorporated stormwater expenses as a distinct division within the Water & Sewer Fund. The Stormwater Fund was established as a separate fund beginning in FY23-24. The Stormwater Fund comprises all revenues and expenditures that result from the Town's stormwater operations. Stormwater fees generate enough revenue to support the fund completely. The FY24-25 Recommended Budget for the Stormwater Fund totals $3,055,300, a 9.20 percent increase from the FY23-24 Amended Budget of $2,797,876 as of April 1, 2024.

Stormwater Fund Expenditures

The FY24-25 Stormwater Fund Budget reflects an increase in personnel and operating expenditures. A new stormwater crew leader and maintenance worker along with compensation and benefit increases and insurance costs represent the increase in the stormwater personnel costs. The primary reasons for the increase in operating expense is tied to the Lake Pine Spillway Repair ($500,000), Seagroves Farm Dam Repair ($100,000), and Phase 3 Condition Assessment contract ($325,000).

Stormwater Fund Expenditures by Type					
Type	**FY22-23 Actual**	**FY23-24 Budget**	**FY23-24 Estimate**	**FY24-25 Budget**	**Percent Change**
Personnel	875,191	1,120,900	1,030,820	1,368,000	22.04%
Operating	286,950	1,067,676	982,630	1,622,300	51.95%
Capital	2,520	609,300	234,300	65,000	-89.33%
Total	**$1,164,661**	**$2,797,876**	**$2,247,750**	**$3,055,300**	**9.20%**

Stormwater Capital Highlights

The Town does not have a separate capital project fund for stormwater, so stormwater projects are accounted for in the operating fund. The Stormwater Fund capital budget includes $65,000 in FY24-25 for purchase of a vehicle for the new stormwater maintenance crew.

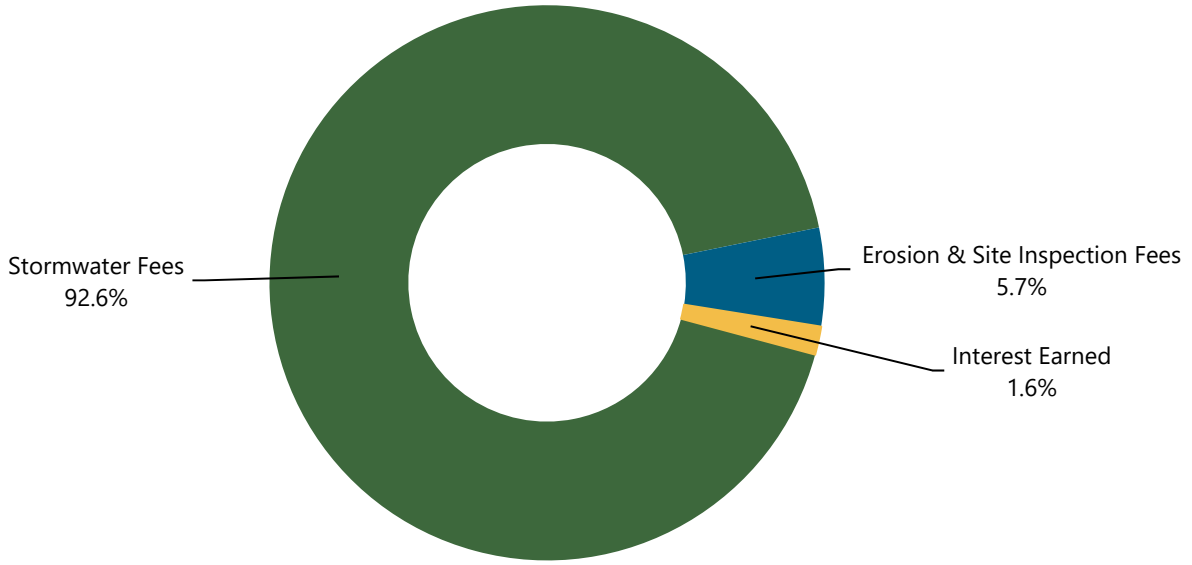
Stormwater Fund Revenues

The FY24-25 Recommended Budget includes $2,830,300 in revenues from stormwater fees, an increase of 12.68 percent. Stormwater fees are the primary revenue source for the fund, making up 92.6 percent of revenues. Erosion and site inspection fees were previously part of the General Fund, but are accounted for in the Stormwater Fund beginning in FY23-24.

Stormwater Fund Revenues by Source

Source	FY22-23 Actual	FY23-24 Budget	FY23-24 Estimate	FY24-25 Budget	Percent Change
Stormwater Fees	2,473,113	2,511,900	2,549,325	2,830,300	12.68%
Erosion & Site Inspection Fees	-	150,000	197,000	175,000	16.67%
Other Financing Sources	-	-	-	-	-
Miscellaneous	-	-	-	-	-
Interest Earned	-	10,000	72,790	50,000	400.00%
Fund Balance Appropriated	-	125,976	-	-	-100.00%
Total	**$2,473,113**	**$2,797,876**	**$2,819,115**	**$3,055,300**	**9.20%**

Stormwater Revenues by Source FY24-25



Stormwater Utility Fee

The stormwater fee structure uses impervious surface area based on equivalent residential units (ERU). The average ERU for Apex residential properties is 2,700 square feet of impervious surfaces, such as rooftops, driveways, sidewalks, and parking lots per property. Town Council added a fifth tier to the stormwater fee structure in January 1, 2024, that applies to residences with over 5,400 square feet (2 ERU) of impervious surface. **The FY24-25 Budget does not include any changes in structure or fees.** Note that properties with less than 400 square feet are exempt from the monthly fee due to minimal stormwater impacts.

Stormwater Rates	
Residential - Detached single-family homes, a duplex, or a manufactured home located on an individual lot or parcel.	
Tier 1: 400-1,500ft^2	$1.50
Tier 2: 1,501-3,000ft^2	$5.00
Tier 3: 3,001-4,000ft^2	$7.50
Tier 4: 4,001-5,400ft^2	$10.00
Tier 5: >5,400ft^2	**Same as Non-Residential**
Non-Residential - Parcels that contain more than two residential units, public/private institutional buildings, commercial buildings, parking lots, churches, etc.	$5.00 per ERU (Total Impervious Area/2,700ft^2 * $5)

Organization Review

During FY22-23, the Town adopted its first strategic plan, Game Plan Apex and began implementing recommendations from the organizational assessment to align departments to perform at an even higher level and ensure Apex remains "the peak of good living". Town departments finalized their departmental strategic plans to correspond with Game Plan Apex and began performance management in FY23-24. Performance measures are included in a PowerBI dashboard and reviewed at least quarterly. Department plans will be reviewed and updated annually. The Town intends to continue implementation of staffing recommendations from the organizational assessment over multiple fiscal years and maintain a four-year staffing plan, which is updated annually. Details regarding changes in organizational structure, reassignment of positions, and new positions are located in the Community and Organizational Profile section of the budget as well as in department-specific budget sections.

Mission, Vision & Peak Principles

Our Peak Principles, which represent our core values, are our foundation for how we interact with one another and the public as we serve our community.

Peak Pledge: We will perform at the highest level by empowering our peers, remaining accountable to each other and those we serve, and continuing the pursuit of knowledge.

Mission

Provide exceptional public service that fosters opportunity for the individual and community to live, thrive, and reach their peak.

Vision

A community unified in the stewardship of our small-town character and natural environment, for a future where all succeed

Peak Principles

Performance: Being stewards of public resources and trust, we will maintain a culture that values exceptional customer service through efficiency and focus on our work.

Empowerment: Knowing that good ideas come from employees at all levels across all departments and divisions, we will maintain a culture that empowers everyone to express their thoughts and provides opportunities to become part of real solutions.

Accountability: Knowing that we are entrusted to be stewards of the public's resources, we will maintain an atmosphere of openness and transparency to one another and to those we serve.

Knowledge: A workforce that pursues knowledge is one that will be better able to anticipate new challenges and respond to those presented.

Personnel

Employee Performance Evaluation and Compensation: The Town's performance evaluation and compensation system is structured around Game Plan Apex, the Town's Peak Principles, and the establishment of clear performance goals and objectives for each employee. For FY24-25, the Town plans to provide two compensation adjustments. The first will be a two percent market adjustment provided to all employees as of the first pay period in July. The second will be merit pay awarded in October following the annual employee performance reviews conducted between July 1 and August 31. The FY24-25 Recommended Budget includes merit adjustments ranging from three to five percent depending on each employee's performance evaluation. The total estimated cost for FY24-25 market and merit adjustments is $2.63 million across all funds with a $3.42 million total impact when all other benefits applied.

Beginning in FY20-21, the Town implemented a $15.00 living wage as a baseline for the Town's compensation plan. The Town's policy is to annually review changes in the area living wage and for the Town Manager to recommend a minimum living wage as part of the annual budget approval process. The Town's current lowest hourly rate is $19.59, which will increase to $19.98 as of July 2024 with the two percent market adjustment.

Employer Retirement Contribution: The North Carolina Local Government Retirement System has notified local governments that the Annual Contribution Rate (ACR) will increase in FY24-25. The employer contribution will increase from 12.85 to 13.63 percent for regular employees and from 14.04 to 15.04 percent for law enforcement officers. Local government employees currently contribute six percent of their salary. The Town's retirement contributions represent $7,9665,500 in FY24-25, an overall increase of $1,319,000 (19.85 percent), which includes retirement costs for salary adjustments and new positions.

401(k) Contribution: The Town provides a five percent 401(k) contribution for all full-time employees. North Carolina General Statutes mandate 401(k) contributions for sworn law enforcement at five percent, a cost of $534,600 in the FY24-25 Budget. Contributions for all other employees represent $2,866,400 in FY24-25.

Health Insurance: While the Town has been able to contain rate increases the past few years, substantial claims have resulted in increases in health premiums. The Town will experience a 5.5 percent healthcare premium increase in FY24-25. The FY24-25 Recommended Budget includes $8,060,500 for healthcare premiums across all funds. The Town's self-funded dental plan will experience a 2.0 percent decrease in insurance premiums for FY24-25, a savings of $8,000.

Retiree Medical Insurance: The Town offers qualifying retired employees a medical insurance benefit until they qualify for the Federal Medicare Insurance Program. This retiree insurance is classified as other post-employment benefits (OPEB). The Recommended Budget includes additional funds for an OPEB trust fund. To prevent long-term financial stress and follow sound financial practices, the Town allocates additional funds for long-term OPEB costs annually. The FY24-25 Recommended Budget includes $350,000 for long-term OPEB expenditures with $266,000 in General Fund, $49,000 in the Electric Fund, and $35,000 in the Water & Sewer Fund. The FY24-25 Budget includes a total of $145,000 to cover pay-as-go Retiree Medical Insurance and long-term OPEB costs in all funds. As of July 1, 2020, the Town no longer offers the retiree medical insurance benefit to new employees. The purpose of eliminating this benefit is to reduce the Town's long-term liability, which currently stands at $32.78 million.

Police Special Separation Allowance: North Carolina General Statutes provide for special compensation to retired law enforcement officers meeting specified criteria. The statutes require the Town to compensate the officer until they reach age 62. The Special Separation Allowance budget in FY24-25 is $266,100.

Position Reclassifications: In FY22-23, the Town reviewed all positions as part of the organizational assessment. In FY24-25, the Town returned to studying approximately one-third of the Town's positions annually to determine correct classifications and appropriate salary ranges based on the area labor market. This fiscal year, the review of public safety positions determined minimal adjustments were needed in the Town's compensation plan.

Career Paths: In FY22-23, after completion of the organization assessment, the Town began reviewing all positions to implement career paths for each position in the organization. A career path is a hierarchy of positions from lowest-level to highest-level within the same line of work or career field. While career paths existed within some departments, beginning in FY24-25, all departments will implement a career path program. The total estimated cost of the new career paths for FY24-25 is $80,000 across all funds.

Additional Positions: The FY24-25 Recommended Budget includes 37 new positions in the General Fund, two new full-time positions in the Electric Fund, two new full-time positions in the Water & Sewer Fund, and two new full-time positions in the Stormwater Fund. With assistance from the 2022 organizational assessment, staff developed a four-year staffing plan to manage the addition of new positions. All new positions will bring the total approved full-time equivalent positions to 676.25 and increase annual personnel costs by $4,639,700. A breakdown of the recommended positions with costs is located in the Supplemental Section of the budget document.

Additional Benefits: As part of the Town's goal to be an employer of choice, the Town is committed to offering flexible programs and benefits that support holistic wellbeing for employees. In FY24-25, the Town plans to continue the Peak Lifestyle Wellness program, which provides employees the flexibility to pursue physical, emotional, and financial wellness up to $1,200 per fiscal year. Examples of eligible expenses include gym passes and memberships, mindfulness and meditation classes, child care services, and financial counseling sessions. The total estimated cost of the Peak Lifestyle Wellness program for FY24-25 is $806,700 across all funds.

Fund Balance

The North Carolina Local Government Commission recommends that local governments maintain a minimum unassigned fund balance of no less than eight percent of expenditures. The Town of Apex has adopted a formal fund balance policy of maintaining a fund balance for the General Fund of at least 25 percent of expenditures. The Town of Apex's estimated non-committed or non-restricted fund balance for the General Fund is $28.8 million or 25 percent of FY24-25 expenditures. The recommended budget **does** include use of fund balance to cover some capital costs. The Town does not use reserves for operating costs and carefully evaluates the use of fund balance for unanticipated opportunities and capital expenses. The use of $1,660,000 in FY24-25 will ensure the available fund balance remains above 25 percent.

The North Carolina Local Government Commission does not have a specific recommendation regarding how much fund balance or retained earnings a local government enterprise operation should maintain. The Town has a target of 90 days cash on hand for the Electric Fund and Water and Sewer Fund with long term plans to begin to increase to 120 days for the health and stability of the enterprise funds. The Town seeks to ensure both funds are financially stable and contain healthy reserves and is currently working to increase days cash on hand in the Electric Fund over the next three years. The Town of Apex's days cash on hand as of June 30, 2023, for the Electric Fund is 59 days ($6.6 million) and for the Water & Sewer Fund is 765 days ($37.8 million). The FY24-25 Recommended Budget **does** include use of reserves in the Electric Fund ($850,000) and the Water & Sewer Fund ($1,568,000).

In summary, the Recommended Budget is a balanced budget in accordance with state statutes, and it attempts to address the priorities set by Town Council for the 2024-2025 Fiscal Year. While it is typically difficult to fund all the requests made by departments or external agencies, the budget team did an excellent job when preparing this budget to include as many requests as possible and ensure alignment with Town Council's strategic goals. The Town has benefited from growth, and it is in a solid financial position going into FY24-25. We must be mindful of the shifting trends in growth rates, smaller increases in revenues, and increasing costs of service delivery. The FY24-25 Recommended Budget is fiscally sound and addresses the top priority needs of the Town. The Town's sound financial practices and budgeting approach have positioned it to continue delivering high-level services for Apex residents. This budget reflects our commitment to maintaining and improving our community and positioning Apex to remain financially sound in the future.

I wish to extend my sincere appreciation to the Budget and Performance Management Department, Finance Department, and other Town team members who helped to prepare this budget. I recommend this proposed budget for Fiscal Year 2024-2025 to the Apex Town Council.

Respectfully submitted,

Randy Vosburg
Town Manager

Town of Apex, North Carolina
FY 2024 – 2025 Annual Budget
Budget Ordinance

BE IT ORDAINED by the Town Council of the Town of Apex, North Carolina that the following anticipated fund revenues and departmental expenditures, together with certain fees and schedules, and with certain restrictions and authorizations, are hereby appropriated and approved for the operation of the Town government and its activities for the fiscal year beginning July 1, 2024 and ending June 30, 2025.

Section 1: General Fund

General Fund Revenues	
Ad Valorem Taxes	$65,696,600
Other Taxes and Licenses	$22,947,000
Unrestricted Intergovernmental Revenues	$4,506,000
Restricted Intergovernmental Revenues	$4,833,200
Permits and Fees	$3,038,200
Sales and Services	$8,998,700
Investment Earnings	$2,545,000
Miscellaneous Revenues	$467,000
Other Financing Sources	$3,371,900
Fund Balance Appropriation	$1,660,000
Total Revenues	**$118,063,600**

General Fund Expenditures	
Governing Body	$405,700
Clerk	$856,000
Administration	$1,910,900
Human Resources	$3,159,700
Information Technology	$4,051,100
Legal Services	$808,200
Economic Development	$810,800
Communications	$734,500
Budget & Performance Management	$1,011,500
Finance	$2,027,100
Community & Neighborhood Connections	$1,522,500
Planning	$4,924,500
Facility Services	$2,068,300
Police	$22,224,400
911 Communications	$1,949,600
Fire	$17,208,100
Transportation & Infrastructure Development	$3,986,100
Streets	$7,354,500
Solid Waste	$7,742,800
Fleet Services	$1,073,000
Inspections & Permitting	$3,949,400
Parks, Recreation, & Cultural Resources	$12,137,100
Cemetery	$25,000
Special Appropriations	$78,000
Other Uses	$7,109,000
Debt Service	$8,835,800
Contingency	$100,000
Total Expenditures	**$118,063,600**

As required by General Statutes Chapter 158-7.1(a), the appropriations made for the purpose of economic development in Section I of the Ordinance have been determined by the Town Council to increase employment opportunities and add value to the tax base for the Town of Apex through industry recruitment, retention, and other support activities.

Section 2: Electric Fund

Electric Fund Revenues	
Investment Earnings	$285,000
Miscellaneous Revenues	$50,000
Charges for Service	$51,821,400
Other Operating Revenues	$7,087,500
Other Financing Sources	$10,000
Fund Balance Appropriated	$850,000
Total Revenues	**$60,103,900**

Electric Fund Expenditures	
Electric Operations	$60,103,900
Total Expenditures	**$60,103,900**

Section 3: Water & Sewer Fund

Water & Sewer Revenues	
Charges for Service	$25,833,900
Investment Earnings	$800,000
Miscellaneous Revenues	$30,000
Other Operating Revenues	$574,000
Fund Balance Appropriated	$1,568,000
Other Financing Sources	$0
Total Revenues	**$28,805,900**

Water & Sewer Expenditures	
Water & Sewer Operations	$28,805,900
Total Expenditures	**$28,805,900**

Section 4: Stormwater Fund

Stormwater Fund Revenues	
Stormwater Fees	$2,830,300
Erosion & Site Inspection Fees	$175,000
Investment Earnings	$50,000
Fund Balance Appropriated	$0
Total Revenues	**$3,055,300**

Stormwater Fund Expenditures	
Stormwater Operations	$3,055,300
Total Expenditures	**$3,055,300**

Section 5: Police State Funds

Police - State Funds Revenues	
Investment Earnings	$2,400
Miscellaneous Revenues	$1,500
Total Revenues	**$3,900**

Police - State Funds Expenditures	
Reserved for Future Expenditures	$3,900
Total Expenditures	**$3,900**

Section 6: Police Federal Funds

Police - Federal Funds Revenues	
Investment Earnings	$800
Total Revenues	**$800**

Police - Federal Funds Expenditures	
Police Operations	$800
Total Expenditures	**$800**

Section 7: Police - Donations

Police - Donations Revenues	
Investment Earnings	$1,000
Police Contributions	$11,000
Total Revenues	**$12,000**

Police - Donations Expenditures	
Police Operations	$12,000
Total Expenditures	**$12,000**

Section 8: Fire - Donations

Fire - Donations Revenues	
Investment Earnings	$600
Miscellaneous Revenues	$100
Total Revenues	**$700**

Fire - Donations Expenditures	
Fire Operations	$700
Total Expenditures	**$700**

Section 9: Affordable Housing Fund

Affordable Housing Fund Revenues	
Investment Earnings	$71,500
Transfer from General Fund	$1,315,700
Fund Balance Appropriated	$0
Total Revenues	**$1,387,200**

Affordable Housing Fund Expenditures	
Contracted Services	$250,000
Reserved for Future Expenditures	$1,137,200
Total Expenditures	**$1,387,200**

Section 10: Health & Dental Fund[1]

Health & Dental Fund Revenues	
Health Premiums	$7,249,200
Spouse/Dependent Health	$1,442,400
Retiree Contribution	$35,000
Dental Premiums	$350,500
Spouse/Dependent Dental	$218,300
Vision Premiums	$90,000
Total Revenues	**$9,385,400**

Health & Dental Fund Expenditures	
Health Claims	$6,978,200
Dental Claims	$543,900
Admin Fees - Health	$1,020,900
Health Claims - Retirees	$24,900
Dental Claims - Retirees	$669,400
Admin Fees - Retirees	$58,100
Vision	$90,000
Total Expenditures	**$9,385,400**

1. In accordance with NCGS 159-13.1, the Town adopts the Financial Plan for the Health and Dental Fund to provide health and dental coverage to employees and retirees. Payments to the fund are included in the annual budget of the other funds.

Section 11: Cemetery Fund

Cemetery Fund Revenues	
Sales & Services	$0
Investment Earnings	$15,000
Total Revenues	**$15,000**

Cemetery Fund Expenditures	
Reserved for Future Expenditures	$15,000
Total Expenditures	**$15,000**

Section 12: General Debt Service Fund

General Debt Service Fund Revenues	
Fund Balance Appropriated	$1,935,850
Transfer from General Fund	$8,835,800
Total Revenues	**$10,771,650**

General Debt Service Fund Expenditures	
Debt Service - Principal	$7,306,600
Debt Service - Interest	$3,465,000
Total Expenditures	**$10,771,600**

Section 13: System Development Fee Fund

Water & Sewer Capital Reserve Fund Revenues	
Capital Reimbursement Fees - Water	$1,600,000
Capital Reimbursement Fees - Sewer	$3,000,000
Fund Balance Appropriated	$0
Total Revenues	**$4,600,000**

Water & Sewer Capital Reserve Fund Expenditures	
Transfer to Water & Sewer Fund	$0
Transfer to Water & Sewer Project Fund	$1,216,500
Reserved for Future Expenditures	$3,383,500
Total Expenditures	**$4,600,000**

Section 14: Perry Library Trust Fund

Perry Library Trust Fund Revenues	
Fund Balance Appropriated	$650,000
Total Revenues	**$650,000**

Perry Library Trust Fund Expenditures	
Capital Outlay - Improvements	$650,000
Total Expenditures	**$650,000**

Section 15: Recreation Capital Reserve Fund

Recreation Capital Reserve Fund Revenues	
Subdivision Recreation Fees	$1,400,000
Total Revenues	**$1,400,000**

Recreation Capital Reserve Fund Expenditures	
Transfer to General Fund	$0
Transfer to Recreation Project	$1,000,000
Reserved for Future Expenditures	$400,000
Total Expenditures	**$1,400,000**

Section 16: Transportation Capital Reserve Fund

Transportation Capital Reserve Fund Revenues	
Motor Vehicle Licenses	$1,400,000
Total Revenues	**$1,400,000**

Transportation Capital Reserve Fund Expenditures	
Transfer to General Fund	$150,000
Transfer to Street Project Fund	$1,250,000
Total Expenditures	**$1,400,000**

Section 17: Electric Debt Service Fund

Electric Debt Service Fund Revenues	
Transfer from Electric Fund	$609,700
Total Revenues	**$609,700**

Electric Debt Service Fund Expenditures	
Debt Service - Principal	$444,000
Debt Service - Interest	$165,700
Total Expenditures	**$609,700**

Section 18: Water & Sewer Debt Service Fund

Water & Sewer Debt Service Fund Revenues	
Transfer from Water Sewer Fund	$3,876,800
Total Revenues	**$3,876,800**

Water & Sewer Debt Service Fund Expenditures	
Debt Service - Principal	$3,203,200
Debt Service - Interest	$673,600
Total Expenditures	**$3,876,800**

Section 19: Levy of Taxes

There is hereby levied a tax at the rate of thirty four cents ($0.34) per one hundred dollars ($100) valuation of property as listed for taxes as of January 1, 2024, for the purpose of raising the revenue listed Ad Valorem Taxes 2024-2025 in Section 1: General Fund of this ordinance. This rate is based on a valuation of property for purposes of taxation of $19,463,015,380 and an estimated rate of collection of 99.1%, an increase of $0.038 over the revenue neutral rate of $0.302.

Section 20: Fees & Charges

There is hereby established, for Fiscal Year 2024-2025, various fees and charges as contained in the Fee Schedule attached to this document. All mileage reimbursements for the use of personal vehicles shall be the same as the allowable IRS rate in effect on the date of travel. All daily and monthly subsistence schedules previously adopted shall remain in effect.

Section 21: Elected Official Compensation

Pursuant to NCGS 160A-64 and acceptance by each member, elected official annual compensation will increase following the same market adjustment amount as all other staff. Compensation shall be amended as follows: Mayor - increase of 2% from $21,645 to $22,078; Mayor Pro-Tem - increase of 2% from $15,982 to $16,302; Council Member - increase of 2% from $15,384 to $15,692. Monthly stipend remain unchanged at Mayor/$319.58, Mayor Pro Tem/$259.83, Council Member/$256.25.

Section 22: Special Authorization of the Budget Officer

a) The Budget Officer shall be authorized to reallocate fund appropriations among the various objects of expenditure as they deem necessary, provided such reallocations do not increase or decrease the total budget for any fund.
b) The Budget Officer shall be authorized to amend this budget as necessary to fulfill all obligations evidenced by a purchase order outstanding on June 30, 2024.

Section 23: Use of the Budget and the Budget Ordinance

This Ordinance and the budget document shall be the basis for the financial plan of the Town of Apex for Fiscal Year 2024-2025. The Budget Officer shall administer the budget and the Finance Director shall establish records which are in agreement with the budget, this ordinance, and the appropriate statutes of the State of North Carolina.

Section 24: Distribution

Copies of this ordinance shall be furnished to the Budget Officer and the Finance Director of the Town of Apex so that they may keep this ordinance on file for their direction and disbursement of funds.

Adopted this the 11th of June, 2024.

Attest:

Jacques K. Gilbert, Mayor

Allen Coleman, Town Clerk

Approved as to form:

Laurie Hohe, Town Attorney

Town of Apex, North Carolina
Fee Schedule - Effective 7/1/2024

Schedule subject to change upon approval by Town Council

TAXES & FEES			
Tax Rate	$0.34/$100 valuation of property	Vehicle Fee (pursuant to NCGS 20-97 (b1)	$30/vehicle

DOCUMENT / COPY FEES			
Copying up to 11" x 17" (black and white)	$0.10/sheet	Document Recording / E-Recording	At cost
Copying and maps up to 11" x 17" (color)	$0.40/sheet	3 ring or spiral bound documents/plans	$35
Copying larger than 11" x 17" (black and white)	$5/sheet	Unified Development Ordinance	$40
Copying larger than 11" x 17" (color)	$20/sheet	Design and Development Manual	$15
Printed 24" x 36" maps	$20/sheet	DVD Copy	$0.50/disc
Printed 36" x 48" maps	$40/sheet		

MISCELLANEOUS					
Rain Barrel	$88.00	**Cemetery**	**Resident**	**Non – Resident**	**Military Rate***
		– Cemetery Plots	$800	$1200	$640 (resident) $960 (non-resident)
		– Columbarium Niches	Single Urn: $1,400	Double Urn: $2,000	$1,120 / $1,600
		*20% cemetery discount-Military rate applies to current and retired military personnel only			

Development Fees

PUBLIC RIGHT-OF-WAY CLOSURE			
Submit request and fees to Administration			
Right-of-Way Closure Application Fee	$100	Right-of-Way Closure Processing Fee	$600
Due with request/application/non-refundable		Due prior to Council considering request; refundable if request is withdrawn prior to advertising.	

DEVELOPMENT SUBMITTAL FEES			
For Zoning/Subdivision/Site Activity - Calculated and collected by the Planning Department			
Administrative Adjustment	$150	Sign, Master Plan	$200
Administrative Approval (Small Town Character Overlay)	No Charge	Sign, Permanent	$75+$10/add'l sign
Annexation Petition	$300; $200 for well/septic failure	Sign, Temporary	$50
Appeal (Board of Adjustment)	$650	Site Inspections (Non-residential lot)$_2$	$500
		Site Inspections (Residential lot)$_3$	$50
Certificate of Zoning Compliance (CZC)$_1$	$125	Site Plan, Major	$1,500+$10/acre
Consultant Fees	As required	Site Plan, Minor	$800 +$30/acre
Development Name Change	$500	Special Use Permit	$700
Exempt Site Plan – enlargement of a structure or parking area	$400	Temporary Use Permits (Non - Event):	$100
Exempt Site Plan – all other exempt site plans	$200	Temporary Use Permits (Event):	
Home Occupation	$50	For Profit $50 — For Profit Express Review	$75
Late Fee – Site Plans/Master Subdivision Plan/PUD/Rezoning/Conditional Zoning (and resubmittals)	$350	Non-Profit $0 — Non-Profit Express Review	$25
Master Subdivision Plans Residential & Non-Residential	$900 + $10/lot	Text Amendments (UDO)	$600
Planned Development (PUD-CZ, TND-CZ, MEC-CZ) & Sustainable Development (SD-CZ)	$2,000 +$25/acre	Transportation Impact Analysis Review$_4$	
PUD-CZ, TND-CZ, MEC-CZ, OR SD-CZ revision not requiring full TRC Review	$800	Sites & Subdivisions $600 — PUD	$1,200
Plat, Easement & Exempt	$200	Revised Sites & Subdivisions $300 — Revised PUD	$600
Plat, Master Subdivision Final	$300 + $10/lot	Tree Protection Fencing Inspection (Site Plan):	
Plat, Recombination	$200	- less than 2 acres: $50 — - 2-15 acres:	$75
Plat, Site Plan Final	$300	-15 up to 25 acres: $150 — -25+ acre:	$200
Pond Drainage Plan	$500	Tree Protection Fencing Inspection (Master Subdivision Plan):	
Quasi-Judicial Public Hearing- Town Council Only	$500	- up to 15 acres: $75 — - 15-50 acres:	$150
Re-submittal Fees – Site Plans and Master Subdivision Final Plats: at 3rd submittal; Master Subdivision Plans; at 4th submittal	½ Original Fee	- 51+ acres: $300 Tree Removal Plan	$500
Rezoning/Conditional Zoning	$700 +$25/acre / $1,000 +$25/acre	Variance Permit	$650
Sustainable Development Conditional Zoning (SD-CZ)	$1,600+$10/	Zoning Verification Letter	$125

1. No charge for the 1st tenant in a new building 2. Charged at Site Plan Final 3. Charged at permit 4. Projects inactive for 1 year require new TIA & full submittal fee

RECREATION FEES[1]

For New Residential Developments Assessed after 1/1/2024 - Collected by the Planning Department

Housing Type	Fee Per Unit	Acreage Per Unit	Decimal Multiplier
Single Family Detached	$4,165.28	1/30 acre	0.0333
Single Family Attached	$2,805.34	1/45 acre	0.0223
Multi-Family Attached	$2,470.00	1/51 acre	0.01964

Existing Town ordinances require either the dedication of open space for public recreation or the payment of a fee in lieu per unit. The requirement regarding land dedication or fee in lieu will be based, in large part, on the Town's adopted Parks, Recreation, Greenways, and Open Space Master Plan. Recommendations regarding the acceptance of land or fee in lieu are made to the Town Council by the Parks, Recreation, and Cultural Resources Advisory Commission.

1. Annually on January 1, the fee amount shall be automatically adjusted in accordance with UDO §14.7.1(B).

ENCROACHMENT AGREEMENT

Submit to Development Services

Encroachment agreement preparation and recording	$250 + eRecording Fee at Cost

CONSTRUCTION FEES/BONDS

Calculated and collected by Development Services

Bond Administration Fee:	- Cash/check: $100	- Surety Bond/Letter of Credit $300	- Reduction/Amendment $100
Fee in Lieu Administration Fee:	$250		

Construction Plan Submittal Fees (Subdivisions)	$700 + $10/Lot
Construction Plan Submittal Fees (Sites, Utility Extensions, etc.)	$700 + $15/Sheet
Re-submittal Fees – Construction Plans (3rd submittal and every other subsequent submittal (3rd, 5th, 7th, etc.)	½ Original Fee
Late Fee – Construction Plan Submittal and Resubmittal	$350
Construction Plan Revisions (after initial approval)	$75/sheet
Pump Station Review	$2,000
Water System Management Plan Hydraulic/Fire Flow Analysis	$500
Downstream Sewer Analysis	$500
Water Extension Permit Application	$200
Sewer Extension Permit Application	$480
Water and/or Sewer Extension Permit Amendment	$100 each
Exception Request (Utilities/Stormwater/Traffic)	$150 each per Standard
Infrastructure Extension Record Drawing Review (1st & 2nd reviews)	$200
Infrastructure Extension Record Drawing Review (3rd, 5th, 7th, etc. reviews)	$100
Infrastructure Extension Record Drawing Review (after initial approval/field changes)	$100

Construction Inspection Fees:

Water Lines	$1.75 per linear foot	Fire Lanes	$1.75 per linear foot
Sewer Lines	$1.75 per linear foot	Sidewalks/Greenways	$1.50 per linear foot
New Streets (public)	$1.75 per linear foot per lane	Infill/Outparcel Lots	$350 per lot
Curb & Gutter (All New/replaced public)	$0.50 per linear foot	Driveway, residential	Per Building Permit Schedule
Storm Drains (public)	$1.50 per linear foot	Driveway, not ready	Per Building Permit Schedule
Pump Station Inspection	$1,500 each	Driveway, reinspection	Per Building Permit Schedule
Performance Bonds	125% of cost of uninstalled Improvements		

**Repairs to damages water/sewer lines caused by construction shall be billed to the responsible party and include the cost of materials + 10% and current equipment and labor rates.*

STORMWATER PLAN REVIEW & INSPECTION FEES/BONDS

Submit to Development Services

Project Size (disturbed acres)	Stormwater Plan Review Fee
< 1 acre	$0
1 – 5 acres	$600
5 - 50 acres	$600 + $60 per additional disturbed acre

$500 base review fee for projects disturbing up to 5 acres. Add $50 per additional disturbed acre beyond 5 acres. Development projects that disturb less than 1 acre of land are not subject to the stormwater plan review fees since they are exempt from stormwater controls. The stormwater plan review fee will be limited to a maximum of 50 acres.

SCM Maintenance Bond	25% of cost of installed and approved Infrastructure
SCM Performance Bond	125% of cost of uninstalled Improvements
SCM Inspection	$200 per SCM
SCM As-Built Review: (1st & 2nd reviews)	$200 per SCM
SCM As-Built Review (3rd, 5th, 7th, etc. reviews)	$100
SCM As-Built Revision (after initial approval)	$100
Floodplain Development Permit – Elevation Certificate	$200
Floodplain Development Permit – FEMA Map Revision	$750
Riparian Buffer Authorization	$150
Riparian Buffer Determination	$250

SOIL AND EROSION CONTROL FEES/GUARANTEES

Submit to Development Services

Application for S&E Plan Approval	$600 per disturbed acre
Future Lot Grading*	$60 per acre of remaining building lot acreage
S&E Performance Guarantee**	$2,500 per disturbed acre

*The future lot grading fee provides coverage under an erosion control permit and ensures compliance with NPDES stormwater regulations. Only the additional land disturbance associated with future building lots needs to be included.

**Performance guarantee must be in the form of a certified check, cash, or irrevocable letter of credit approved by the Town. The performance guarantee is due prior to the Town issuing a Letter of S&E Plan Approval and may be fully refunded after the issuance of the certificate of completion.

COMMERCIAL BUILDING PERMIT FEES

Calculated and collected by Building Inspections and Permitting

NEW STRUCTURES, ADDITIONS AND ALTERATIONS (Base Fee) 1,2,3

Total Gross Building Floor Area of Construction	Fee Computation
0 - 500	Per Trade (see schedule below)
501 - 5,000	A x B = Permit Fees
5,001 - 10,000	(A x B X .80) + (1,000 X B) = Permit Fee
10,001 - 15,000	(A x B X .70) + (3,000 X B) = Permit Fee
15,001 - 20,000	(A x B X .60) + (4,500 X B) = Permit Fee
20,001 - above	(A x B X .50) + (6,500 X B) = Permit Fee
A=Total Gross Building Floor Area	**B= Fee Per Square Foot Based Upon Occupancy**

1. Alterations to existing structures, with no footprint increase, are charged at a rate of .60 of the Permit Fee or the minimum per trade fee based upon the Single Trade Fee Schedule, whichever is greater.
2. Permits for "shell" buildings are charged at a rate of .60 of the Permit Fee, based upon a Business Occupancy, or the minimum per trade fee based upon the Single Trade Fee Schedule, whichever is greater. Area within the building shell, which is intended to be occupied, will have the permit fees for the occupied area computed per footnote #1 above.
3. Additional Miscellaneous Fees, listed below, will be added to the permit fees as applicable.

Single Trade Fee Schedule

Building/Pool/Hot Tub Building	$150
Electrical/Pool/Hot Tub Electrical	$75
Mechanical/Pool/Hot Tub Mechanical	$75
Plumbing/Pool/Hot Tub Plumbing	$75
Grading	$75

Fee Per Square Foot of Floor Area Based on Occupancy

Occupancy	Fee	Occupancy	Fee	Occupancy	Fee
Assembly	$0.55	Factory/Industrial	$0.40	Mercantile	$0.50
Business	$0.60	Hazardous	$0.50	Residential	$0.55
Educational	$0.60	Institutional	$0.60	Storage/Utility	$0.30

MISCELLANEOUS FEES

Administrative Adjustment	$75
Change of General Contractor	$50
Conditional Electrical Power Inspection (Apex and Duke)	Optional Inspection
Conditional Mechanical Systems Inspection	Optional Inspection
Demolition (All Trades)	$120
Dumpster Enclosure	$150 (Single Trade Building)
Electric Vehicle Parking	$75 per site (No fee when at an existing development)
Elevator	75 per elevator
Fire Alarm	$75
Fire Pumps, each	$250
Fire Sprinkler System	$0.03 per square feet
Fire Suppression	75
Grease/Oil Interceptor	75
Hood Suppression	$75
Irrigation System	See Irrigation Meters (pg 5) + Capital Reimbursement Fees (pg 6)
Refrigeration	$75
Retaining Wall Permit	$1 per linear foot
Sales/Construction Trailer/Modular Classroom	Per Single Trade Fee Schedule
Sign – New	$150 + $75 if electrical needed
Site Lighting	$75
Solar PV System	$300
Spray Paint Booth, each	$150
Storage Tank, each	$50 Plus Associated Single Trade Fees
Temporary Power (Town of Apex)	$125
Water and Sewer Capital Reimbursement Fees and Water Meters	Refer to Capital Reimbursement Fee Schedule (pg 6)
Work Without a Permit	Double Permit Fees
Stop Work Order	$150 (May Require Extra Trip Fee)
Expired Permit	½ Cost of Original Permit Fee

PLAN REVIEW FEES (Non-refundable)

Per Trade (Not applied toward cost of permit)	$100 (no fee for Electric Vehicle Parking at an existing development)
Plan Modification (Not applied toward cost of permit)	½ Review Fee or ½ per trade fee for single trade modifications
Re-review fee (Not applied toward cost of permit)	½ Review Fee @ 3rd, 5th, 7th, etc.
Re-stamp Plans, Per Trade	$75
Retaining Wall, per submitted grouping (at least one per project/subdivision)	$100

EXPRESS PLAN REVIEW (2 hr. min) *

First Hour	$1,000
Each additional 15 minutes	$250
Cancellation Fee (3 days prior notice)	$200

**when service is available*

ADMINSTRATIVE FEES

Duplicate Building Record Card	$10
General Records Research, Archive Files	$3/page
[illegible] Records Research, Current Files over 10 pages	$0.50/page

INSPECTION FEES			
Water Resources Certificate of Occupancy - Water/Sewer Final	$100	Job not ready for inspection or installation of tap, meter, etc.	$150
Standard re-inspection fee (Building, Electrical, Mechanical, Plumbing, Driveway, Water, and/or Sewer)	$75	Cancelled Inspection fee (not cancelled by 8:00 am of scheduled day)	$75
Previous violations not corrected (all trades)	$150		

ONE AND TWO FAMILY DWELLING PERMIT FEES

Calculated and collected by Building Inspections and Permitting

NEW STRUCTURES (Single Family/Duplex/Townhomes)	$/SQ. FT.	MIN/$/UNIT
3,000 Gross SF and Less	$0.35	$500
>3,000 Gross SF:(3000SFx $0.35/SF)+(Additional SF x $0.35/SF x.75) = Permit Fee	Per Formula	

ADDITIONS/ALTERATIONS 800 SQUARE FEET AND GREATER	$/SQ. FT.	MIN/$/UNIT
Building	$0.19	$150
Electrical	$0.09	$75
Plumbing	$0.09	$75
Mechanical	$0.09	$75

ADDITIONS/ALTERATION LESS THAN 800 SQUARE FEET	MIN/$/UNIT
Building	$150
Electrical	$75
Plumbing	$75
Mechanical	$75

ACCESSORY STRUCTURES	MIN/$/UNIT
Decks, Sheds, Roof Additions & Detached Garages, 400 sq. ft. or less	$75
Decks, Sheds, Roof Additions & Detached Garages > 400 sq. ft.	$150
Trellis (Attached to a structure)	$75
Retaining Wall Plan Review	$100
Retaining Wall	$1 per linear foot

SINGLE TRADE FEE SCHEDULE	
Building/Pool/Hot Tub Building	$150
Electrical/Pool/Hot Tub Electrical	$75
Mechanical/Pool/Hot Tub Mechanical	$75
Plumbing/Pool/Hot Tub Plumbing	$75
Grading	$75

MISCELLANEOUS	
Administrative Adjustment	$75
Change of General Contractor	$75
Change of Lot	$75
Demolition (All Trades)	$150
Driveway	$100/lot
House Moved	$375
Irrigation	See Irrigation Meters (pg 5) + Capital Reimbursement Fees (pg 6)
Mobile Home (All Trades)	$150
Modular Home (All Trades)	$375
Solar PV System	$300
Temporary Power (Town of Apex Only)	$125
Work Without Permit	Double Permit Fees
Expired Permit	½ Cost of Original Permit Fee

PLAN REVIEW FEES (Non-refundable)	
Initial Fee for New Single Family and Townhome Construction (Not applied to cost of permit)	$110
Initial Fee All Other Construction (Not applied toward cost of permit)	$100
Plan Modification Fee (Not applied toward cost of permit)	½ Review Fee
Re-review Fee (Not applied toward cost of permit)	½ Review Fee @ 3rd, 5th, 7th, etc.
Re-stamp Plans	$60

INSPECTION FEES	
Water Resources Certificate of Occupancy - Water/Sewer Final	$100
Standard re-inspection fee (Building, Electrical, Mechanical, Plumbing, Water, and/or Sewer)	$75
Job not ready for inspection or installation of tap, meter, etc.	$150
Previous Building, Electrical, Mechanical, Plumbing violations not corrected	$150
EXPRESS PLAN REVIEW (2 HOUR MINIMUM) – When service is available	
First Hour	$600 + $150 each additional 15 minutes
Cancellation Fee without (3 days prior notice)	$200

ELECTRICAL UNDERGROUND AND SERVICE LATERAL FEES

Calculated by the Electric Department

Primary Facilities:
Collected by Electric Department
Based on cost difference of normal overhead facilities and the requested underground facilities.

Single-Family	$3,498/lot
Townhomes	$2,403/unit
Apartments	@ cost determined at submittal request
EV Chargers	@ cost determined at submittal request

Service Laterals:
Collected by Building Inspections Permitting
Charges are for the first 100 feet of service length. An excess footage charge, if applicable, is billed separately by the Electric Utilities Division at $4.25/foot over 100 feet.

Single-Family	$776/service lateral
Townhomes	$776/service lateral
Apartments	Apartments are typically served with multiple meter bases at approved service laterals are usually installed in conjunction with the cilities and service lateral charges do not apply

WATER TAPS AND METER FEES**

Submit Tap fees to Water Resources and Water Meter fees to Building Inspections and Permitting

Fees are based on 60 foot right-of-way roads and lateral lengths less than 100 feet. Special cases, wider rights-of-way, special or complex boring and items not shown shall be at cost.

Size	Base Cost	Add Bore	Add Street Cut	Meter Only*
¾ inch	$2,300	$550	$1,000	$315
1 inch	$2,600	$550	$1,000	$450
1 ½ inch	N/A	N/A	N/A	$785
2 inch	N/A	N/A	N/A	$960
3 inch and larger	N/A	N/A	N/A	Cost + 10%

*If meter setter is not readily accessible or not functional when town staff arrives onsite, the meter will not be installed. Owner will be required to reschedule and pay fee as noted under "Inspection Fees" section (pgs 3 and 4) of this document. The Town will reschedule work within 7 days of receipt of the "Inspection Fees".

SEWER TAPS**

Size	Base Cost	Add Bore	Add Street Cut
4 inch	$2,100	Not available	$1,000

**The Town of Apex does not install water or sewer taps for commercial development or new residential construction.

WATER BACTERIOLOGICAL SAMPLE FEE

Samples collected by Water Resources Department. Fees collected by Development Services	$175

SEWER AND STORMWATER RE-INSPECTION FEES

Submit to Water Resources Department

Sewer and Storm drain re-inspection fee	$325 remobilization fee plus $0.25 per linear foot over 1,000'

IRRIGATION METERS

*Submit to Building Inspections & Permitting (Irrigation meter **required** for ALL irrigation systems)*

	Single-Family Residential (Includes duplex and townhomes)	Multi-Family and Commercial
Permit Fee	$75	$75
Meter Fee	Based on meter size; see *"Water Meter Fees"* (pg 6)	Based on meter size; see *"Water Meter Fees,"* (pg 6)
Meter Tap	$800 (See condition 7 below)	See condition 6 below
Capital Reimbursement Fees	Based on meter size; see *"Capital Reimbursement Fees"* (pg 6)	Based on meter size; see *"Capital Reimbursement Fees"* (pg 6)

Conditions:

1. All irrigation meters will require payment of capital reimbursement fees.
2. NCGS requires a second meter for in-ground irrigation systems and that systems be protected by an approved backflow preventer.
3. A plumbing permit is required for installation of the system from the meter to the backflow preventer.
4. All associated fees will be collected by the Building Inspections & Permitting Department prior to issuance of a permit.
5. All other non-single family customers (subdivision entrances and commercial sites) require a second meter.
6. The Water Resources – Water & Sewer Utility Operations Division will only install the tap for meters for existing single-family customers; all other taps must be installed by a private contractor and inspected by Water Resources Infrastructure Inspections Division.
7. Single family Meter Tap Fee includes installing a split tap at an existing meter. If the split tap is already installed, see "Meter Only" fees under the "*Water Taps & Meter Fees.*"

WATER AND SEWER CAPITAL REIMBURSEMENT FEES

Calculated and collected by Inspections and Permitting & Planning

The purpose of Capital Reimbursement Fees are one-time capital charges assessed against new development as a way to provide or cover a proportional share of the costs of capital facilities. These treatment facilities provide the system capacity that each new development will demand when connected to the water and sewer systems. Additional fee assessments shall be required of nonresidential customers who, after paying a Capital Reimbursement Fees fee, expand their service requirements. A 75% grant may be available in the Central Business District.

Meter Size (inches)	Water Fee	Sewer Fee	Total Fees
3/4	$1,788	$4,290	$6,078
1	$2,980	$7,150	$10,130
1.5	$5,960	$14,300	$20,260
2	$9,536	$22,880	$32,416
3	$19,072	$45,760	$64,832
4	$29,800	$71,500	$101,300
6	$59,600	$143,000	$202,600
8	$95,360	$228,800	$324,160
10	$250,320	$600,600	$850,920
12	$315,880	$757,900	$1,073,780

Utility Rates & Fees

CUSTOMER DEPOSITS			
Residential Electric Deposit	$200	Commercial Deposit	2 times monthly average for service location or minimum of $200*
Residential Water Deposit	$50		

**NCGS 160A-314 (a); North Carolina Utilities Commission Guidelines: R8-33*

FEES			
Application/Service Initiation Fee	$15	Pretreatment Program Charges	
Returned Check/Draft Fee	$25	- Permitted Flow (per 1,000 gallons)	$0.33
Non-Payment Service Fee	$25	Surcharge Rates (monthly)	
After Hours Service Fee	$75	- BOD exceeding 300 mg/L	$0.50 per lb.
Late Fee for Charges Unpaid by Due Date	1% of unpaid balance	TSS exceeding 250 mg/L	$0.218 per lb.
Extension Fee	$0	- Total Phosphorous exceeding 6 mg/L	$7 per lb.
Reconnect Disconnected Meter	$25	- Ammonia Nitrogen exceeding 25mg/L	$2 per lb.
Backflow Testing	At cost	- Analytical Testing Charges	
Meter Testing Fees		BOD	$30
Meter Test Fee (one test per year at no cost; additional reads are charged only if the meter read is correct)	$50	- TSS	$17
Meter Test (under 2 inch meter)	$50	- Ammonia	$22
– Meter Test (2+ inch meter)	At cost + 10 %	- COD	$35
– Damaged Water Meter*	$53 + cost of meter	- Cyanide	$33
– Damaged ERT Holder Replacement Fee*	$16.25	- Oil & Grease	$65
		- Total Phosphorus	$27
Pedestal Replacement (Electric)*	$149 + cost of pedestal	- Total Nitrogen	$51
Septic Tank Pump Fee (per 1991 annexation agreements; only available in certain locations)	At cost	- Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Zinc	$20 each

** fees would only be applied to active building permits that require a replacement meter, ERT holder or pedestal due to contractor damage*

SOLID WASTE FEES			
Yard Waste Collection	$7.83/month	Dumpster Service	
Residential Roll-Out Cart	$10.10/month	- 4 CY Dumpster	$149.72/month
Commercial Roll-Out Cart	$21.13/month	- 6 CY Dumpster	$177.65/month
Recycling (Per Bin or Cart)	$5.34/month	- 8 CY Dumpster	$203.82/month
Bulk items	$11/each	Bulk Items - Half Load / Full Load	$22 / $40
White Goods	$18/each	Mattress / Box Spring Disposal*	$10 for each item

**Mattress / Box Spring Disposal charge is in addition to the existing single item bulk fee; $21 minimum*

STREET SIGN FEES			
Replacement sign costs			
- Street sign only (1 blade)	$37	- Street sign replacement + install	$152
- Street sign only (2 blades)	$74	- Stop sign replacement + install	$105.75
- Stop Sign only	$28	- Street/Stop sign combination + install	$180

** Original installation of all safety, regulatory, and street signs is the responsibility of the developer prior to plat.*

STORMWATER FEES	
Stormwater fees are effective January 2022. (Tier 5 effective January 1, 2024). Stormwater utility fees are based on the total amount of impervious surface on an individual lot or parcel.	
Residential - Detached single-family homes, a duplex, or a manufactured home located on an individual lot or parcel.	
Tier 1: 400-1,500ft^2	$1.50
Tier 2: 1,501-3,000ft^2	$5.00
Tier 3: 3,001-4,000ft^2	$7.50
Tier 4: 4,001ft^2 -5,400ft^2	$10.00
Tier 5: >5,400ft^2	$5.00 per ERU (Total Impervious Area/2,700ft^2 * $5)
Non-Residential - Parcels that contain more than two residential units, public/private institutional buildings, commercial buildings, parking lots, churches, etc.	$5.00 per ERU (Total Impervious Area/2,700ft^2 * $5)
**ERU (Equivalent Residential Unit) is the GIS analysis of average impervious surface (rooftops, driveways, sidewalks, parking lots) per residential property. Approximately 2,700 ft^2.*	
**Properties with less than 400ft^2 of impervious surface are exempt.*	

WATER & SEWER RATES

Water Rates		Inside Town Limits	Outside Town Limits
Water Base Charge		$6.24	$12.48
Water Volumetric Rates (per 1,000 gallons)			
Commercial		$4.60	$9.20
Residential	Tier 1: 0 - 6,000 gal	$4.60	$9.20
	Tier 2: 6,001 - 12,000 gal	$5.29	$10.58
	Tier 3: > 12,000 gal	$7.13	$14.26

*Farmpond Area: *Per Interlocal Agreements with the Town of Cary, the Apex special published rate shall be based on the Cary published residential base rate and per thousand gallons plus an Apex charge of $2 per thousand gallons."*

Wholesale Water Base Charge	$6.00	**Wholesale Water Volumetric Rates (per 1,000 gallons)**	$4.42

Sewer Rates	Inside Town Limits	Outside Town Limits
Sewer Base Charge	$11.63	$23.26
Sewer Volumetric Rates (per 1,000 gallons)		
Commercial & Residential	$8.06	$16.12
Colvin Park/White Oak *	$13.24	N/A

**Per the Alternative Sewer Agreement, "the Apex special published rate shall be based on the Cary published residential rate per thousand gallons plus an Apex charge of $2 per thousand gallons."*

Wholesale Sewer Base Charge	$11.63	**Wholesale Sewer Volumetric Rates (per 1,000 gallons)**	$8.06
Flat Rate Sewer	$40.00/month		

Irrigation Rates	Inside Town Limits	Outside Town Limits
Irrigation Base Charge	$6.00	$6.00
Irrigation Volumetric Rates (per 1,000 gallons)	$6.59	$13.18

Bulk Water			
Hook Up Fee (per connection)	$12	Hydrant meter	
Volumetric Rates (per 1,000 gallons)	$7.20	- Set up/Relocate/Pickup	$50/event
		- Rental Fee	$12/day
		- Hydrant Meter replacement and/or repair	At cost + 10%

ELECTRIC RATES

Service	Base Charge	Energy Charge (per kWh) All
Residential	$26.50	$0.1133

Service	Base Charge	Energy Charge (per kWh) ALL
Small General Service	$30.00	$0.1146

Service	Base Charge	Energy Charge (per kW)			
		On Peak	Off Peak	Bilateral Credit On Peak	Bilateral Credit Off Peak
Residential-Time of Use-TOU	$26.50	$0.2345	$0.0623	$0.1539	$0.0373
Small General Service-TOU	$30.00	$0.2304	$0.0635	$0.1539	$0.0367

Service	Base Charge	Energy Charge (per kWh) ALL	Demand Charge (per kW) ALL
Medium General Service	$90.00	$0.0878	$9.23
Medium General Service-TOU	$90.00	$0.0831	$13.78
Large General Service	$180	$0.0700	$12.38
Large General Service-TOU	$180	$0.0683	$14.34

Service	Base Charge	Energy Charge (per kWh) ALL	Demand Charge (per kW)	
			All Coincident Demand	All Excess Demand
Large General Service-Coincident Peak	$360	$0.0536	$23.63	$4.71

ELECTRIC RATES

Outdoor Lighting

Standard Lighting Service Basic Rate The basic rate does not include the monthly charges for additional facilities, outdoor lighting poles, underground service, or any contribution required under this Schedule.

Sodium Vapor Units* Obsolete – no longer installed	**Wattage (Nominal)**	**Monthly Charge**	**Monthly kWh**
5,800 lumen-semi	70	$8.23/Fixture	29/Fixture
9,500 lumen-semi	100	$9.15/Fixture	46/Fixture
9,500 lumen-enclosed/post/flood	100	$10.42/Fixture	46/Fixture
27,500 lumen-enclosed	250	$18.67/Fixture	99/Fixture
27,500 lumen flood	250	$19.86/Fixture	109/Fixture
50,000 lumen-enclosed	400	$25.17/Fixture	152/Fixture
50,000 lumen flood	400	$27.55/Fixture	168/Fixture
LED Units			
Acorn Fixture (Obsolete, no new installs)	51	$22.51/Fixture	20/Fixture
Shoebox – 1	61	$22.22/Fixture	24/Fixture
Shoebox – 2	151	$32.27/Fixture	56/Fixture
Area Light	51	$17.86/Fixture	20/Fixture
Cobrahead – 1	51	$21.91/Fixture	20/Fixture
Cobrahead – 2	151	$32.27/Fixture	56/Fixture
Lantern – 1 w/ Lens (Obsolete, no new installs)	51	$24.35/Fixture	20/Fixture
Lantern – 2 w/o Lens	51	$28.48/Fixture	20/Fixture

Special Contract Lights *(residential dedicated public streets outside corporate limits)*		**Monthly Charge**
Wood	$ 2.51/pole	$2.71/pole
18' Fiberglass	$ 3.51/pole	$7.36/pole
Square metal	$13.01/pole	$27.85/pole

**Maintenance only; no new installs*

Underground (UG) Service: For Underground service, the monthly bill will be increased by $3.50 per pole or, in lieu thereof, a one-time contribution of $175.17 per pole. The monthly UG charge, if selected, may be terminated at any time upon payment by Customer of the one-time contribution. The UG charge will be waived if the lighting facilities are installed during the installation of the main electric facilities. The monthly pole charge defined below will also be applicable to underground service.

Additional Facilities

1. Multiple area lighting fixtures may be installed per pole subject to town review and approval. The monthly charge for each additional fixture will be the charge in accordance with the Monthly Rate for that fixture.

VENDOR FEES

Obtain Permit from the Town of Apex Police Department

Solicitor/Peddler/Park Concessioner*		Transient/Mobile Food Vendors	
30-day Permit	$50	Annual Permit	$150
90-day Permit	$100	*Anyone selling anything, including food, in a Town of Apex Park must obtain a Park Concessions Permit.	
180-day Permit (Park Concessions Only)	$175		

- **Solicitor** - Anyone going door-to-door to take orders for products, share information or seek donations.
- **Peddler** – Anyone transporting goods door-to-door for sale (i.e. ice cream truck).
- **Park Concessioner** – Anyone selling merchandise, food, and or beverages in a town park.
- **Transient Vendor** - Anyone selling goods or services from a temporary business location (i.e. parking or vacant lot).
- **Mobile Food Vendor** - Anyone selling food and/or beverages from a readily movable food unit

FIRE DEPARTMENT FEES

Submit request and fees to Customer Service

Inspection Fees	$0	False Alarm Fines (per Calendar Year)	
Reinspection (charged for 2nd and all subsequent reinspections)	$75	4 false alarms	$150
Fire Inspections Violation Fines:		5 false alarms	$200
Imminent hazard violation	$250	6 + false alarms	$250 each
Hazardous Materials Consumable Items	At Cost	Fire Flows	$75

PARKS & RECREATION

Fees are paid to Parks, Recreation & Cultural Resources

Use Fees	Resident	Non-Resident
Fishing Licenses		
– 12 years & under	$0	$10/year
– 13-54 years old	$0	$25/year
– 55 +	$0	$6/year
– Guest Pass	$0	$5/visit
Dog Park Passes		
– Single Dog	$30	$60
– Multiple Dogs	$50	$100
– Additional Passes	$10/pass	$10/pass

	Resident	Non-Resident
Senior Exercise Membership (55+)	$0 for unlimited	$20 for 10 visits
Ages 18-54 Exercise Membership	$10 for 10 visits	$30 for 10 visits
Open Gym Pass - Basketball/Volleyball/Senior Pickleball (for 10 visits)		
– Age 0-7	$0	$5
– Age 8-17	$5	$20
– Age 18-54	$10	$30
– Age 55+	$0	$20
Vessel Permits (Jan – Dec)	$5/year	$40/year
Lost Card (Gym, Dog, Exercise, Fitness)	$5	$5

Pleasant Park Tournament Packages	Package Cost
Full Day Event (cost per field)	$800/day
Additional field preparation	$100/field
Use of Scoreboard (cost per field)	$100/day
Use of Team Rooms (cost per room)	$100/day
Use of Referee Room	$50/day
Signature Field 4-Hr Game Package	$500
Pickleball Event all-day Rental (6 courts)	$650/day

Facility Rentals

All reservations for 100 persons or more require Director approval and may require additional attendants, police and other requirements as deemed necessary by APRCR
501C3 Non-Profits receive a 25% discount on rental fees with the exception of field and gym rentals

	Resident	Non-Resident
Facility Deposit (Refundable)	$250	$250
After Hours Attendant Fee	$40/hour	$40/hour
Community Center		
Summit Room	$35/hour	$52.50/hour
Summit Room Projector Fee	$15/hour	$15/hour
Pinnacle Room	$35/hour	$52.50/hour
Zenith Room	$35/hour	$52.50/hour
Catering Kitchen[3]	$21/hour	$31.50/hour
Arts & Crafts Room	$21/hour	$31.50/hour
Senior Center		
Salem Meeting Room (108)	$100/hour	$150/hour
Saunders Meeting Room (110)	$100/hour	$150/hour
Seaboard Meeting Room (112)	$100/hour	$150/hour
Projector Fee (108,110 or 112)	$15/hour	$15/hour
Large Projector (108,110 & 112)	$30/hour	$30/hour
Kitchen Room (120)	$30/hour	$45/hour
Chatham Classroom (131)	$35/hour	$52.50/hour
Friendship Classroom (133)	$35/hour	$52.50/hour
Arts & Crafts Room (202)	$35/hour	$52.50/hour
Hunter Exercise Room (210)	$30/hour	$45/hour
Hughes Exercise Room (215)	$30/hour	$45/hour
Salem, Saunders & Seaboard	$1,200/4 hours	$1,500/4 hours
Pleasant Park		
Pleasant Park Meeting Room	$35/hour	$52.50/hour
Other Amenity Rentals		
Tennis Courts	$15/hour/court	$22.50/hour/court
Pickleball Courts	$15/hour/court	$22.50/hour/court
Sand Volleyball Court	$15/hour/court	$22.50/hour/court
Disc Golf Course	$45/hour	$67.50/hour
Disc Golf Course (1/2 day)	$125	$190

Other Amenity Rentals Continued	Resident	Non-Resident
Disc Golf Course (full day)	$250	$375
Amphitheater (1/2 day)	$125	$190
Amphitheater (whole day)	$250	$375
Extra Table Fee	$3/table	$3/table
Halle Cultural Arts Center		
Auditorium & Stage	$100/hour	$150/hour
Sound/Light Booth	$50/hour	$75/hour
Overnight Storage	$50/night	$75/night
Studio Gallery	$50/hour	$75/hour
Studio A	$35/hour	$52.50/hour
Piano (separate $200 deposit required)	$25/hour	$37.50/hour
Portable Projector Fee	$15/hour	$15/hour
4 Hour Auditorium Package	$600	$900
4 Hour Gallery Package	$400	$600
Field & Gym Rentals[6]		
Athletic Field – natural turf (no lights)	$40/hour	$40/hour
Athletic Field – natural turf (w/ lights)	$60/hour	$60/hour
Athletic Field – synthetic turf (no lights)*	$100/hour	$100/hour
Athletic Field – synthetic turf (w/ lights)	$120/hour	$120/hour
Gym - Whole	$75/hour	$75/hour
Shelter Rentals		
Apex Community Park – small	$20/hour	$30/hour
Apex Community Park – large	$30/hour	$40/hour
Hunter Street Park – small	$20/hour	$30/hour
Jaycee Park – small	$20/hour	$30/hour
Kelly Road Park – small	$20/hour	$30/hour
Nature Park – small	$20/hour	$30/hour
Nature Park – large	$30/hour	$40/hour
Pleasant Park Amenity Shelter - large	$30/hour	$40/hour
Pleasant Park Shelter - large	$30/hour	$40/hour
Seagroves Farm Park - small	$20/hour	$30/hour

Rental Withdrawal

Cancellation
- Less than 7 business days prior to rental — No credit or refund in any amount excluding rental deposit[1]
- 7-59 business days prior to rental — 50% refund[2]
- 60 or more business days prior to rental — 90% refund[2]

Date Change Request
- Less than 7 business days prior to rental — No date change requests accepted[1]
- 7 or more business days prior to rental[3] — All fees and deposits may be transferred[4]

1. *Including rentals made within 7 business days of the rental date*
2. *Reschedule dates may occur no later than 30 calendar days from original.*
3. *Issued upon written request*
4. *Subject to room availability and the availability of required staff.*

Special Event Vendor Fees – Town Events	Fee
Apex 501C3	$0/day
Commercial Business	$100/day
Commercial Small Business *(as defined in Special Event Policy)*	$50/day
Apex Historic Downtown Business	$50/day
Food Truck	$100/day
Alcohol	$300/day

Community Special Event Fees		
Item	**Description**	**Fee**
Application Fee	To be submitted with every For-Profit application	$50 per event
Water Barricades	Includes water. Used for streets.	$50 per barricade
A-Frame Barricade	For light blockades. Not for traffic	$10 per barricade
Power	Temporary and permanent electric boards	$100 per unit / per day
External Building Power	If you plug into a Town building	$100 per building / per day
Water	Temporary hose connection, food vendor water, dunk tank	$50 per day
Trash Cans	Landfill trash and recycling trash	$10 per can / per day
Utility Sinks	Includes connection	$50 per sink / per day
Large Blockade Vehicle or Police Vehicle		$200 per vehicle / per day
Police Off-Duty	Required for an event with alcohol	$40.43 per hour / per officer
Police Personnel		$70 per hour / per officer
Public Works Personnel		$45 per hour / per person
Parks Operations Personnel		$45 per hour / per person
Saunders Street Lot	Lot in front of the Police Station	$100 per day
Templeton Street Lot	Lot near The Halle	$100 per day
Town Hall Lot	Lot directly in front of Town Hall	$100 per day
Community Center Gazebo Lot	Lot in front of the Community Center with the gazebo	$100 per day
Community Center ATM Lot	Lot to the right of the Community Center with the ATM	$100 per day
Senior Center Lot	Lot next to the Senior Center	$50 per day
Town Arc Lot	Arc shaped lot between Town Hall and the Community Center	$50 per day
Park Parking Lots	Any Town of Apex park parking lot	To be determined per event
The Depot Lot and Plaza	Depot parking lot and outdoor plaza	$100 per day
Town Campus Courtyard	Does not include any parking lots	$200 per day

Town of Apex, North Carolina
FY 2024 – 2025 Annual Budget
New Position Recommendations

General Fund					
Department	**Position**	**Rec.**	**Annual Salary & Benefits**	**Operating & Capital Costs**	**Total Costs**
4110 - Town Clerk	Public Records Coordinator	1	123,230	10,725	133,955
4200 - Administration	Diversity, Equity, and Inclusion Specialist	1	123,230	4,700	127,930
4220 - Information Technology	IT Specialist - Public Safety	1	123,230	3,775	127,005
	IT Specialist	1	123,230	1,575	124,805
4230- Legal Services	Assistant Town Attorney	1	170,103	6,025	176,128
4800 - Community Development & Neighborhood Connections	Community Engagement Specialist	1	114,252	13,675	127,927
	Customer Service Representative	4	340,671	48,100	388,771
4900 - Planning	Environmental Programs Coordinator	1	123,230	8,725	131,955
	Planner II	1	123,230	8,025	131,255
	Planner II	1	123,230	7,725	130,955
5100 - Police	Police Officer-Detective (Mental Health & DV)	1	113,260	95,000	208,260
	Police Officer-K-9 Handler	1	113,260	131,400	244,660
	Police Officer-School Resource Officer	1	110,078	123,850	233,928
	Civilian Traffic Crash Investigator	2	43,060	167,200	210,260
	Police Officer-Recruitment & Training Officer	1	155,235	124,300	279,535
	Intelligence Analyst	1	114,252	9,800	124,052
	Police Officer	3	330,233	367,200	697,433
5110 - Emergency Communications	Telecommunicator	2	183,055	11,300	194,355
5300 - Fire	Accreditation Specialist	1	106,015	6,950	112,965
5400 - Transportation & Infrastructure Development	Capital Projects Inspector	1	114,252	73,825	188,077
5700 - Solid Waste Services	Heavy Equipment Operator	1	85,168	69,500	154,668
5800 - Fleet Services	Fleet Service Mechanic	1	91,528	8,400	99,928
5900 - Building Inspections & Permitting	Senior Plans Examiner	1	133,016	17,525	150,541
	Building Code Official 1	1	106,015	10,800	116,815
6200 - Parks & Recreation	Plarks Planning & Project Coordinator	1	123,230	1,200	124,430
	Athletics & Grounds Worker -Athletics	1	79,332	1,580	80,912
	Park Operations Logistics Specialist 30Hr	1	85,168	68,080	153,248
	30 hr Facility Attendant	1	79,332	1,280	80,612
	Recreation Program Specialist	1	106,015	31,940	137,955
	Special Events Specialist	1	106,015	4,753	110,768
Fund Total		**37**	**$3,865,158**	**$1,438,933**	**$5,304,091**

Enterprise Funds					
8010 - Water & Sewer Admin	Utilities Engineering Manager	1	170,103	8,400	178,503
8130 - Water Maintenance	Utility Crew Field Supervisor	1	114,252	72,700	186,952
8300 - Electric Utility	Assistant Director	1	170,103	11,025	181,128
	Electric Line Technician (I,II,III)	1	114,252	8,800	123,052
8020 - Stormwater	Stormwater Crew Leader	1	114,252	75,750	190,002
	Stormwater Maintenance Worker	1	91,528	7,600	99,128
Fund Total		**6**	**$774,490**	**$184,275**	**$958,765**

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: NEW BUSINESS

Meeting Date: June 11, 2024

Item Details

Presenter(s): Amanda Grogan, Director

Department(s): Budget & Performance Management

Requested Motion

Possible motion to adopt the FY2024-2025/2028-2029 Capital Improvement Plan and Capital Project Ordinance Amendment No. 2024-21.

Approval Recommended?

Yes

Item Details

The Capital Improvement Plan (CIP) is a multi-year plan for major capital expenditures such as the acquisition of land; construction or significant renovation of public facilities; construction of new transportation infrastructure; expansion or significant renovation of water, wastewater, electric, or stormwater infrastructure; capital equipment to support operations; or any combination of the above with an asset value of greater than $100,000 and a useful life of greater than three years.

Once adopted by the Town Council, the CIP becomes a statement of town policy regarding the need, priority, timing, and funding of future capital projects. As a plan, projects and funding mechanisms are subject to change based on new or shifting service needs, special financing opportunities, emergency needs, or other directives or priorities established by the Town Council. Adoption of the CIP does not guarantee funding or project approval.

Attachments

- NB2-A1: Capital Improvement Plan (CIP) Fiscal Years 2025-2029
- NB2-A2: Capital Project Ordinance Amendments 2024-21

CAPITAL IMPROVEMENT PLAN

Fiscal Years 2025-2029

APEX
NORTH CAROLINA

Table of Contents

Section 1: Overview of the Capital Improvement Plan

The Capital Improvement Plan (CIP) is the planning mechanism by which the Town Council allocates limited financial resources to implement long-term goals as defined in the Town's Strategic Plan, Advance Apex: The 2045 Transportation Plan, the Downtown Master Plan, the Parks, Recreation, Greenways and Open Space Master Plan, and other similar planning documents. The purpose of the CIP is to forecast and match projected revenues and major capital needs over a five-year period. Capital planning is an important management tool that strengthens the linkage between community infrastructure needs and the financial capacity of the Town.

The CIP is a multi-year plan for major capital expenditures, such as the acquisition of land; construction or significant renovation of public facilities (i.e., buildings/parks); construction of new transportation infrastructure (i.e., roads, sidewalks, and multi-use paths); expansion or significant renovation of water, wastewater, electric, or stormwater infrastructure; capital equipment to support operations; or any combination of the above. Projects eligible for inclusion in the CIP are those with an asset value of greater than $100,000 and a useful life of greater than three years.

When identifying new projects, staff considers the long-term priorities and direction set by Town Council and submits formal requests through the CIP process. A formal request includes the project description, how the project aligns with established goals, estimated project cost, and estimated recurring costs associated with the completed project (i.e., additional staff, additional utilities, etc.). The formal request also includes an analysis of alternative solutions, if any, and a statement on the effect on services and/or programs if the project is not funded.

Once adopted by the Town Council, the CIP becomes a statement of town policy regarding the need, priority, timing, and funding of future capital projects. The Capital Improvement Plan is simply that – a *plan*. As such, projects and funding mechanisms are subject to change based on new or shifting service needs, special financing opportunities, emergency needs, or other directives or priorities established by the Town Council. Future needs and financial constraints may result in changes in priority over the five-year period, and because priorities can change, projects included in outward planning years are not guaranteed for funding. The CIP represents the best judgment of Town Administration and Town Council at the time the Plan is adopted. Priorities established in the CIP subsequently guide decisions made by Town Administration and the various boards and commissions appointed by Town Council.

The Town of Apex CIP achieves five major objectives as a component of the Town's budget and financial planning process:

1. Helps the Town rationally and intelligently plan to repair, replace, and acquire capital items that are necessary in providing high-quality services to the residents of Apex.
2. Assists in fiscal planning by forecasting capital demands together with future revenues and expenditures.
3. Ensures better project coordination, evaluation, and planning to serve the community and its needs.
4. Serves, together with the annual budget and other financial plans, as a guide to decision-making for the Town Council, Town Manager, and staff.
5. Analyzes capital needs systematically and comprehensively to increase the probability of making rational budgetary judgments because improvements are identified, prioritized, and matched to the Town's projected fiscal resources.

Relationship to the Annual Operating Budget

Some CIP projects are funded through annual operating funds, such as the General Fund, Electric Fund, Water & Sewer Fund, and Stormwater Fund. In these cases, the CIP and the Annual Operating Budget are directly linked as CIP projects are authorized when the Annual Operating Budget is adopted. Projects funded through debt financing also impact the operating budget through ongoing debt service expense. Finally, some completed CIP projects will directly impact the operating budget due to ongoing staff and other operating costs.

CIP Structure

To group similar projects, the CIP is organized into eight functional categories or elements:

- **Transportation Element** funds new roadway construction; existing roadway, sidewalk, bicycle, and pedestrian improvements; transit projects; and railroad crossing improvements. This element supports the Advance Apex: The 2045 Transportation Plan, Bike Apex, and the Downtown Master Plan and Parking Study.
- **Parks, Recreation, and Cultural Resources Element** funds new park and greenway facilities land acquisition, park and recreation amenities construction, and current facilities major maintenance. This element supports the Parks, Recreation, Greenways, and Open Space Master Plan.
- **Public Safety Element** funds capital equipment acquisition to support the operations of the Town's three public safety departments (Fire, Police, and Emergency Communications). Public safety facilities are considered in the public facilities element.
- **Public Facilities Element** funds the construction and major maintenance of general government and public safety facilities and infrastructure. This element also funds improvements to communications and technology infrastructure.
- **Public Works and Environmental Services Element** funds projects to manage the collection and disposal of solid waste and to maintain streets. These projects include structural improvements and major maintenance of this infrastructure. They also include equipment needed to manage solid waste collection and maintain Town streets.
- **Electric Utility Element** funds the construction, maintenance, and improvement of electric distribution infrastructure. These projects include substation additions and upgrades, distribution line extensions, major maintenance of infrastructure, and the equipment necessary to maintain the system.
- **Water & Sewer Utility Element** funds the construction and improvement of water and sewer infrastructure. These projects include main additions and replacements, water/wastewater treatment plant renovations/expansions, filter rehabilitation, pump station additions, major infrastructure maintenance, and the equipment necessary to maintain the system.
- **Stormwater Utility Element** funds stormwater infrastructure construction and improvements to manage and mitigate the effects of stormwater runoff. This element also funds vehicle additions and replacements necessary to maintain and repair stormwater infrastructure.

Capital Improvement Funding

The Town of Apex's capital improvements are funded by various sources that are broadly categorized as cash or debt financing. For debt financing, the Town uses several types of mechanisms, including general obligation bonds, revenue bonds, and traditional lease-purchase or installment financing. The selection of these mechanisms depends on the level of funding, term of the need, and current debt market conditions. General obligation bonds are approved by voters and backed by the Town's taxing authority while revenue bonds pledge the revenue generated by specific enterprise (water, sewer, stormwater, and/or electric) charges.

Cash, or pay-as-you-go (PAYGO), funds come from sources such as tax revenue, development related fees (recreation, transportation, and capacity fees), program fees, State revenue, and interest earnings. Some funding sources, such as State revenue from the Powell Bill and Town recreation fees, may only be spent to meet certain needs. Other revenue sources come with no restriction on the needs they may be used to address. Major PAYGO funds for the CIP include:

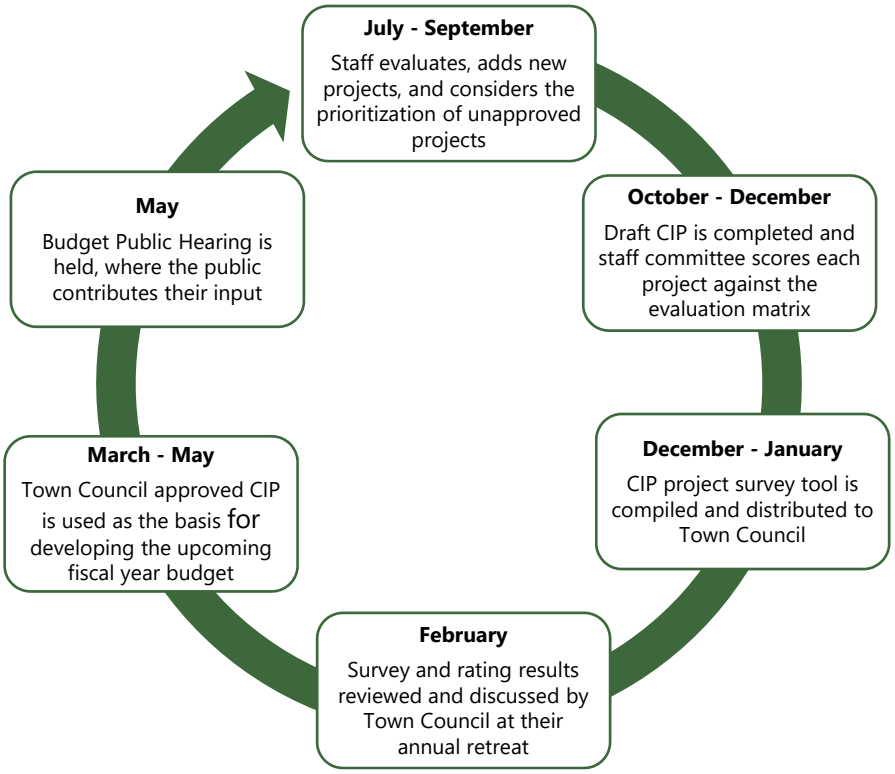
- **General Fund Revenue** is generated in large part by ad valorem (property) taxes along with sales taxes, intergovernmental revenues from the State and County, development permits and fees, waste collection fees, recreation participation and facility user fees, and other similar revenues. Compared to other funding sources, General Fund resources are a flexible revenue source without restrictions on their use. These revenues fund Town operations

and may fund capital projects, such as transportation system improvements, park additions and renovations, public safety vehicles and equipment, facility improvements, and other similar projects.

- **Enterprise Fund Fees** are user fees collected as part of the operation of the Town's enterprise funds, which include the Water & Sewer Fund, Stormwater Fund, and Electric Fund. The Town invests a portion of this revenue into corresponding capital enterprise projects. For instance, the Electric Fund pays for projects related to the electric system, not for projects related to water, sewer, stormwater, or the General Fund.
- **Water & Sewer Capital Reimbursement Fees** are charged, based upon a Town Council-approved Development Fee Schedule, to developers of land within the Town of Apex to pay for the capital facility burden created by new development. Revenue from these fees can only be used for capital improvements to the water and sewer systems or to fund the debt service for these system improvements.
- **Subdivision Fee-in-Lieu of Dedication** are charged, based on a Town Council-approved Development Fee Schedule, to developers of land within the Town of Apex and its Extraterritorial Jurisdiction (ETJ). This revenue may only be used for park and recreation system expansion and improvements or to fund related debt service.
- **Capital Reserves** may include unspent budgeted amounts for completed capital projects in prior years that are now available to fund future projects. Capital reserves may build up when the Town collects revenue in excess of the amount budgeted for the development fees described above.

The CIP Process

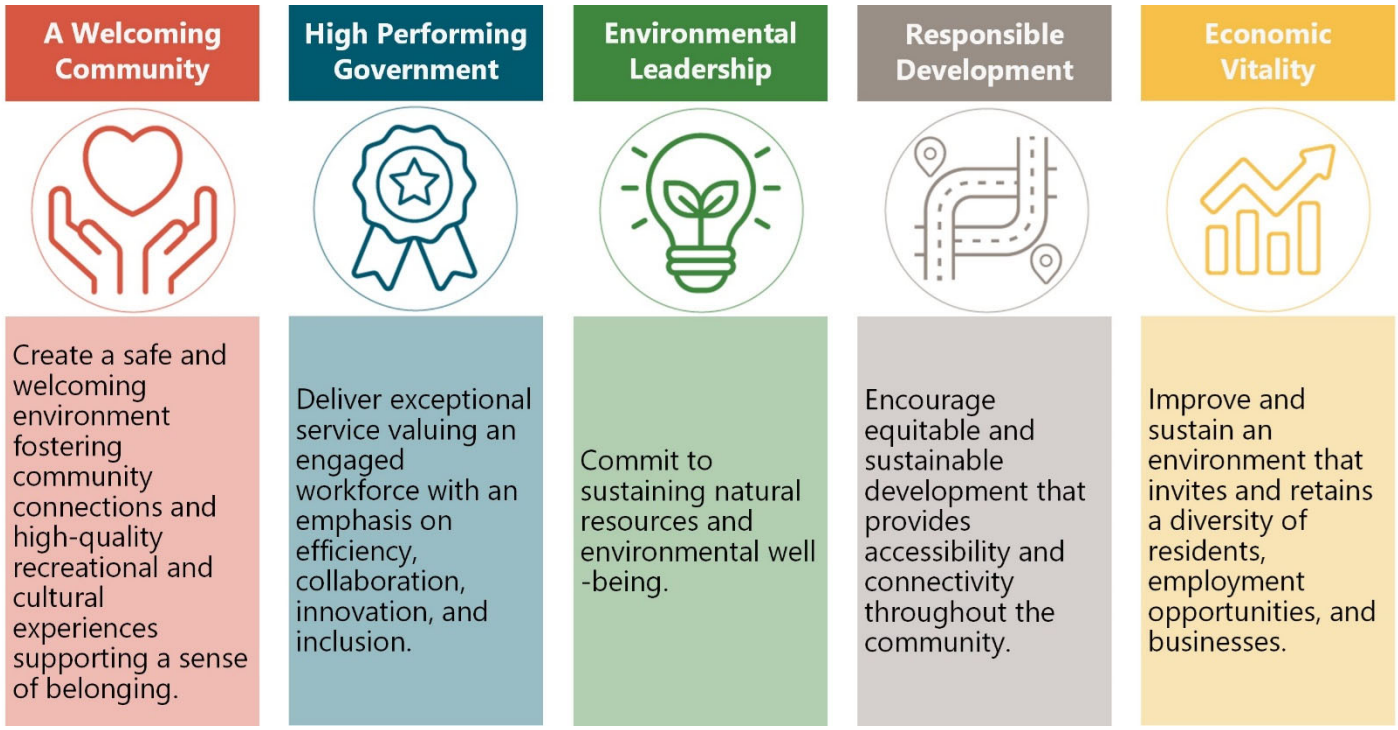
The process for developing the CIP, as illustrated below, begins shortly after the beginning of a new fiscal year (July 1) as staff considers unmet capital needs in the recently adopted budget and other emerging needs. Following an evaluation of current projects and needs, new projects are proposed to the 5-year plan.



For each project, staff in the requesting department complete a CIP project request form and compile supporting documentation by mid-October of each year. After new project requests are submitted, a selection of senior staff from various departments uses an evaluation matrix to score the pre-existing and newly-requested projects across the following eight categories.

Staff Evaluation Categories
Public Health and Safety • Prevents or corrects an imminent or potential health or safety hazard that is significant • Improves the community's feeling of safety
Legal Mandate • Mandated by State and/or Federal Law, Town Council, legal settlement, and/or contractual obligation or regulation • Corrects a violation of Town or State code that would result in fines
Business Plan and Existing Project • Prioritized in existing Business Plan or required to complete an existing project
Deferred Maintenance or Existing Infrastructure and Facilities • Major infrastructure repair consequences will result if not done • Major/minor financial, physical, or personnel consequence will result if not done
Economic Development • Increases Town revenues or community wealth (jobs, cultural attractions, business retention, etc.) significantly • Expands infrastructure to accommodate planned increase in capacity
Funding and Budget Impact • Reduces operating costs immediately and significantly or will generate significant revenue to offset operating costs • Project costs covered by non-Town funding sources or has dedicated funding sources other than General Fund
Governmental Services • Essential to maintain the Town's current level of service for a core function to the public • Improves the Town's systems or facilities to enhance service delivery, productivity, or public access to information
Extent of Primary Service Area • Serves the entire Town or is primarily the interest of a specific population

To prepare for the Town Council Annual Retreat in February, the Mayor and Town Council Members complete a survey to rank the General Fund projects. This ranking excludes projects that are necessary for operations, such as leaf truck and public safety radio replacements. While the staff scores focus on technical factors, the Mayor and Town Council rank the projects while considering the Town Council's five strategic goals:



The ranked responses from the Mayor and Town Council members for each proposal are averaged to create a project prioritization order. This order reveals which projects the Mayor and Town Council determine are most critical to achieving the Town's strategic goals and, accordingly, have the most pressing need for immediate funding.

In addition to the average Council ranking, the level of agreement between rankings (or standard deviation) is also analyzed. Projects are assigned quartiles based on their average Council ranking and level of agreement. This quartile system highlights projects where the Town Council agrees on ranking (high or low) and supports further discussion on projects that have higher than average disagreement.

1. Above Average Ranking, Above Average Agreement	2. Above Average Ranking, Below Average Agreement
- GoApex Transit Program - Salem Street Downtown Streetscape and Resurfacing - Safe Routes to School - Olive Chapel Road Improvements - Vision Zero - Intersection Upgrades - Hunter Street Park Renovation - Station 3 Renovations - Yard Waste Transfer Station	- South Salem Street Bicycle Connection - Tingen Road Pedestrian Bridge - Reedy Branch Greenway - Jessie Drive Phase II - KidsTowne Playground Renovation (+1)
3. Below Average Ranking, Below Average Agreement	**4. Below Average Ranking, Above Average Agreement**
- Davis Drive at Salem Church Road Realignment - Apex Peakway Southeast Connector - Environmental Education Center - Beaver Creek Greenway Extension - Jaycee Park Expansion - Middle Creek Greenway - Fire Administration Building - Repurpose Depot Parking Lot	- Big Branch Greenway - Seymour Athletic Fields/Nature Park Maintenance & Operations Building - Apex Community Park Parking Lot Expansion - Community Park Renovations - Seymour Athletic Fields/Nature Park Parking Lot Expansion - Seymour Athletic Fields Renovation

The table above reflects the project distribution based on Town Council's input. Quartile 1, the green block, contains projects that are considered the highest relative priority by Town Council because they have above average rankings and general agreement. Quartile 4, the red block, represents projects with below average rankings and general agreement. Quartiles 2 and 3, the yellow and orange blocks, represent the middle ground where there is more disagreement and typically more Town Council discussions. During this year's budget retreat, Town Council requested that the KidsTowne Playground Renovations be moved to a higher quartile based on their discussions, and this is indicated with (+1) after this project was moved from Quartile 3 to Quartile 2 on the table above.

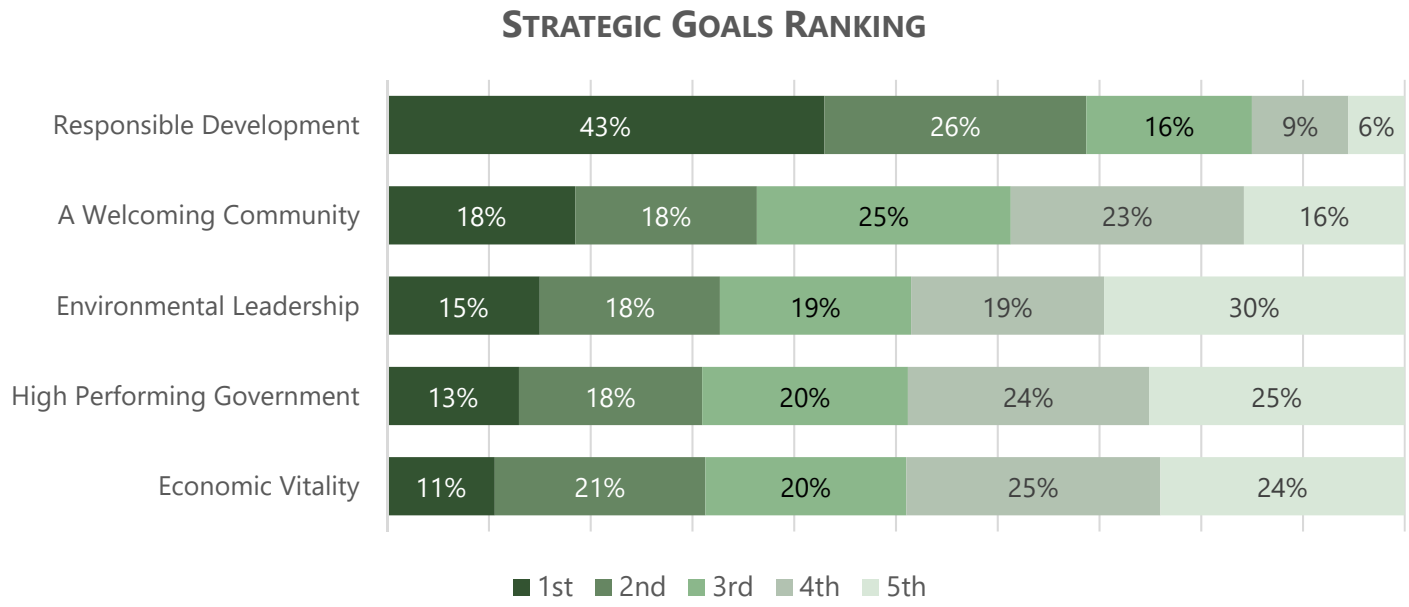
Following Town Council's input, the CIP informs the Town's budgeting and financial forecasts for the coming fiscal year. Before Town Council approves the CIP, public input is solicited through two public hearings held during the budget process and the annual Resident Budget Priorities Survey.

Resident Budget Priorities Survey

The Town of Apex's Resident Budget Priorities Survey invites the community to share their input on budgetary decisions. For Fiscal Year (FY) 25, the online survey was redesigned to align with the Town's strategic goals. Consequently, the broad categories from the FY24 survey were combined, divided, and added to during this transformation as different topics within each FY24 category apply to different strategic goals. The following table compares the FY25 and FY24 rankings:

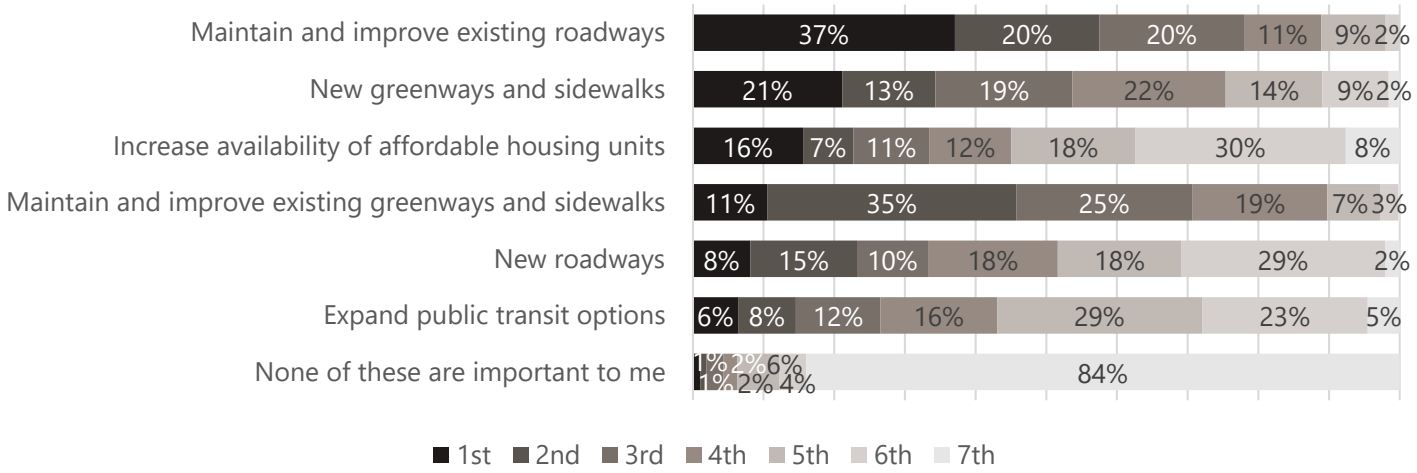
FY25 RANKING	FY24 RANKING
1st Responsible Development	- Transportation & Infrastructure (1st) - Housing Affordability (7th)
2nd A Welcoming Community	- Public Safety (2nd) - Recreation & Cultural Opportunities (3rd) - Vibrant & Accessible Downtown (4th)
3rd Environmental Leadership	- Environmental Sustainability (5th)
4th High Performing Government	- N/A
5th Economic Vitality	- Transportation & Infrastructure (1st) - Vibrant & Accessible Downtown (4th) - Economic Stability & Growth (6th)

For the FY25 survey, community members were given a summary of the Town's five strategic goals and were then asked to rank these five strategic goals from 1st to 5th. In the table below, the darkest shade of green represents community members' highest ranked strategic goal, and the lightest shade of green represents community members' lowest ranked strategic goal.

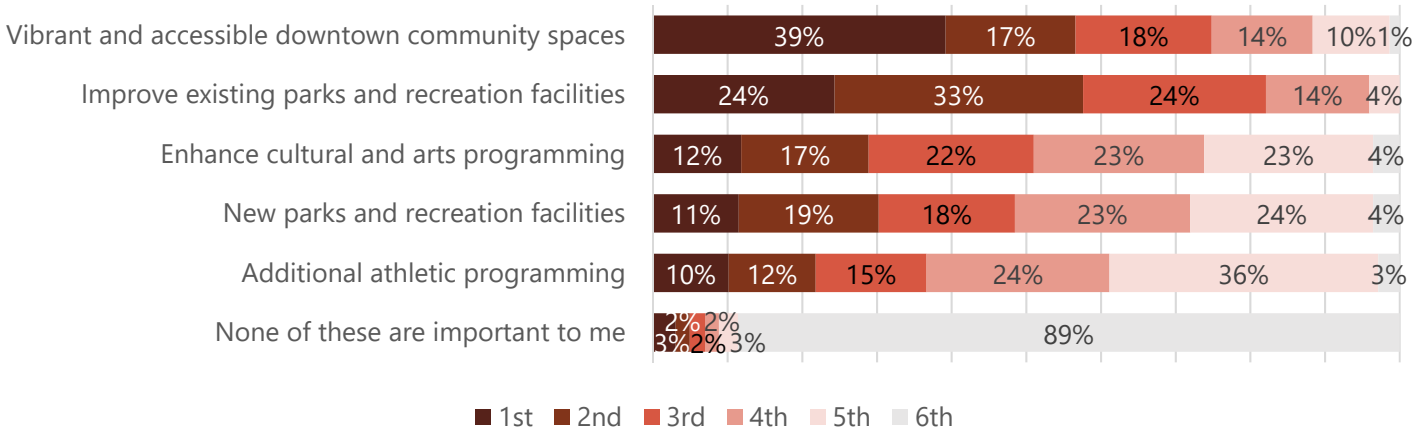


The next section of the survey asked community members to rank focus areas under each strategic goal as 1st, 2nd, 3rd, etc. By moving these focus areas into their preferred order, community members indicated which items within the broader goals they feel are most and least important to fund. All focus areas were required to be ranked, but community members could indicate that none of the focus areas listed are important to them. In the end, the vast majority of community members (at least 80%) chose "None of these are important to me" as their lowest ranked focus area under each strategic goal which indicates that all focus areas listed had some significance to them. The following is a breakdown of the results within each strategic goal:

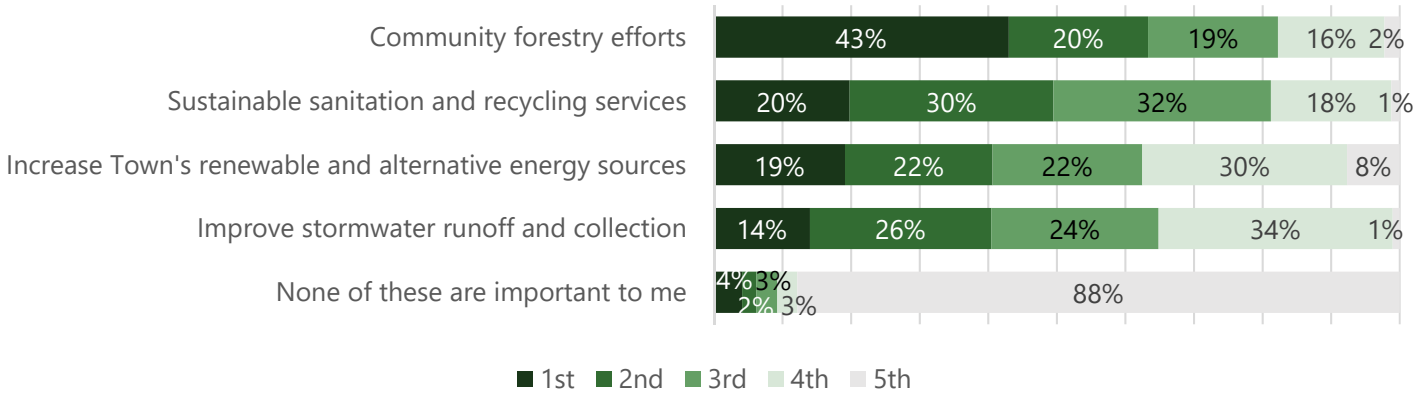
Responsible Development Ranking



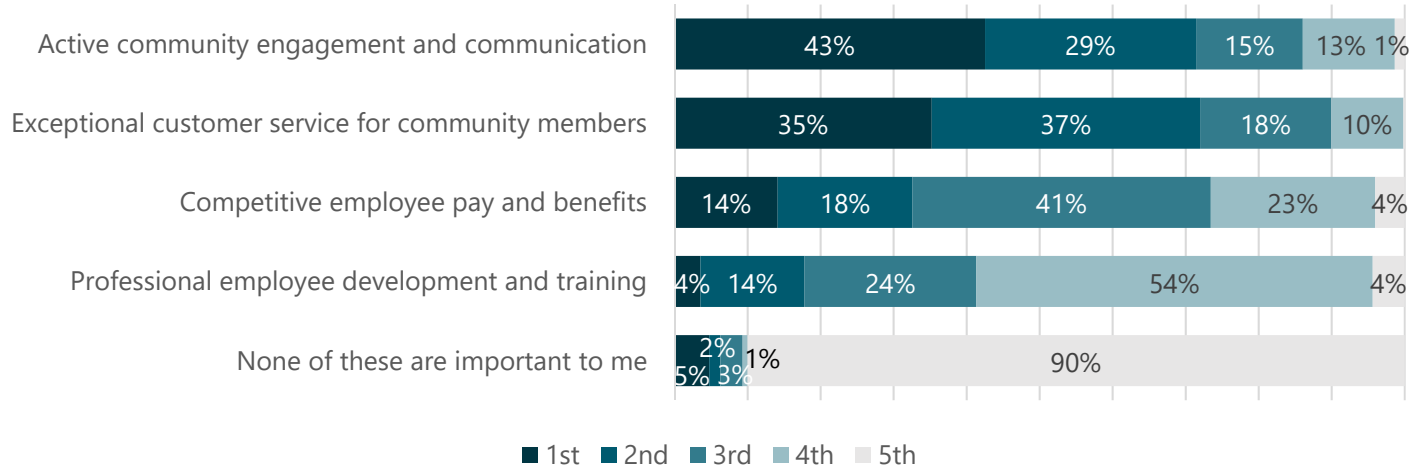
A Welcoming Community Ranking



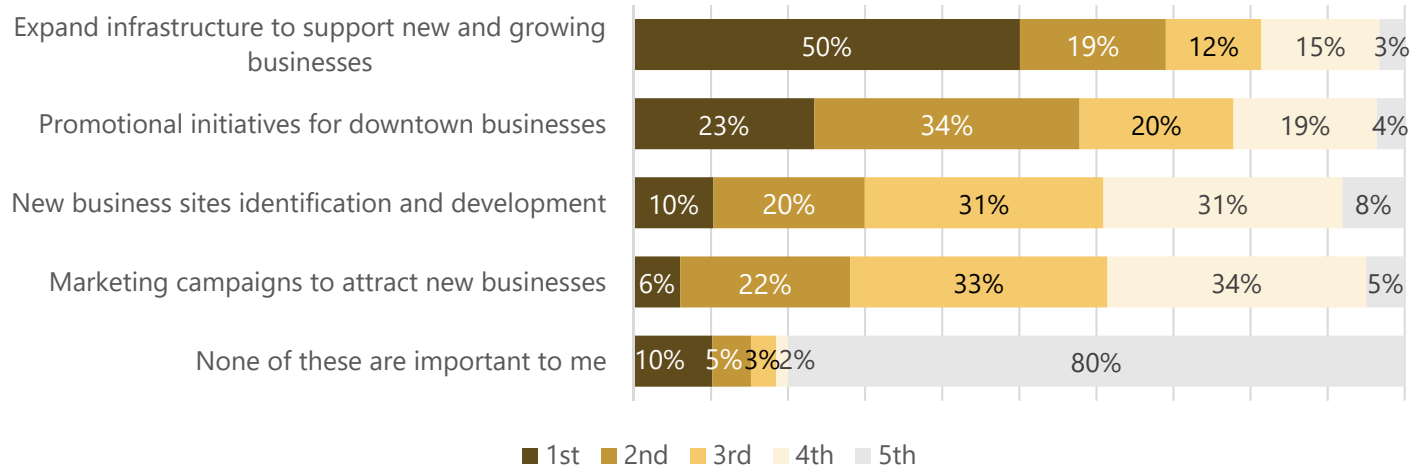
Environmental Leadership Ranking



High Performing Government Ranking



Economic Vitality Ranking



The Town's goal for the Resident Budget Priorities Survey is to gather input from more community members than is typically reached during the two annual budget hearings. With 633 survey responses, the Town has gained a more comprehensive picture of what is important to the community, and this knowledge will help the Mayor and Town Council ensure Town actions are aligned with residents' needs and preferences in the coming fiscal year.

CIP Practices

To ensure consistency and accuracy, Town staff use the following practices during the CIP process:

- **Long-Range Cost Estimates** allow staff to use the upcoming fiscal year as the base and apply cost escalators to more accurately estimate future construction costs. Staff apply the escalator to new construction and significant building rehabilitations. In some elements, such as public utilities and transportation, staff apply other escalators developed for those specific service areas.

- **Project Closing** occurs when the project's approved scope of work is complete. Staff review project statuses periodically to identify finished projects that can be closed. If a finished project's budget is not fully spent, generally, the project's budget is closed, and the remaining balance may be allocated to future projects.
- **Future Years** indicates projects beyond the proposed CIP's is five-year timeframe. To ensure the Town's needs are prioritized during this timeframe, staff review and analyze the business case supporting each project and considers whether it is ready to move forward. However, the Town may identify a future need on the horizon that has not yet undergone a detailed analysis, options consideration, or design. These projects include facilities, capital maintenance, and business systems that will be needed in the future but are often beyond the CIP's five-year timeframe.

Planning by Fund

The following sections represent a description of the projects submitted, by element, for the five-year planning timeframe under consideration. Each element begins with a brief description of what types of projects are funded and includes a tabular summary of all projects considered and the proposed revenue source to fund the projects in each year. After individual project descriptions, a summary table shows the total cost of the projects in each year and the total of each revenue source. More details regarding the cost of borrowing is provided in each summary section. The reference to "Local Revenue" in the revenue portion of the tables is indicative of the need for current year funding for some projects/purchases in each year. This could include appropriation of reserve funds from one or more of the major funds: General, Water & Sewer, Stormwater, and Electric.

Section 2: General Fund

A majority of projects included in the CIP are housed in the General Fund. This revenue is generated in large part by ad valorem taxes, along with sales taxes, utility taxes, and other similar revenues.

The types of capital projects that qualify for this fund include facility improvements, transportation system improvements, and other similar projects.

Compared to other sources, General Fund resources are a flexible revenue source without restrictions on their use.

The table at the start of each element below shows each project submitted during this year's CIP process and its estimated cost in each fiscal year of the plan. Section 12 of this document provides the proposed funding source for each project.

The icons below signify each element within the General Fund. They are located on the top right corner of the pages that are associated with their projects.

Transportation Element
Capital Project Types: construction and improvement of roadway, sidewalk, bicycle, and pedestrian infrastructure in addition to the Town's public transportation program
Plan Alignment: Peak Plan 2030: The Apex Comprehensive Plan, Advance Apex: The 2045 Transportation Plan, Vision Zero Action Plan, Bike Apex, and the Downtown Master Plan and Parking Study

Parks, Recreation and Cultural Resources Element
Capital Project Types: construction, improvement, and major maintenance of the Town's parks, greenways, recreation facilities, and cultural resources
Plan Alignment: Peak Plan 2030: The Apex Comprehensive Plan; Parks, Recreation, Greenways, and Open Space Master Plan; and Bike Apex

Public Safety Element
Capital Project Types: capital equipment supporting the Town's Fire, Police, and Emergency Communications Departments and their operations (Please reference the Public Facilities Element for public safety facility projects.)
Plan Alignment: Peak Plan 2030: The Apex Comprehensive Plan

Public Facilities Element
Capital Project Types: construction and major maintenance of general government and public safety facilities and infrastructure and improvements to communications and technology infrastructure
Plan Alignment: Peak Plan 2030: The Apex Comprehensive Plan

Public Works & Environmental Services Element
Capital Project Types: structural improvements and major maintenance of the infrastructure needed to manage solid waste collection and disposal and to maintain streets in addition to the equipment needed to support these operations
Plan Alignment: Peak Plan 2030: The Apex Comprehensive Plan

Transportation Element Projects

Transportation	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Annual Pavement Management	4,000,000	3,625,000	3,750,000	3,875,000	4,000,000	4,125,000	23,375,000
Annual Miscellaneous Road & Sidewalk Improvements	450,000	300,000	300,000	300,000	300,000	300,000	1,950,000
Annual GoApex Transit Improvements	200,000	200,000	200,000	200,000	200,000	200,000	1,200,000
Apex Peakway North Widening	900,000	1,200,000	3,650,000	-	-	-	5,750,000
Center Street Railroad Crossing Improvements	150,000	50,000	800,000	-	-	-	1,000,000
Chatham Street Railroad Crossing Improvements	150,000	50,000	800,000	-	-	-	1,000,000
Felton Grove High School Improvements Cost Share	300,000	-	-	-	-	-	300,000
GoApex Transit Program	100,000	690,000	-	-	-	-	790,000
Jessie Drive Phase 1	1,500,000	4,350,000	-	-	-	-	5,850,000
Old US 1 at Friendship Road Improvements Cost Share	200,000	-	-	-	-	-	200,000
Olive Chapel Rd at Apex Barbecue Road Improvements	450,000	550,000	1,800,000	-	-	-	2,800,000
Safe Routes to School	5,000,000	1,642,330	1,207,160	1,245,220	1,074,710	994,800	11,164,220
South Salem Street Bicycle Connection	740,000	890,000	2,970,000	-	-	-	4,600,000
Technology Drive Enhancements Cost Share (HL-0007)	300,000	-	-	-	-	-	300,000
Vision Zero - Intersection Upgrades	150,000	850,000	850,000	850,000	850,000	850,000	4,400,000
Wayfinding Signage Fabrication & Installation	400,000	500,000	500,000	-	-	-	1,400,000
West Williams Street Sidewalk	150,000	50,000	750,000	-	-	-	950,000
Apex Peakway Southwest Landscaping	-	75,000	250,000	-	-	-	325,000
GPS Emergency Vehicle Preemption	-	205,000	220,000	235,000	-	-	660,000
Jones Street Improvements	-	300,000	-	-	-	-	300,000
Pavement Management Backlog	-	5,000,000	-	-	-	-	5,000,000
S-line Mobility Hub	-	460,000	-	-	-	-	460,000
Salem Street Downtown Streetscape, Gathering Space, & Alleys	-	2,350,000	2,765,000	2,430,000	-	-	7,545,000
Center Street and Chatham Street Sidewalk Phase 2	-	-	260,000	205,000	1,300,000	-	1,765,000
Jessie Drive Phase 2	-	-	2,330,000	3,000,000	-	9,300,000	14,630,000
Davis Drive at Salem Church Road Realignment	-	-	-	800,000	2,700,000	3,500,000	7,000,000
Tingen Road Pedestrian Bridge	-	-	-	4,000,000	-	-	4,000,000
Traffic Signal System Partnership	-	-	-	180,000	160,000	2,200,000	2,540,000
Vision Zero – Bike & Pedestrian	-	-	-	600,000	400,000	2,000,000	3,000,000
NC 55 Sidewalk & Enhancement Cost Share (U-2901)	-	-	-	-	2,000,000	-	2,000,000
US 64 Sidewalk & Enhancement Cost Share (U-5301)	-	-	-	-	2,000,000	-	2,000,000
Apex Peakway Southeast Connector	-	-	-	-	-	27,320,700	27,320,700
Element Total	**$15,140,000**	**$23,337,330**	**$23,402,160**	**$17,920,220**	**$14,984,710**	**$50,790,500**	**$145,574,920**

Continuous Projects

Annual Pavement Management

$3,625,000+
Annually

The Town is responsible for maintaining 240 miles of municipal streets with an annual resurfacing contract providing for most pavement maintenance needs. Street mileage is growing annually with ongoing development. A recent survey of our streets revealed that deferred maintenance needs to be addressed. This ongoing program focuses on deficiencies in pavement condition throughout Apex and addresses issues, such as potholes, alligator cracking, and rutting, to provide a safe and reliable transportation system. This program also includes lower cost pavement preservation tools to extend pavement life cycle and reduce long term resurfacing costs while ensuring curb ramps on all resurfacing projects comply with state and federal mandates. Powell Bill funding is allocated from the State for road maintenance, but current and future resurfacing costs continue to exceed Powell Bill allocations, requiring General Fund revenues to be allocated.

Annual Miscellaneous Road & Sidewalk Improvements

$300,000+
Annually

This ongoing program addresses various deficiencies throughout Apex's municipal street system with accessible ramps and crosswalks, sidewalk maintenance, short sidewalks gap connections, traffic control and warning device upgrades, and other related requests to provide a safe and accessible transportation system for all users.

Annual GoApex Transit Improvements

$200,000
Annually

This annual allocation enhances bus stop amenities (shelters, benches, trash cans, bike racks, lighting, signage, informational materials, etc.) and improves accessibility and safety (increased bicycle and pedestrian infrastructure, lighting, crosswalks, bus pullouts, bumpouts, etc.) for current and potential future GoApex service and potential overlap areas with regional transit service, such as GoCary and GoTriangle.

FY24-25

Apex Peakway North Widening

(Center Street to Old Raleigh Road)

$5,750,000
Three-year Total

This project widens the existing Apex Peakway from a two-lane median-divided road to a four-lane median-divided road. Peak hour traffic exceeds the existing roadway's capacity, so this widening will reduce queue lengths and delays. Without it, the road will continue to cause longer delays, make access difficult for commuters and emergency vehicles, cause more drivers to divert to other local routes, and increase congestion elsewhere.

Center Street Railroad Crossing Improvements

$1,000,000
Three-year Total

This project improves and expands the crossing surface to accommodate sidewalks crossing along both sides of Center Street. With this project, sidewalk will cross the railroad tracks on the south side of Center Street and extend from the Depot frontage to Elm Street. The project upgrades four-quadrant gates and the associated railroad equipment, and these safety enhancements could create a potential quiet zone at this crossing.

Chatham Street Railroad Crossing Improvements

$1,000,000
Three-year Total

This project improves and expands the crossing surface to accommodate sidewalks crossing along both sides of Chatham Street. With this project, sidewalk will extend along the north side of Chatham Street to the east corner of Elm Street with a crosswalk to the south side of Chatham Street where sidewalk connects today. The project upgrades four-quadrant gates and the associated railroad equipment, and these safety enhancements could create a potential quiet zone at this crossing.

Felton Grove High School Improvements Cost Share $300,000

This project contributes funds toward intersection improvements for the proposed Felton Grove High School (2025 anticipated opening) that would not otherwise be constructed because they are beyond the required improvements for Wake County Public School System (WCPSS). Without this project, potential capacity and safety issues would exist at multiple access points to the school. Funding is being prioritized at this time due to an agreement with WCPSS and to ensure the expected 2025 payment is funded.

GoApex Transit Program $790,000
Two-year Total

This project improves GoApex Route 1 and expands local public transportation services to offer a second route, GoApex Route 2. The first local transit route, GoApex Route 1, began operating in 2022. After several years of operating, ridership will be quantified, and priority locations for shelters and other enhancements for GoApex Route 1 will be identified.

Jessie Drive Phase 1 $5,850,000
Two-year Total

This project upgrades an existing section of Jessie Drive from west of Ten Ten Road to the Horton Park development boundary using half of a 4-lane divided roadway with 10' side path on both sides and increasing to the ultimate 4-lane width in advance of Ten Ten Road. The Horton Park development will extend Jessie Drive west to the future Production Drive and a collector street south to Colby Chase Drive. The Apex Commerce Center project will extend Production Drive south to Jessie Drive, providing local connectivity north and south.

Old US 1 at Friendship Road Improvements Cost Share $200,000

This project contributes funds toward the construction of a 150' westbound left turn lane on Old US 1 currently in design and a northbound left turn lane on Friendship Road as part of the Holland Road mixed-use development ("The Summit").

Olive Chapel Road at Apex Barbecue Road Improvements $2,800,000
Three-year Total

This project addresses traffic congestion and reduces potential crashes at the intersection of Olive Chapel Road at Apex Barbecue Road by adding a 150-foot westbound left turn lane, 6-foot paved shoulders allowing for future bike lanes, rumble strips along the edge lines, a wider eastbound right turn radius, and a wood-pole traffic signal on Olive Chapel Road at Apex Barbecue Road. This project completes a sidewalk gap with 500’ 10-foot side path eastward along the north side of Olive Chapel Road.

Safe Routes to School $11,164,200
Six-year Total

These projects improve and expand the Town’s existing infrastructure for pedestrian and bicycle traffic to and/from schools. After analyzing safe routes to school needs, this project was designed to add sidewalks, pedestrian facilities, and safe crosswalks near Apex Elementary, Apex Middle, Apex Friendship Schools, Laurel Park Elementary, Baucom Elementary, Olive Chapel Elementary, Scotts Ridge Elementary, Salem Schools, and Thales Academy Elementary School. These projects fill gaps in the sidewalk network and other deficiencies in the transportation system that will improve that ability to walk and bike to schools.

South Salem Street Bicycle Connection $4,600,000
(Downtown to Pleasant Park) Three-year Total

This project includes sharrows (road markings that indicate a shared environment for bicycles and vehicles) along Salem Street from Apex Peakway to Hunter Street and bike lanes along South Salem Street from Pleasant Park to Apex Peakway. This project was the second highest priority identified in Bike Apex: The Comprehensive Bicycle Plan.

Technology Drive Enhancements Cost Share (HL-0007) $300,000

This project is a cost share for NC Department of Transportation project HL-0007 Reduced Conflict Intersection design plans which provides enhancements the Town has requested, which include landscaping grass medians on NC 55. NCDOT will not provide an enhanced streetscape unless the Town shares a portion of the costs.

Vision Zero – Intersection Upgrades $4,400,000
Six-year Total

This project implements safety upgrades for high-injury network intersection and segment priorities (e.g., Ten Ten Road at Lufkin Road, US 64 east bound ramps at NC 55, Lake Pine Drive at Pine Plaza Drive, Perry Road at NC 55, Vision Drive at NC 55, and Beaver Creek Commons Drive at NC 55). Vision Zero improvements assist in creating a significant reduction in potential serious injuries and fatalities in the high-injury network.

Wayfinding Signage Fabrication & Installation $1,400,000
Three-year Total

This project fabricates and installs Wayfinding signage throughout town. Sign types include parking directional, vehicular directional, pedestrian directional, destination identification, gateway signage, and bicycle signage. This project was identified as part of the Downtown Plan and Parking Study and is an extension of the Community Branding Study. The Wayfinding Signage Program provides consistent and attractive information to help residents and visitors discover and navigate to key destinations in town.

West Williams Street Sidewalk $950,000
Three-year Total

This project completes sidewalk gaps from in front of the Beaver Creek Commons shopping center, crossing the US 64 eastbound off ramp, connecting across the bridge over US 64, and extending to the Vision Drive intersection. Signalized crosswalks would be installed at the existing traffic signals on both ends of this project. This project allows pedestrians to no longer travel along the road's shoulder.

FY25-26

Apex Peakway Southwest Landscaping $325,000
Two-year Total

This project includes street trees around the loop and along S. Salem Street, subject to NC Department of Transportation (NCDOT) review and approval, as well as landscaping within the connector street loop area at the Peakway bridge project, scheduled for completion in 2027.

GPS Emergency Vehicle Preemption $660,000
Three-year Total

This project installs GPS emergency vehicle preemption at 10 traffic signals each year, which allow emergency vehicles to interrupt normal traffic signal timing during an emergency. This project prioritizes major corridors (NC 55, Salem Street, Center Street, Ten Ten Road, Apex Peakway, etc.) and various signals adjacent to those major corridors.

Jones Street Improvements $300,000

This project adds a curb along both sides of Jones Street, sidewalk on one side, and grading of the ditch along Holleman Street. This will meet or exceed 20' minimum street width in compliance with the Fire Code, provide a new pedestrian route from W. Chatham Street to Holleman Street, and address drainage complaints by capturing and directing storm water into the public system.

Pavement Management Backlog $5,000,000

This project helps reduce the Town's backlog of needed street rehabilitation over a two-year period. This supplements the Town's ongoing pavement management program by optimizing pavement management strategies to ensure serviceable road condition at the lowest cost and provide a safe and reliable transportation system. Without this project, the Town's street maintenance needs would continue to lag behind, overall street conditions would degrade, and maintenance costs would increase substantially over time.

S-line Mobility Hub $460,000

In September of 2023, the Apex Town Council agreed to participate in the S-Line Rail Corridor development and to provide funding to match a federal grant opportunity for mobility hub design and project developmental activities. If awarded this federal grant, the Town's funding along with grant funding would cover the preliminary design, final design, and National Environmental Policy Act compliance for a mobility hub in Apex for a future passenger rail.

Salem Street Downtown Streetscape, Gathering Space, & Alleys $7,545,000
Three-year Total

This project funds the Saunders Lot with Smart Parking, the Williams Lot parking expansion, curbless Salem Streetscape, Saunders Street gathering space, and Commerce, Seaboard, and Peak Alley improvements. These plans are based on schematic designs approved by Town Council in 2021. Improving these spaces was identified as a "Top 10" priority in the downtown plan.

FY26-27

Center Street and Chatham Street Sidewalk Phase 2 $1,765,000
Three-year Total

This project completes additional sidewalk gaps across the Center Street and Chatham Street railroad crossings where prior projects upgraded the crossings and completed the sidewalk gaps on one side of each road. This project includes sidewalk along the north side of Center Street from N. Salem Street to N. Mason Street and sidewalk along the south side of Chatham Street from S. Salem Street to S. Elm Street and from N. Mason Street to the cul-de-sac and existing sidewalk in front of Clairmont Park. The project serves Safe Routes to School needs for Apex Middle School. Without it, sidewalk connectivity along both sides of these streets remains incomplete.

Jessie Drive Phase 2 $14,630,000
Three-year Total

This project provides a contiguous major thoroughfare route between Ten Ten Road and NC 55 south of US 1 by completing a 4-lane divided missing gap in Jessie Drive between Production Drive and the Jessie Commons development project boundary. This assumes private development will make the connection to the NC 55 stubbing east of Middle Creek. This road would serve development of adjacent land, including industrial and commercial areas. If there were a major closure or delay on NC 55 or Ten Ten Road, it would provide an east-west detour.

FY27-28

Davis Drive at Salem Church Road Realignment $7,000,000
Three-year Total

This project realigns 1000' of Davis Drive north of Jenks Road to improve the horizontal curvature and widens that section of road to 4-lane divided. This project also widens Salem Church Road across the CSX tracks to a 3-lane section and installs new gates and lights. This intersection would have a traffic signal and railroad gate arms installed, and this intersection would be shifted west, away from the CSX railroad freight line, allowing vehicle stacking beyond the tracks. This project

alleviates the need for Salem Church Road needing to convert to right in-right out and alleviates safety concerns for the following issues: no left turn on Davis Drive backing up traffic southbound, no space for a traffic signal or gate arms to warn of an approaching train, and limited visibility around the curve on Davis Drive.

Tingen Road Pedestrian Bridge $4,000,000

This project constructs a pedestrian bridge over the railroad crossing of Tingen Road. This at-grade railroad crossing will be closed as part of the Apex Peakway Southwest Connector project per the agreement with CSX. This pedestrian bridge will provide a space for members of the community to safely cross the railroad tracks on Tingen Road to access downtown Apex, multi-family residential developments, multiple churches, and Apex Elementary School.

Traffic Signal System Partnership $2,540,000
Three-year Total

This project proposes an annual traffic signal system operation and maintenance agreement with the Town of Holly Springs and the Town of Fuquay-Varina. This regional partnership opportunity was identified in the Western Wake Traffic Signal System Integration Study. The Town of Apex currently has limited traffic signal maintenance responsibilities in a few locations. However, as new signals are added to Town-maintained roads and Town-maintained mileage and pedestrian facilities expand, this responsibility along with potential safety and service benefits will continue increase.

Vision Zero – Bike & Pedestrian $3,000,000
Three-year Total

This project implements countermeasures at 12 locations along both thoroughfares and local streets throughout Apex to improve infrastructure where severe or fatal bicycle or pedestrian crashes have occurred. These locations are based on bicycle and pedestrian crash data for 2015 – 2020 that was consolidated and analyzed as part of the Vision Zero Action Plan. The Town will conduct an updated safety analysis of each location to evaluate the specific infrastructure improvements needed.

FY28-29

NC 55 Sidewalk & Enhancement Cost Share (U-2901) $2,000,000

Transportation Improvement Program Project U-2901 will widen NC 55 from US 1 to Olive Chapel Road. This project provides enhancements the Town has requested, which include pedestrian facilities (sidewalk and path), aesthetic treatments at the new CSX Bridge, and median and landscaping enhancements. NCDOT will replace existing pedestrian facilities but not complete gaps where there are no existing facilities without the Town sharing a portion of the costs. Similarly, NCDOT will not provide an enhanced streetscape unless the Town shares a portion of the costs.

US 64 Sidewalk & Enhancement Cost Share (U-5301) $2,000,000

This project converts the intersections of US 64 at Lake Pine Drive and US 64 at Laura Duncan Road into an interchange, and it converts US 64 from Laura Duncan Road to US 1 into a superstreet. This project funds enhancements the Town requests as part of the widening project, and these enhancements are likely to include protected pedestrian facilities, including sidewalk, multi-use path, and crossings. NCDOT will replace existing pedestrian facilities but will not complete gaps where there are no existing facilities unless the Town shares a portion of the costs.

Future Years

Apex Peakway Southeast Connector $27,320,700

(NC 55 to Center Street)

This project completes the final gap in the Apex Peakway, provides a full loop around downtown Apex, and is consistent with the 2018 Apex Peakway Southeast Connector Feasibility Study. Apex Peakway construction has been identified as a high priority and will become increasingly important given anticipated delays to NCDOT's widening of the NC 55 corridor between US 1 and Olive Chapel Road. This project would provide a needed alternative to the NC 55 corridor through Apex. This project creates an intuitive relief valve for NC 55 and handles the anticipated traffic volume.

Parks, Recreation & Cultural Resources Element Projects

Parks, Recreation & Cultural Resources	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Annual Greenway Feasibility and Development	500,000	400,000	400,000	400,000	400,000	400,000	2,500,000
Environmental Education Center	1,000,000	4,165,000	-	-	-	-	5,165,000
KidsTowne Playground Renovation	250,000	2,000,000	750,000	-	-	-	3,000,000
Pleasant Park Baseball and Softball Complex	14,350,000	-	-	-	-	-	14,350,000
Street Hockey Rink & Inclusive Playground	650,000	1,000,000	800,000	-	-	-	2,450,000
Beaver Creek Greenway Extension	-	250,000	2,386,000	2,256,500	2,256,500	8,340,000	15,489,000
Hunter Street Park Renovation	-	125,000	775,000	-	-	-	900,000
Big Branch Greenway	-	-	-	639,000	150,000	4,260,000	5,049,000
Jaycee Park Expansion	-	-	-	500,000	-	2,500,000	3,000,000
Middle Creek Greenway	-	-	-	450,000	150,000	4,000,000	4,600,000
Reedy Branch Greenway	-	-	-	972,000	350,000	6,480,000	7,802,000
Seymour Athletic Fields/Nature Park Operations & Maintenance Building	-	-	-	-	1,250,000	15,450,000	16,700,000
Apex Community Park Parking Lot Expansion	-	-	-	-	-	950,000	950,000
Olive Farm Park	-	-	-	-	-	44,750,000	44,750,000
Seymour Athletic Fields/Nature Park Parking Lot Expansion & Turf Renovation	-	-	-	-	-	3,575,000	3,575,000
Wimberly Road Park	-	-	-	-	-	97,500,000	97,500,000
Element Total	**$16,750,000**	**$7,940,000**	**$5,111,000**	**$5,217,500**	**$4,556,500**	**$188,205,000**	**$227,780,000**

Continuous Projects

Annual Greenway Feasibility and Development

$400,000+
Annually

This annual allocation funds feasibility studies for greenway trail corridors with the highest scores in the annual prioritization metric that was adopted with the Parks, Recreation, Greenways, and Open Space Master Plan. Projects may include new trail segments, existing trail corridor extensions, or existing trail corridor gap filling. This allocation funds the design development and construction document plan for the highest prioritized greenways.

FY24-25

Environmental Education Center

$5,165,000
Two-year Total

This project includes the design and development of a 7,000+ square foot facility at the Nature Park. This design will focus on providing space for nature and environmental education, connecting with the shelter and restroom, and supporting amphitheater programming.

KidsTowne Playground Renovation

$3,000,000
Three-year Total

This project replaces the KidsTowne Playground equipment, improves the surfacing, and adds a secondary rental shelter. This treated lumber, community-built playground is 24 years old, so the structure's life is limited despite routine maintenance and component replacements. Renovations with long-lasting composite or metal components will increase this facility's longevity for another 20+ years and allow for a more inclusive play facility to be constructed. Poured in place surfacing increases its accessibility and longevity, and will reduce the time and replacement costs for mulch safety surfacing. The highly-used shelter is often not available for public use due to rentals, so adding a larger secondary rental shelter would provide additional protected space for resident use.

Pleasant Park Baseball & Softball Complex

$14,350,000

This project adds a baseball and softball complex to Pleasant Park. There are four lighted synthetic turf fields of ranging sizes, a fieldhouse with restrooms, offices, meeting space, concession space, a maintenance storage building, a concourse with seating, two signature fields with stadium type seating, four batting cages, and support facilities. This project also includes a large picnic shelter with restrooms and associated amenities, a sand volleyball court, and grading, sodding, and irrigation for an open play lawn.

Street Hockey Rink & Inclusive Playground

$2,450,000
Three-year Total

In partnership with the NHL Carolina Hurricanes, this project will develop 2 street hockey courts (multifunctional courts - including Futsal and Basketball) in the fenced field space. This programmable space will be utilized to introduce street hockey to the community and provide access to underserved and vulnerable populations through events with the Boys and Girls Club, Miracle League and Town Specialized Recreation programming. This project also removes the existing play equipment and constructs an inclusive playground with accessible ramps and walkways. It includes new poured in place safety surfacing and sidewalks. This project constructs a roof, lighting, and IT equipment to monitor games and tournaments for the street hockey rinks.

FY25-26

Beaver Creek Greenway Extension — $15,489,000
(Jaycee Park to NC 55, Nature Park to Richardson Road, Richardson Road to American Tobacco Trail) — Five-year Total

This project extends the Beaver Creek Greenway from Jaycee Park to the NC 55 Right of Way. During the NC 55 widening, the Town will cost share with NCDOT to extend the greenway under NC 55 with a grade separated crossing. This project also extends the 10' asphalt trail, including boardwalk and bridge sections, within the Nature Park to Richardson Road, providing connections to Bella Casa, Arcadia Ridge/West, and Buckhorn Preserve. Additionally, the Beaver Creek Greenway will extend west of Richardson Road on the south side of Beaver Creek along the southern edge of Army Corps of Engineers land for Jordan Lake to the American Tobacco Trail north of the New Hill-Olive Chapel Road Wake County trailhead.

Hunter Street Park Renovation — $900,000
Two-Year Total

This project includes the replacement of the turf field at Hunter Street Park from 2016 due to use in addition to various other park improvements. Turf fields are intended to provide play for approximately 10 years. This particular field was the Town's first synthetic turf field and the demand for field space through Town programs, school agreements and outside organization rental have this field being utilized daily for many hours. Even with grooming and routine maintenance and repair, the carpet fibers deteriorate and seams wear out. This renovation will result in approximately 10 years of all-weather field use. Additional improvements include increasing paved surfaces for visitors, installing a retaining wall and slope stabilization to reduce erosion on the field surface, addressing stormwater, and adding accessible areas for visitors.

FY26-27

Big Branch Greenway — $5,049,000
(James Street to US 1) — Three-year Total

This project completes the Big Branch Greenway corridor from James Street south to US. This 10' asphalt trail will provide connectivity to transit routes and side paths that extends to S. Salem Street along Tingen Road. It will also provide connectivity to Irongate, Lexington, Bradley Terrace, Perry Farms, other subdivisions, Apex Elementary School, and potentially Veridea Parkway after coordinating with the Grace Christian School project.

Jaycee Park Expansion — $3,000,000
Two-year Total

This project develops the west side of Jaycee Park adjacent to the Apex Peakway. Plans include an open play field, shelter with restroom, hillside playground, adaptive court space for pickleball or tennis, and additional parking serving multiple subdivisions within walking distance and more that would have access from the Peakway. This will connect to the Beaver Creek Greenway and existing Jaycee Park amenities.

Middle Creek Greenway — $4,600,000
(Gladstone North to Center Street) — Three-year Total

This project extends the bike and pedestrian facilities north of Jessie Drive to a crossing of Ten Ten Road, and it ultimately connects to Swift Creek Greenway at Regency Park in the Town of Cary. This project connects six subdivisions, two schools, downtown Holly Springs, Pinnacle Park, Apex Commerce Center and Meridian at Ten Ten Apartments, and other commercial and office spaces.

Reedy Branch Greenway — $7,802,000
(Kelly Road to Goliath Lane) — Three-year Total

This project extends the 10' asphalt Reedy Branch Greenway from Kelly Road to Goliath Lane to complete the gap between the American Tobacco Trail to Kelly Road. From the existing greenway at Goliath Lane, the proposed greenway runs east along the north side of Reedy Branch before crossing to the south side of the creek and continuing east to Kelly Road. A

mid-block crossing proposed at Kelly Road would connect to the existing side path on the east side of the road. Neighborhood connections are proposed at Rothwood Way, Homestead Park Drive, Evening Star Drive, and Windy Creek Lane. This project provides connectivity to transit stops, Abbington, Stratford at Abbington, Sweetwater, Homestead Park, Creekside, and other connected subdivisions, schools, commercial spaces, and office spaces.

FY27-28

Seymour Athletic Fields/Nature Park Operations & Maintenance Building — $16,700,000
Two-year Total

This project replaces the current Operation and Maintenance Building with a 2-story 30,000 square foot office with a warehouse and sign shop and adds a 2-acre yard with staff parking to Town owned property on the eastern side of Evans Road. The existing Maintenance Building has continuing moisture issues and the department has outgrown the space. This new Operations and Maintenance Building will have both storage space requires for the Operations team as well as office space for the expanding department.

Future Years

Apex Community Park Parking Lot Expansion — $950,000

This project reconfigures the existing parking area and adds approximately 30 parking spaces to service the greenway, shelters, fitness course, tennis courts, playgrounds, basketball courts, and special events.

Olive Farm Park — $44,750,000

This project includes the design and development of approximately 25 acres with a 40,000+ square foot recreation center. Preliminary project features, per public input, include indoor staffed and programmed recreation space (gymnasium/classrooms), trails, street-side greenway, greenway connectivity to surrounding subdivisions, passive open space, and adaptive multi-use fields and sport courts.

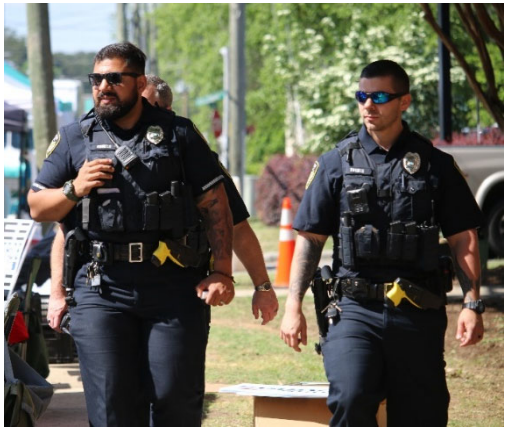
Seymour Athletic Fields/Nature Park Parking Lot Expansion & Turf Renovation — $3,575,000

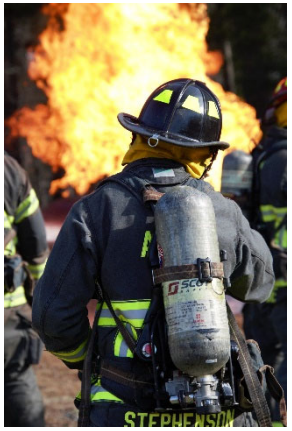
This project would add approximately 50 parking spaces near the Seymour Athletic Fields, renovate the existing synthetic turf fields, and address drainage issues. The Parks, Recreation, Greenways, and Open Space Master Plan update identified the need for additional parking. With the conversion of the Seymour Athletic Fields to synthetic turf and the current volume of use, additional parking is needed to discourage patrons from parking on Evans Road.

Wimberly Road Park — $97,500,000

This project includes the design and development of nearly 50 acres with a 70,000+ square foot. recreation center, maintenance facility, and yard. Preliminary project features, per public input, include indoor staffed and programmed recreation space (gymnasium/multi-functional spaces/classrooms), trails, passive open space, adaptive multi-use fields and sport courts, community gardens, and environmental education and conservation opportunities which will require a park operations facility and yard.

Public Safety Element Projects





Public Safety	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Engine (Pumper) - Replacement	1,019,000	-	-	-	-	-	1,019,000
Radio Replacement	764,050	764,050	764,050	-	-	-	2,292,150
Self-Contained Breathing Apparatus Replacement	325,000	325,000	325,000	325,000	-	-	1,300,000
Driving Simulator	-	279,000	-	-	-	-	279,000
Engine (Pumper) - Replacement	-	1,019,000	-	-	-	-	1,019,000
Ladder (Aerial) - Replacement	-	-	1,688,000	-	-	-	1,688,000
Rescue Retrieval Van	-	-	194,000	-	-	-	194,000
Rescue Fire Vehicle - Replacement	-	-	-	936,000	-	-	936,000
Fire Pumper for Station 7	-	-	-	-	-	1,125,000	1,125,000
Fire Pumper for Station 8	-	-	-	-	-	1,324,000	1,324,000
Element Total	**$2,108,050**	**$2,387,050**	**$2,971,050**	**$1,261,000**	**$ -**	**$2,449,000**	**$11,176,150**

FY24-25

Engine (Pumper) - Replacement $1,019,000

This project replaces Unit 148, a fire engine pumper, following the replacement schedule for engines, ladders, and rescues at the 15-year timeframe. This fire engine is 17 years old with over 130,000 miles.

Public Safety Radio Replacement $2,292,150
Three-year Total

This project replaces all mobile and portable radios for Public Safety. Current radios will begin to go end-of-life in 2024, and repair costs will exceed device costs. This three-year replacement schedule allows radio replacement as their warranties expire.

Self-Contained Breathing Apparatus Replacement $1,300,000
Four-year Total

This project replaces the Fire Department's self-contained breathing apparatus (SCBAs). Due to changing National Fire Protection Association (NFPA) standards and technological advancements, the current SCBAs will no longer meet the updated NFPA 1981 Standard on Open-Circuit Self-Contained Breathing Apparatus for Emergency Services within the next 5-7 years. This project includes a full complement of SCBA equipment include the airpack itself, air bottles, Bluetooth option, and a remote monitoring system.

FY25-26

Driving Simulator $279,000

The Police Department currently has limited access to a quality, driving simulator. This project can benefit staff in every department and improve employee safety. A modern, driving simulator is realistic and can simulate most equipment in a Town vehicle. Trainers can program real life scenarios staff will encounter during the simulation and integrate challenges into the course. A quality simulator's life expectancy is at least 10 years, based on continued maintenance and proper use.

Engine (Pumper) - Replacement $1,019,000

This project replaces Unit 189, a fire engine pumper, following the replacement schedule for engines, ladders, and rescues at the 15-year timeframe. This fire engine is 13 years old with over 113,000 miles.

FY26-27

Ladder (Aerial) - Replacement $1,688,000

This project replaces Unit 154, an aerial ladder fire truck, following the replacement schedule for engines, ladders, and rescues at the 15-year timeframe. This fire engine is 18 years old with over 98,000 miles.

Rescue Retrieval Van $194,000

The Police Department has limited access to a ruggedized rescue retrieval vehicle that can move civilians away from hostile environments safely and efficiently. This vehicle enhances the Police Department's ability to respond to a victim rescue situation and safely insert police officers into a critical incident. This vehicle would support Fire, Police, and Medic responses

to rapidly evolving events. This inconspicuous vehicle would primarily serve as a rescue/medical transport and police response to a hostile environment.

FY27-28

Rescue Fire Vehicle- Replacement $936,000

This rescue fire vehicle supports the need for a reserve rescue or support apparatus. The current rescue vehicle transports a large assortment of equipment, rescue tools, and breathing air supply for fire and rescue operations. There is only one vehicle with these capabilities in the fleet, which is problematic when it is out of service. Unit 87 is a 2017 rescue fire vehicle will become a reserve vehicle until it meets the 15-year time frame.

Future Years

Fire Pumper for Station 7 $1,125,000

This fire pumper is needed for the fire station slated to be built near Olive Farm Road and Humie Olive Road. This new station is needed according to a third-party station distribution assessment by Envirosafe.

Fire Pumper for Station 8 $1,324,000

This fire pumper will be needed for Fire Station 8 to service to Apex's western areas, including potential annexations into Chatham County.

Public Facilities Element Projects

Public Facilities	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Brine Equipment Relocation	150,000	-	-	-	-	-	150,000
Fire Station 3 Renovation	500,000	3,000,000	-	-	-	-	3,500,000
Mechanical (HVAC/Chiller) Upgrades to Town Facilities	405,000	-	-	-	-	-	405,000
Town Hall Remodel	900,000	900,000	900,000	-	-	-	2,700,000
Town Facility Solar Initiative	670,000	670,000	670,000	-	-	-	2,010,000
Yard Waste Transfer & Processing Center Feasibility Study	250,000	-	-	-	-	-	250,000
Fire Department Administration Building	-	500,000	6,000,000	-	-	-	6,500,000
Parking Lot and Internal Street Maintenance	-	350,000	500,000	250,000	180,000	600,000	1,880,000
Warehouse/Storage Building	-	1,080,000	-	-	-	-	1,080,000
Depot Parking Lot Repurposing	-	-	-	250,000	-	2,000,000	2,250,000
Fleet Fluid Pumps/Reclamation	-	-	-	-	-	100,000	100,000
Land Purchase for Affordable Housing	-	-	-	-	-	500,000	500,000
Police Department Addition & Renovation	-	-	-	-	-	6,600,000	6,600,000
Public Safety Station 7	-	-	-	-	-	10,640,000	10,640,000
Public Safety Station 8	-	-	-	-	-	10,940,000	10,940,000
Element Total	**$2,875,000**	**$6,500,000**	**$8,070,000**	**$500,000**	**$180,000**	**$31,380,000**	**$49,505,000**

Brine Equipment Relocation $150,000

This project re-locates existing brine equipment and replaces the existing tanks to meet double wall standards. This need has been elevated due an existing tank failure.

Fire Station 3 Renovation $3,500,000
Two-year Total

This project renovates Fire Station 3, so Fire Station 1's engine company and crew can move to Fire Station 3 when Fire Station 1 closes. Current Fire Station 3 has insufficient kitchen, living room, bedroom, locker, and bathroom space for nine personnel per shift. This project includes needed renovations due to the station's age (flooring, paint, fixtures, plumbing, etc.). If not funded, Fire Station'1 engine company and crew will continue operating out of Fire Station 1 which does not have suitable living conditions.

Mechanical (HVAC/Chiller) Upgrades to Town Facilities $405,000

This project replaces two Heating, Ventilation, and Air Conditioning (HVAC) units for the Police Department (PD) server room and upgrades the HVAC system for Public Safety Station 4 (PSS#4). These two PD HVAC units need to operate 24/7 to ensure there are no issues with the servers. These units have had numerous repairs over the last three years and are reaching the end of their useable life. The PD units use R22 refrigerant which is being phased out with limited to no replacements available, and when replacements can be found, it is extremely expensive and timely to replace or repair. Replacement unit lead times are 3-6 months, so these units should be replaced before a critical failure. PSS#4 has struggled to maintain a comfortable temperature and humidity level for years. The HVAC system at PSS#4 is not appropriate for such a large facility and has caused inconsistent and uncomfortable temperatures as the seasons change. By adding equipment to the PSS#4 distribution system, the system will operate correctly, create a more comfortable work environment, and improve the system's energy efficiency.

Town Hall Remodel $2,700,000
Three-year Total

With the opening of Mason Street Municipal Building, the Planning and Building Inspections Departments have relocated out of Town Hall. This project funds Town Hall design changes following the FY19-20 space needs study recommendations, which has identified areas to renovate or change to improve and increase the building's physical capacity. This project will anticipate growth and changes for each department and consider interactions between departments.

Town Facility Solar Initiative $2,010,000
Three-year Total

In alignment with the Town's strategic goal of environmental leadership, this project funds the design and construction of solar panels on Town facilities over a three-year period. Prioritization of solar projects are informed by the Town's Solar Panel Assessment. The budget for this project is for twelve Town facilities that meet the criteria for potential solar panel locations identified in the assessment.

Yard Waste Transfer & Processing Center Feasibility Study $250,000

This project studies the feasibility for a permitted transfer and/or processing center to adequately and sustainably offer curbside yard waste collection in addition to a location for resident to drop off their yard waste. This supports the future migration to containerized yard waste which improves workers safety, stormwater compliance, water quality, and community aesthetics.

FY25-26

Fire Department Administration Building

$6,500,000
Two-year Total

The current Fire Department Administration Building occupies an old Apex EMS station with 2,400 square feet of office space for 13 full-time employees and is currently shared with Wake County Emergency Medical Services (EMS) staff and one ambulance. This building is scheduled to be demolished during the NC 55 construction project in the coming years. A new Fire Department Administration Building, at current Fire Station 1 property will address insufficient space available for offices, meetings, training, parking, and storage.

Parking Lot and Internal Street Maintenance

$1,880,000
Five-year Total

This project funds the maintenance and repair of the Town of Apex parking lots and streets internal to Town based on the schedule created as a result of the Parking Lot and Internal Street Assessment and Long Maintenance Plan. First-year funds replace and repair Public Safety Station 4's rear parking lot and drive due to near complete failure in spots and expanding depressions.

Warehouse/Storage Building

$1,080,000

This project constructs an outside warehouse and storage building at Fire Station 3. The Fire Department currently stores multiple trailers, response vehicles, and equipment outside unprotected from weather and unsecured from possible theft and vandalism. Multiple vehicles, equipment, and stored supplies currently housed at Fire Station 1 and the Fire Department Administration Building may also be stored in this new warehouse and storage building.

FY27-28

Depot Parking Lot Repurposing

$2,250,000
Two-year Total

Converting the Depot parking lot to a premier space for people to gather downtown was identified as a "Top 10" priority project in the Downtown Plan. The final design includes a durable curbless environment with sunny and shaded areas, lighting, and movable interactive furnishings. Conceptual plans include space for a farmer's market, splash pad, ice skating rink, and seating and space to host various activities.

Future Years

Fleet Fluid Pumps/Reclamation

$100,000

This project relocates a motor oil, hydraulic, coolant, and reclamation reservoir. Currently, vehicle and equipment fluids are in a small room with limited size drums, which increases how often vendors must refill or remove used fluids and increases the risk of spills and overflows. Currently, a mechanic hand pours or pumps old fluids into an open drum, which can be hazardous. With this project, the reservoir will be relocated to a larger area with larger tanks for new fluids and reclamation tanks using pneumatic pumps to safely and efficiently remove used fluids.

Land Purchase for Affordable Housing

$500,000

This project funds a land purchase for future development of affordable housing.

Police Department Addition & Renovation $6,600,000

This project adds space for operations, administrative functions, and the Communications Center. The conceptual plan adds two stories of office space above the current administrative parking lot (east side). The first added level would align with the building's existing second story and be finished into office space for administrative functions. The second added level would be unfinished shell space to allow for future growth. The existing administrative office space would be renovated to double the existing Communications Center's size and add office and work space.

Public Safety Station 7 $10,640,000

(Olive Chapel Road and Richardson Road Area)

This project would create Public Safety Station 7 to serve the Olive Chapel Road area which supports the Apex Fire Department's standard of coverage including a goal of a 5-minute travel time for the first arriving fire apparatus 90% of the time. The specific needs and location of this station depends on many factors including PSS#6 response time data, Station 1 plans, and results of the Master Facility Plan Study.

Public Safety Station 8 $10,940,000

This project would create Public Safety Station 8 which supports the Apex Fire Department's standard of coverage including a goal of a 5-minute travel time for the first arriving fire apparatus 90% of the time. The specific needs and location of this station depends on many factors including PSS#6 response time data, future PSS#7 location, and Station 1 plans.

Public Works & Environmental Services Element Projects

Public Works & Environmental Services	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Fleet Services Field Response Truck - Replacement	-	240,000	-	-	-	-	240,000
Grapple Truck - Addition	-	386,000	-	-	-	-	386,000
Rear Loader - Addition	-	640,000	-	-	-	-	640,000
Leaf Truck - Addition	-	-	325,000	-	355,000	-	680,000
Right of Way Mowing Tractor - Replacement	-	-	160,000	-	-	-	160,000
Leaf Truck - Replacement	-	-	-	340,000	-	360,000	700,000
Tandem Semi Tractor w/ Wet Line - Addition	-	-	-	-	210,000	-	210,000
Dump Truck - Replacement	-	-	-	-	-	185,000	185,000
Element Total	**$ -**	**$1,266,000**	**$485,000**	**$340,000**	**$565,000**	**$545,000**	**$3,201,000**

FY25-26

Fleet Services Field Response Truck – Replacement $240,000

This project replaces a pickup truck (Unit #61) that will be 17 years old with over 50,000 miles at the replacement time. This project is required because the existing truck's crane is unsafe and its welder and air compressors are broken.

Grapple Truck - Addition $386,000

This project adds a grapple truck to the fleet to support the Town's yard waste program by providing large limb and tree stump removal service. This truck also supports the bulk item pickup program; collecting oversized items that cannot be lifted by hand.

Rear Loader – Addition $640,000

This project adds a zero-emissions battery-electric rear loader to the Town's solid waste fleet. This truck can conduct small pile collection which is currently manually collected with F-450 dump trucks without compaction. Additionally, this truck can reduce chipper usage that would increase safety and reduce noise.

FY26-27

Leaf Truck – Addition $325,000

An additional leaf truck is needed to meet the expanding service area resulting from residential growth. This truck will be a motor pool vehicle to support leaf removal along curb and gutter lines and to remove light debris along catch basins.

Right of Way Mowing Tractor – Replacement $160,000

This project replaces a right of way mower (Unit #556) that will be 24 years old with over 1,672 hours of use at the replacement time.

FY27-28

Leaf Truck – Replacement $340,000

This project replaces leaf truck Unit #212. This vehicle will be 8 years old with over 75,000 miles at the time of replacement.

FY28-29

Leaf Truck – Addition $355,000

An additional leaf truck is needed to meet the expanding service area resulting from residential growth. This truck will be a motor pool vehicle to support leaf removal along curb and gutter lines and to remove light debris along catch basins.

Tandem Semi Tractor w/ Wet Line – Addition $210,000

This project adds a Class 8 semi-truck trailer to the Town's solid waste fleet. This vehicle can a pull heavy equipment trailer and a solid waste walking floor trailer that transports yard waste debris.

Future Years

Leaf Truck – Replacement $360,000

This project replaces leaf truck Unit #108. This vehicle will be 10 years old with over 85,000 miles at time of replacement.

Dump Truck – Replacement $185,000

This project replaces a tandem dump truck (Unit #62) that will be 20 years old at the replacement time.

General Fund Summary

The table below shows the total capital need for each CIP element supported by the General Fund and the revenue sources proposed to support these needs. An overview of grant and fee revenues is in Section 1 of this document. Local revenue indicates the need for current year revenue to fund some projects or purchases in each year. Section 12 of this document details each project's proposed funding source(s).

The level of capital need reflected in this document necessitates the issuance of additional debt. In the table below, new debt service, which includes bonds and installment purchases, is shown as a total amount proposed in each fiscal year. Bond debt is issued for long-term, high-cost projects. A bond may be issued to cover one or multiple projects. Installment purchase is used primarily for debt issues that are short term and/or relatively small projects. For the estimates shown, an interest rate of four percent for installment and bond debt issues is assumed. Although bond debt carries a lower interest rate, this illustration is simpler by using a common interest rate.

For items, such as fire apparatus purchases, replacement vehicles, and minor renovations, the Town uses PAYGO financing to avoid interest costs and uses accumulated fund balance for these one-time purchases. For all other issues in the General Fund, a twenty-year term is used this illustration. Length of these issues' term would result in a lower annual payment but a higher over-all interest cost over the life of the borrowing.

General Fund Project Costs	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Transportation	15,140,000	23,337,330	23,402,160	17,920,220	14,984,710	50,790,500	145,574,920
Parks, Recreation & Cultural Resources	16,750,000	7,940,000	5,111,000	5,217,500	4,556,500	188,205,000	227,780,000
Public Safety	2,108,050	2,387,050	2,971,050	1,261,000	-	2,449,000	11,176,150
Public Facilities	2,875,000	6,500,000	8,070,000	500,000	180,000	31,380,000	49,505,000
Public Works & Environmental Services	-	1,266,000	485,000	340,000	565,000	545,000	3,201,000
Total	**$36,873,050**	**$41,430,380**	**$40,039,210**	**$25,238,720**	**$20,286,210**	**$273,369,500**	**$437,237,070**

General Fund Project Revenues	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Revenue
General Fund / Capital Outlay	6,254,050	12,455,380	19,086,210	19,367,720	15,321,210	6,494,800	78,979,370
General Obligation Bonds	7,550,000	10,650,000	7,980,000	320,000	-	229,175,700	255,675,700
Limited Obligation Bonds	15,250,000	-	-	-	-	-	15,250,000
Grants	100,000	3,370,000	750,000	100,000	100,000	100,000	4,520,000
Installment Purchase / Capital Lease	1,019,000	10,530,000	8,173,000	1,276,000	565,000	33,174,000	54,737,000
Designated Capital Funds	4,542,800	2,159,940	1,671,687	1,677,771	1,677,910	1,671,805	13,401,914
Intergovernmental Funds	2,157,200	2,265,060	2,378,313	2,497,229	2,622,090	2,753,195	14,673,086
Total	**$36,873,050**	**$41,430,380**	**$40,039,210**	**$25,238,720**	**$20,286,210**	**$273,369,500**	**$437,237,070**

After capital assets are acquired or constructed, most will entail ongoing expenses for routine operation, repair, and maintenance, which are accounted in the annual operating budget.

- **Transportation Element:** New road and parking lot construction requires future maintenance work, including pothole repair, crack sealing, road marking repair, and resurfacing. Downtown improvements, such as the Salem Street Downtown Streetscape, Gathering Space, and Alleys, have future costs such as landscaping, electrical work, and repainting. Sidewalk construction, such as those in the Safe Routes to School project, require regular pavement repair, crosswalk marking repainting, and crosswalk signal maintenance. Lastly, the GoApex Transit Program has future costs, including operating personnel wages and routine vehicle maintenance and repair work.
- **Parks, Recreation, and Cultural Resources Element:** New greenway connections require future maintenance work, including brush clearing, sign and bench replacement, and trail reconstruction. Once constructed and operational, the Environmental Education Center has ongoing costs, such as staff wages, educational materials, and regular cleaning and building maintenance. Parking lot expansions have future costs, including sweeping and asphalt treatment. New park construction includes annual operating costs, such as landscaping, irrigation system maintenance, restroom and public facility cleaning, and maintenance and programming staff wages.
- **Public Safety Element:** Replacement fire engines and a new rescue retrieval van require regular costs, such as fuel purchases, operating personnel wages, repairs, and maintenance. Once acquired, the driving simulator has annual repair and maintenance costs.
- **Public Facilities Element:** New public safety and fire stations require future costs, including staff wages, building cleaning, facility maintenance, and utility services. Once complete, the Regional Yard Waste Center and Fire Warehouse/Storage Building have costs for routine maintenance and repairs. The repurposed downtown Depot parking lot involves future operational costs, including street sweeping, landscaping, furniture and lighting replacement, and programming. Town facility HVAC and chiller upgrades require routine maintenance and repair costs.
- **Public Works and Environmental Services Element:** New and replacement vehicles and equipment, such as grapple trucks, leaf trucks, and dump trucks, have regular maintenance and repair costs over the course of their useful lives.

Section 3: CIP Financial Impact Analysis on General Fund

The CIP's financial impact analysis discusses how capital spending affects the Town's operation costs, debt capacity, and other important debt ratios. Understanding how capital spending affects these indicators is essential because the Local Government Commission (LGC) and bond rating agencies use these indicators to evaluate the Town's financial condition and issue ratings. Bond rating agencies may consider other factors when assessing the Town's financial condition, including the community's wealth, tax base, revenue sources, and other economic indicators. Apex has a AAA bond rating with the Standard & Poor's Corporation and Aaa bond rating with Moody's Investors Service. These ratings represent strong financial standing and are the highest possible ratings.

Projections and Estimates

Proper financial planning requires projections and estimates for expenditures, revenues, and other financial indicators. Forecasts for population, assessed property value, and other changing factors, such as economic indicators, impact expenditure and revenue estimates. This CIP's projections assume a 7.76 percent growth factor for operations expenditures throughout the five-year scope. This growth factor represents the Town's three-year rolling average for personnel and operating expenditure increases. The Town has benefited from sustained property value growth with a three-year rolling average of 6.09 percent not including revaluation years. Wake County performed a revaluation in 2024 that affected the assessed value and revenue neutral tax rate for Apex. The CIP includes an adjustment in FY24-25 for the revenue neutral rate in response to the revaluation plus a 3.8 cent increase. The CIP includes an overall revenue growth rate of eight percent beyond FY24-25 except for property tax revenues. For projects financed in FY24-25, the debt model includes a four percent interest rate. For future years, a half percent has been added to the interest rate per year beginning in FY25-26. That rate may vary depending on the project size and term length. Financing recommendations in this CIP include use of general obligation (GO) bonds, limited obligation bonds, and installment financing in the General Fund and revenue bonds in the enterprise funds.

General Fund Debt Ratios

Large costs associated with capital projects may require financing, which results in debt obligation for the Town. The LGC and bond rating agencies assess the Town's ability to incur and repay debt through various debt capacity ratios and indicators. In the General Fund, the Town evaluates debt using three metrics:

- **Net debt per assessed valuation** measures both debt capacity and debt burden by focusing on the Town's largest revenue source and greatest means for repaying debt. This ratio divides the Town's net debt by its total assessed value of taxable property, where net debt is defined as all tax-supported debt. Town policy states that its net debt per assessed valuation should not exceed 2.5 percent. For FY24-25, Apex's expected net debt-to-assessed valuation ratio is .51 percent. The .51 percent is well below the Town policy's maximum and the legal limit set forth by N.C.G.S. 159-55, which limits net debt to eight percent or less of a local government's total property valuation. Apex's legal debt limit, based on the July 1, 2024, audited valuation is $1,557,041,230. The CIP includes a maximum debt obligation of $120,391,281 in FY26-27.

- **Aggregate ten-year payout ratio** measures the amount of principal being retired in the next ten years. This indicator determines if debt is back-loaded, which can cause concern for long-term financial stability. Apex's policy establishes a minimum ten-year payout ratio of 55 percent. The CIP includes previously authorized debt, new bond debt, and new installment purchase financing producing a payout ratio of 75.29 percent in FY24-25. The lowest ratio of 61.57 in FY26-27 remains above the Town's minimum.

- **Debt service expenditures as a percent of total fund expenditures** measures annual debt service payments of non-self-supporting projects as a portion of the Town's General Fund expenditures. Debt service payments can become a

large portion of a Town's budget, so they should be monitored to ensure acceptable levels. Too much debt service may indicate excessive debt and fiscal strain. Bond rating agencies consider net debt service between 15 and 20 percent of a fund's total expenditures to be high. A ratio below 5 percent indicates capacity for significant new debt. The Town's policy is to maintain a net debt service ratio of less than 12 percent. For FY24-25, the General Fund debt service ratio is 7.59 percent. Without significant changes to the CIP, the debt service ratio will remain below 12 percent for the length of the current CIP.

To ensure key debt ratios remain within an acceptable range, pay-as-you-go financing may be used to reduce or eliminate new debt obligations and annual debt service payments. The proposed CIP indicates differences in pay-as-go financing over the five-year period due to the significant costs associated with some larger projects, such as new roads or a fire station. If debt ratios begin to approach unacceptable ranges, delaying projects or using pay-as-go financing should be considered to keep the Town in good financial standing and reduce fiscal strain.

Summary of CIP Impact on General Fund (GF) Debt Ratios and Fiscal Indicators

Debt Obligations	**FY23-24**	**FY24-25**	**FY25-26**	**FY26-27**	**FY27-28**	**FY28-29**
GO Bond Debt	$56,235,000	$82,060,000	$88,985,000	$91,765,000	$87,090,000	$82,090,000
Installment Purchase and Lease Debt	$16,651,138	$15,727,449	$24,150,865	$28,626,281	$26,110,321	$21,139,984
Total Net Debt Obligations	**$72,886,138**	**$97,787,449**	**$113,135,865**	**$120,391,281**	**$113,200,321**	**$103,229,984**

Debt Service	**FY23-24**	**FY24-25**	**FY25-26**	**FY26-27**	**FY27-28**	**FY28-29**
GO Bond Principal	$3,725,000	$5,200,000	$4,995,000	$5,000,000	$5,005,000	$5,180,000
GO Bond Interest	$2,189,147	$3,036,031	$2,819,181	$2,595,181	$2,370,931	$2,154,931
Total GO Bond Debt Service	$5,914,147	$8,236,031	$7,814,181	$7,595,181	$7,375,931	$7,334,931
IP and Lease Principal	$1,942,689	$2,106,584	$3,697,584	$3,791,960	$5,535,337	$6,531,744
IP and Lease Interest	$348,351	$328,878	$579,013	$549,497	$930,387	$1,145,462
Total IP Debt Service	$2,291,040	$2,435,462	$4,276,597	$4,341,457	$6,465,724	$7,677,206
Total GF Debt Service	**$8,205,187**	**$10,671,493**	**$12,090,778**	**$11,936,638**	**$13,841,655**	**$15,012,137**

General Fund Debt Ratios and Fiscal Indicators	**FY23-24**	**FY24-25**	**FY25-26**	**FY26-27**	**FY27-28**	**FY28-29**
Fund Balance	$33,619,642	$34,265,251	$24,604,363	$11,679,613	$97,863	$3,129,833
Fund Balance Percentage	28.44%	$31,959,642	$23,924,695	$12,677,168	$2,823,228	$4,050,203
Impact on Capital Designated Funds	$1,400,000	27.07%	17.63%	8.40%	1.74%	2.38%
Impact on Operating Budget	$0	$0	$0	$0	$0	$0
Revenue per Capita	$1,318.14	$1,347	$1,352	$1,373	$1,394	$1,450
% Property Tax Revenue	46.43%	55.94%	57.39%	57.96%	58.49%	60.01%
10-year Principal Payout (>55%)	78.39%	75.29%	66.72%	61.57%	63.47%	65.68%
Net Debt per Assessed Valuation (<2.5%)	0.589%	0.502%	0.544%	0.546%	0.484%	0.384%
Net Debt Service to Expenditures Less Transfers-in (<12%)	8.33%	7.59%	8.91%	7.91%	8.51%	8.83%
PAYGO %	88.68%	35.40%	48.88%	59.66%	93.68%	97.21%

Tax Rate Analysis

The CIP's impact on the operating budget is illustrated by its effects on the tax rate. The overall CIP model includes future estimates and escalation for revenues and expenditures, including operating impacts identified for each capital project. The table below depicts the potential tax rate needed to generate enough revenue to account for General Fund CIP project costs beyond the Town's typical capital and operating expenditures. This calculation depends on the Town's assessed value and the revenue generated by a penny on the tax rate. Because this formula illustrates funding gaps solely in terms of the tax rate, it does not consider substantial changes in revenues from other sources, such as sales tax or service fees.

The FY24-25 Recommended Budget includes a tax rate of $0.34, which is a $0.038 increase over the revenue neutral tax rate calculation. For this analysis, the Town's capital expenditures do not include grant-funded projects except for the required local contributions. After a decrease in capital expenditures in the FY22-23 Adopted Budget to 9.03 percent, Town Council asked staff to provide a plan to return capital expenditures to the historical average of 12.0 percent of the General Fund budget over the next few years. Capital expenditures represent 10.97 percent of the FY24-25 Recommended General Fund Budget. The five-year tax rate assessment table on page 39 includes the recommended rates and indicates the change in tax rate needed to account for the remaining funding gaps. This does not account for any potential increases in other revenues sources or cuts in the operating budget that may offset the gap. The "tax rate" used reflects the $.016 increase for the 2021 Transportation Bond in FY26, with an additional .015 increase in subsequent two fiscal years recommended per last year's CIP analysis and discussion, this path would return the Town to 12.0 percent capital expenditures around FY29. While the $.015 increase was previously enough to guide the Town back to 12.0 percent capital expenditures by FY26, the significant increase in goods and services as well as new capital needs extended this timeline. The "zero-balance" tax rate line reflects the tax rate adjusted to generate revenue to offset the funding gap for the corresponding year.

The total CIP costs have increased this fiscal year by 51 percent over the FY24 CIP. There are two main catalysts for the significant increase year of over year in the CIP; the growth of the capital needs in Apex and the significant increases to goods and services. The FY25 CIP submission cycle identified eight new projects totaling $29 million, an increase of 9.95 percent to the CIP. While the new additions were a relatively small increase for Transportation, Parks, Recreation & Cultural Resources, and Public Facilities, the substantial increase in Public Safety is due to the aging of the fire engine fleet and subsequent implementation of the 15-year replacement schedule. Approximately 80 percent of the $147 million increase to the CIP comes from the increases to the cost of existing projects. Project costs are updated annually based on the most recently completed comparable project.

CIP Increases Over FY24

CIP Element	New Additions	% Increase	Existing Project Increases	% Increase	Total Increase	% Increase
Transportation	$3,585,000	2.64%	$7,934,920	5.84%	$11,519,920	8.48%
Parks, Recreation, & Cultural Resources	$18,500,000	16.72%	$98,924,000	89.48%	$117,424,000	106.21%
Public Safety	$4,662,000	75.23%	$317,150	5.12%	$4,979,150	80.35%
Public Facilities	$2,260,000	6.14%	$10,411,000	28.26%	$12,671,000	34.40%
Public Works & Environmental Services	$-	0.00%	$1,093,000	51.85%	$1,093,000	51.85%
General Fund Total	**$29,007,000**	**9.95%**	**$118,680,070**	**40.71%**	**$147,187,070**	**50.66%**

Staff had to move several costly projects to future years to decrease the gap in funding. Moving the projects out on the CIP will allow for further evaluation and discussion by staff and Town Council regarding the feasibility of these projects. These projects include Phase 2 of Jessie Drive ($9.3 million), SE Peakway ($27.3 million), Davis Drive and Salem Church Road Realignment ($3.5 million), Beaver Creek Greenway extension ($8.3 million), Big Branch Greenway ($4.3 million), Jaycee Park Expansion ($2.5 million), Reedy Branch Creek Greenway ($6.5 million), Seymour Athletic Fields/Nature Park Operations and Maintenance Building and Parking Lot Expansion & Turf Renovation ($15.5 million and $3.6 million respectively), Middle Creek Greenway ($4 million), and Wimberly Road Park ($97.5 million). Staff will continue to seek alternate funding sources as well as plans to reduce project costs.

If projections are accurate, CIP projects will create a funding gap each year beyond FY24-25 until FY28-29, with potential shortfalls ranging from $8.03 million in FY25-26 to $11.25 million in FY26-27. These funding gaps represent potential policy decisions for Town Council regarding using fund balance, setting the tax rate, delaying projects, and considering operational cuts. The funding gaps present opportunities for Town staff to identify additional funding sources, such as grants or direct fees, that can affect Town Council decisions to balance the budget. The funding gap is noticeable for all years primarily due to large downtown, transportation, and parks and recreation capital projects. Notably, several large parks and recreation projects are new to the CIP and have created larger funding gaps than previously identified in prior years' analyses. The CIP includes $94.78 million in transportation projects over the next five years, plans $7.54 million for downtown projects, and identifies $50.79 million in projects on the horizon. Total cost estimates for twenty-one transportation projects exceed $1 million over the next five years. The CIP programs four of these large projects, which cost $21.93 million, to correspond with bond sales from the November 2021 bond referendum. Overall, the CIP includes debt service for general obligation bonds to cover $42 million in transportation projects – $17 million reflected in FY22-23 and $25 million reflected in FY24-25 through FY27-28. The impact model includes a tax rate increase to accompany the proposed general obligation debt with the tax rate increasing $.016 in FY26-27 to cover the annual debt service for this bond. Significant parks and recreation projects include an environmental education center ($5.17 million), Beaver Creek Greenway Extension ($7.15 million), Pleasant Park Baseball and Softball Complex ($14.35 million), and maintenance and renovations at KidsTowne Playground ($3 million). Pleasant Park Baseball and Softball complex have been identified to be funded along with Town Hall Renovations with a limited obligation bond. Aside from Pleasant Park Baseball and Softball Complex, these parks and recreation projects currently do not have funding identified beyond typical General Fund revenues.

The table indicates that without changes to the project schedule, operational cuts, or identifying alternate funding sources, the town would need to increase the property tax rate by an average of $.044 in future years to ensure a balanced budget and maintain sufficient reserves, including $.016 required in FY25-26 for debt service for the 2021 Transportation Bonds. Although the recommended tax rates included in model would not generate sufficient funding for all projects included in the CIP, they do present an increase to allow for more capital projects. The lack of sufficient funding in the future signifies decisions for Town Council regarding using fund balance, setting the tax rate, delaying projects, additional debt obligations such as general obligation bonds, and considering operational cuts in order to meet the future capital needs of the Town of Apex.

Five-Year Tax Rate Assessment

Forecasted Expenditures (Including CIP Projects)	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29
Operating Budget	$99,679,350	$107,653,698	$116,265,994	$125,567,273	$135,612,655
Capital Outlay	$12,954,050	$16,880,380	$23,136,210	$23,542,720	$19,621,210
Debt Service	$8,835,800	$12,090,778	$11,936,638	$13,841,655	$15,012,137
Capital Reserve Coverage	-$4,542,800	-$2,159,940	-$1,671,687	-$1,677,771	-$1,677,910
Transfers Out	$1,137,200	$1,225,447	$1,320,541	$1,423,015	$1,533,441
Total Expenditures	**$118,063,600**	**$135,690,363**	**$150,987,697**	**$162,696,893**	**$170,101,534**
Total Capital and Debt	$17,247,050	$26,811,218	$33,401,161	$35,706,604	$32,955,437
Capital and Debt Expenditures %	14.61%	19.76%	22.12%	21.95%	19.37%

Forecasted Revenues	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29
Property Tax	$66,041,904	$73,264,784	$80,998,287	$89,401,720	$102,811,978
Other Taxes, Fees, Charges	$50,361,696	$54,390,632	$58,741,882	$63,441,233	$68,516,531
Available Capital Funds	$1,660,000	$0	$0	$0	$0
Transfers In	$0	$0	$0	$0	$0
Total Revenues	**$118,063,600**	**$127,655,416**	**$139,740,169**	**$152,842,953**	**$171,328,509**

Forecasted Expenditures vs. Forecasted Revenues	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29
Total Revenues – Total Expenditures	$0	($8,034,947)	($11,247,527)	($9,853,940)	$1,226,975
Projected Fund Balance	$31,959,642	$23,924,695	$12,677,168	$2,823,228	$4,050,203
Capital Impact on Fund Balance	$0	($8,034,947)	($11,247,527)	($9,853,940)	$1,226,975
Fund Balance Impact Percentage	27.07%	17.63%	8.40%	1.74%	2.38%
Assessed Property Value	$19,463,015,380	$20,787,874,133	$22,052,951,693	$23,395,017,463	$26,904,270,082
$.01 Property Tax Increase	$1,942,557	$2,058,000	$2,183,242	$2,316,107	$2,663,523
Tax Rate	$0.340	$0.356	$0.371	$0.386	$0.386
Change in Tax Rate Needed for Difference	$0.000	$0.039	$0.052	$0.043	($0.005)
Zero-Balance Tax Rate	**$0.340**	**$0.395**	**$0.423**	**$0.429**	**$0.381**
Projected Fund Balance with Tax Rate Adjustment	$31,959,642	$15,970,097	$1,542,116	($6,932,173)	$5,264,909
Projected Fund Balance % with Tax Rate Adjustment	27.07%	11.77%	1.02%	-4.26%	3.10%

Proposed Tax Rate Plan for Capital Expenditures	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29
Proposed Tax Rate	$0.340	$0.356	$0.371	$0.386	$0.386
Estimated Range of % Capital Expenditures*	10.97% – 11.1%	6.9% – 8.4%	8.5% – 9.9%	8.9% – 10.3%	12.2% – 13.5%

**Assumes balanced budget based on estimated revenue projections*

Section 4: Electric Utility Fund

The projects funded through the Electric Utility element pull from the Electric Enterprise Fund. This fund pays only for projects related to the electric system and not for projects related to the Water/Sewer Fund, Stormwater, or the General Fund.

Capital Project Types: construction, maintenance, and improvement of electric distribution infrastructure. These projects include substation additions and upgrades, distribution line extensions, major maintenance of infrastructure, and the equipment necessary to maintain the system.

Plan Alignment: Peak Plan 2030: The Apex Comprehensive Plan

The icon below signifies the electric utility element, and is located on the top right corner of the pages that are associated with these projects.

Electric Utility Element Projects

The table below shows each project submitted during this year's CIP process and its estimated cost in each fiscal year of the plan.

Electric Utility	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Bucket Truck – Replacement	275,000	-	-	-	-	-	275,000
Green Level Substation	1,800,000	-	200,000	1,500,000	-	-	3,500,000
LED Replacement	500,000	750,000	750,000	-	-	-	2,000,000
Mount Zion Upgrades	230,000	-	-	-	-	-	230,000
System Expansion	4,200,000	4,000,000	4,000,000	3,500,000	3,500,000	-	19,200,000
System Fault Indicators - SCADA	175,000	-	-	-	-	-	175,000
East Williams Substation	-	775,000	3,000,000	-	-	-	3,775,000
Service Truck - Replacement	-	250,000	-	-	-	-	250,000
Veridea System Expansion	-	3,000,000	3,000,000	3,000,000	3,000,000	-	12,000,000
Service Truck - Replacement	-	-	250,000	-	-	-	250,000
Bucket Truck - Replacement	-	-	-	400,000	-	-	400,000
Total	**$7,180,000**	**$8,775,000**	**$11,200,000**	**$8,400,000**	**$6,500,000**	**$ -**	**$42,055,000**

FY24-25

Bucket Truck – Replacement $275,000

This project replaces a tree bucket truck (Unit #200), which is a specialized vehicle required for tree management surrounding electrical equipment. At the replacement time, the truck will be over 10 years old.

Green Level Substation $3,500,000
Three-year Total

This project includes the land, transformer, design work, and construction for the Green Level Substation. As population growth in Apex continues, the electrical load on the Laura Duncan and Mount Zion substations will require a new substation to serve this demand, especially in the northwest corner of Town. The proposed Green Level Substation location will increase reliability by reducing feeder exposure. Not funding this project will impede additional Town growth and revenue opportunities and remove imperative system redundancy.

LED Replacement $2,000,000
Three-year Total

This project replaces the remainder of the Town's decorative fixtures with LED technology. This effort will reduce the Town's energy usage for lighting significantly, thus reducing overall energy purchases from Duke Energy. This project would carry out a Town Council directive and will create long-term cost reductions of LED technology.

Mount Zion Upgrades $230,000

This project upgrades equipment at the Mount Zion Substation due to age. Regulators need an overhaul every ten years to ensure the oil's insulating capabilities remain intact. The controls for all regulators will be replaced because they are no longer supported and have caused operational issues. This vital maintenance ensures the substation's continuous operation.

System Expansion $19,200,000
Five-year Total

This project includes system expansion based on Apex's continued growth and development to continue providing reliable Electric service.

System Fault Indicators - SCADA $175,000

This project replaces existing battery-operated fault indicators with supervisory control and data acquisition (SCADA) enabled cellular fault indicators. This new technology allows for faster outage response and increases available information for addressing system issues before an outage. The project creates the opportunity to increase customer satisfaction and service reliability.

FY25-26

East Williams Substation $3,775,000
Two-year Total

This project adds electrical capacity to the existing East Williams Substation to improve the Town's ability to serve the future Veridea development and other residents in the surrounding area. To support the large Veridea development, the Town needs to add a 40-MVA power transformer to the East Williams Substation for additional capacity in the area.

Service Truck - Replacement $250,000

This project replaces an electric service truck (Unit #307), which is utilized daily and for on-call responses within Town. The vehicle will be 8 years old and has over 120,000 miles at time of replacement.

Veridea System Expansion $12,000,000

Four-year Total

This project funds system expansion for the development of Veridea, a proposed sustainable, mixed-use urban community on 1,100 acres within the Town of Apex. In order to support a development of this size, considerable expansion to the existing Electric infrastructure will be required.

FY26-27

Service Truck - Replacement $250,000

This project replaces an electric service truck (Unit #331), which is utilized daily and for on-call responses within Town. At time of replacement, the truck will be 9 years old with over 100,000 miles.

FY27-28

Bucket Truck – Replacement $400,000

This project replaces an electric line bucket truck (Unit #183), which is a specialized vehicle required to install overhead electrical equipment. At time of replacement, the truck will be over 10 years old.

Electric Utility Fund Summary

The table below shows the Electric Utility Element's total capital needs and the revenue sources proposed to support these needs. Local revenue indicates the need for current year revenue to fund some projects or purchases in each year. At this time, additional debt issuance in the form of a revenue bond is required to meet the capital needs described above.

Electric Utility	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Bucket Truck - Replacement	275,000	-	-	-	-	-	275,000
Green Level Substation	1,800,000	-	200,000	1,500,000	-	-	3,500,000
LED Replacement	500,000	750,000	750,000	-	-	-	2,000,000
Mount Zion Upgrades	230,000	-	-	-	-	-	230,000
System Expansion	4,200,000	4,000,000	4,000,000	3,500,000	3,500,000	-	19,200,000
System Fault Indicators - SCADA	175,000	-	-	-	-	-	175,000
East Williams Substation	-	775,000	3,000,000	-	-	-	3,775,000
Service Truck - Replacement	-	250,000	-	-	-	-	250,000
Veridea System Expansion	-	3,000,000	3,000,000	3,000,000	3,000,000	-	12,000,000
Service Truck - Replacement	-	-	250,000	-	-	-	250,000
Bucket Truck - Replacement	-	-	-	400,000	-	-	400,000
Total	**$7,180,000**	**$8,775,000**	**$11,200,000**	**$8,400,000**	**$6,500,000**	**$ -**	**$42,055,000**

Electric Utility Project Revenues	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Revenue
Capital Outlay	5,380,000	8,775,000	11,000,000	6,900,000	6,500,000	-	38,555,000
Designated Capital Funds	-	-	200,000	1,500,000	-	-	1,700,000
Revenue Bonds	1,800,000	-	-	-	-	-	1,800,000
Total Revenue	**$7,180,000**	**$8,775,000**	**$11,200,000**	**$8,400,000**	**$6,500,000**	**$ -**	**$42,055,000**

Section 5: Water & Sewer Utility Fund

Projects assigned to the Water and Sewer Utility element are funded through the Water and Sewer Enterprise Fund. This fund only pays for projects related to the water and sewer system, and not for projects related to the Electric Fund, Stormwater Fund, or any General Fund related project.

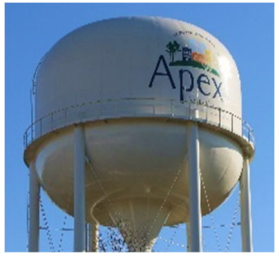
Capital Project Types construction and improvement of water and sewer infrastructure. These projects include main additions and replacements, water/wastewater treatment plant renovations/expansions, filter rehabilitation, pump station additions, major maintenance of infrastructure, and the equipment necessary to maintain the system.
construction, major maintenance, and improvement of water and sewer infrastructure

Plan Alignment: Peak Plan 2030: The Apex Comprehensive Plan

The icon below signifies the Water and Sewer Utility element, and is located on the top right corner of the pages that are associated with these projects.

Water & Sewer Utility Element Projects

Water & Sewer Utility	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Little Beaver Creek Gravity Sewer Extension	300,000	1,000,000	-	-	-	-	1,300,000
Old Raleigh Road Water Line Replacement	850,000	3,500,000	-	-	-	-	4,350,000
Pump Mechanic Truck with 7-ton Crane	180,000	-	-	-	-	-	180,000
Wimberly Road Water Supply Vault	200,000	-	-	-	-	-	200,000
Abbington Gravity Sewer Extension	-	450,000	-	-	-	-	450,000
Apex Elementary Gravity Sewer Extension	-	70,000	330,000	-	-	-	400,000
Gateway	-	220,000	220,000	220,000	220,000	1,320,000	2,200,000
Green Level West Water Line Connection	-	100,000	300,000	-	-	-	400,000
NC 55 South Utility Relocation	-	1,000,000	-	-	-	-	1,000,000
Shearon Harris Road Water Line Connection	-	100,000	400,000	-	-	-	500,000
UV System Replacement	-	1,500,000	-	-	-	-	1,500,000
2.0 MG Elevated Water Storage Tank	-	-	100,000	350,000	7,350,000	-	7,800,000
Crossroads Water Line Connection	-	-	400,000	-	-	-	400,000
Green Level Church Water Line Connection	-	-	120,000	500,000	-	-	620,000
US 64 & New Hill Olive Chapel Water Loop	-	-	330,000	1,400,000	-	-	1,730,000
Zeno Road Water Line Connection	-	-	75,000	150,000	-	-	225,000
Davis Drive & North Salem Street Water Line Connection	-	-	-	350,000	-	2,000,000	2,350,000
Richardson Road Water Line Connection	-	-	-	60,000	600,000	-	660,000
US 64 Off Ramp Water Line Connection	-	-	-	100,000	225,000	-	325,000
Villages of Apex Water Line Connection	-	-	-	50,000	250,000	-	300,000
Castlewood & Orchard Villas Water Line Connection	-	-	-	-	200,000	1,000,000	1,200,000
NC 55 North Utility Relocation	-	-	-	-	-	2,225,000	2,225,000
SR 1010 Utility Relocation	-	-	-	-	-	3,000,000	3,000,000
US 64 Utility Relocation	-	-	-	-	-	2,500,000	2,500,000
Cary Projects Sub-Total	287,500	695,750	465,750	2,967,000	57,500	747,500	5,221,000
WWRWRF Sub-Total	629,000	782,000	4,437,000	119,000	29,452,500	425,000	35,844,500
Total	**$2,446,500**	**$9,417,750**	**$7,177,750**	**$6,266,000**	**$38,355,000**	**$13,217,500**	**$76,880,500**



FY24-25

Little Beaver Creek Gravity Sewer Extension — $1,300,000
Two-year Total

Due to recent sewer extensions along Little Beaver Creek, the existing pump station at the Friendship Elementary School site may be taken offline. In order to do so, a gravity sewer is needed to extend from the Friendship Elementary School site to the existing Little Beaver Creek outfall. Abandoning this pump station reduces the funding needed for its maintenance and eventual upgrades and reduces the noises and odors from the site.

Old Raleigh Road Water Line Replacement — $4,350,000
Two-year total

This project replaces the water main in Old Raleigh Road that has surpassed its 50-year life expectancy. Improvements to Old Raleigh Road has increased the vibrations and stress on this pipe from vehicle traffic. Research shows that expansive clay soil contributes to pipe failure, particularly in smaller diameters pipes, like the existing 10-inch line. Despite system redundancy, a pipe failure here would require many other valves and loops to be closed.

Pump Mechanic Truck with 7-ton Crane — $180,000

This project replaces a 2008 Ford F550 (Unit #36) with a new pump mechanic truck that has a 7-ton crane. The vehicle will be 8 years of age with over 75,000 miles at time of replacement.

Wimberly Road Water Supply Vault — $200,000

This project installs a third water meter vault to assist in water supply quantification to support shared Water Plant distribution with the Town of Cary. This vault ensures that Apex can receive enough water to meet our demand and provides a redundancy if other transmission lines from Cary are disrupted.

FY25-26

Abbington Gravity Sewer Extension — $450,000

Due to constant overtime and emergency maintenance at the Abbington Pump Station, approximately 2,400 linear feet of gravity sewer is needed to connect the sewer flowing into the station to the outfall along Reedy Branch. Not funding this project will require continued pump station maintenance. Abandoning this pump station reduces the funding needed for maintenance and eventual upgrades and reduces the noise and odors from the site.

Apex Elementary Gravity Sewer Extension — $400,000
Two-year Total

This project installs a gravity sewer extension from the planned Townes on Tingen development. This allows the Town to abandon the Apex Elementary Pump Station which suffers from wear due to high operations and maintenance costs for its size. The small station can only service the school at a low flowrate.

Gateway — $2,200,000
Three-year Total

This project involves constructing utility infrastructure as part of an Economic Development Agreement entered into in 2022. This project is expected to directly and indirectly benefit the Town through needed infrastructure, job creation, economic diversification, and stimulus in technology and manufacturing skills. In exchange for completing sewer and water line extensions, the Town will reimburse costs associated with the extension and installation of public utilities, specifically water and sewer.

Green Level West Water Line Connection

$400,000
Two-year Total

This project connects The Pointe and Weddington subdivision along Green Level West Road with a ductile iron water line and by crossing the American Tobacco Trail.

NC 55 South Utility Relocation

$1,000,000

This project relocates water and sewer utilities, including water lines, fire hydrants, valve, sewer lines, and manholes, to accommodate NCDOT's widening of NC 55. Utilities in conflict have to be relocated to prevent disrupting customer utility service within the construction corridor.

Shearon Harris Road Water Line Connection

$500,000
Two-year Total

This project installs a water line that would extend from the stubbed line at the intersection of Reclamation Road and Shearon Harris Road north to where it would connect to the existing waterline along Old US 1. This provides a looped connection and a second water feed to the Western Water Regional Water Reclamation Facility.

UV System Replacement

$1,500,000

This project replaces the UV system at the Apex Water Reclamation Facility. The current UV system was installed in 1998. Its core electronic components are reaching the end of their useful life and becoming increasingly difficult to stock and replace. Given the advances in lamp and driver technologies and smart reactor design in the past 20 years, a new UV system requires less energy to disinfect compared to the current UV systems.

FY26-27

2.0 MG Elevated Water Storage Tank

$7,800,000
Three-year Total

This project includes a preliminary engineering report, design, land acquisition, and construction of a 2.0-million-gallon elevated storage tank to satisfy elevated storage requirements as Apex demand grows.

Crossroads Water Line Connection

$400,000

This project uses a ductile iron pipe to connect five dead end lines in the Crossroads area to improve water quality and redundancy for two neighborhoods and the Crossroads Ford.

Green Level Church Water Line Connection

$620,000
Two-year Total

This project installs a water line tie in that helps redundancy in the Green Level Church area. This ductile iron pipe will run north from the Ellsworth development and parallel to Green Level Church Road before tying into the newly extended and stubbed line from the Freedom Square development at Green Level West Road.

US 64 & New Hill Olive Chapel Water Loop

$1,730,000
Two-year Total

This project extends a water line along US 64, starting at the Legacy Development and routing west to New Hill Olive Chapel Road, and connects to the existing water line from Deer Creek. This project provides a critical redundant feed to Deer Creek and loops the waterline to remove the dead end at Deer Creek and dead end along US 64.

Zeno Road Water Line Connection $225,000
Two-year total

This project connects two stubbed lines along Zeno Road with a ductile iron water line.

FY27-28

Davis Drive & North Salem Street Water Line Connection $2,350,000
Two-year total

This project provides a connection from the southern piece of the Davis Drive water line to the last western segment of the water line on N. Salem Street connecting above US 64. This project will then bore underneath US 64 and connect to the stubbed water line on the other side of the highway.

Richardson Road Water Line Connection $660,000
Two-year total

This project provides three stubbed connections at the Richardson Road and Mt. Zion Church Road intersection above Friendship Station with a water line parallel to Richardson Road south to the Mt. Zion Church Road intersection and a water line from Mt. Zion Church Road south to the Y intersection connection point.

US 64 Off Ramp Water Line Connection $325,000
Two-year Total

This project connects the stubbed end of the Villages of Apex subdivision, runs parallel to US 64, and crosses the railroad with a ductile iron pipe. This waterline continues west along US 64 to tie into the N. Salem Street ramp.

Villages of Apex Water Line Connection $300,000
Two-year total

This project provides a connection crossing the Apex Peakway to help connect the Villages of Apex South to the Villages of Apex with a ductile iron pipe.

FY28-29

Castlewood & Orchard Villas Water Line Connection $1,200,000
Two-year total

This project provides a connection between the Castlewood and the Orchard Villa subdivisions with a ductile iron water line and an additional encasement pipe for the boring underneath US 64.

Future Years

NC 55 North Utility Relocation $2,250,000

This project relocates existing water and sewer utilities to accommodate NCDOT’s widening of NC 55. The Town has existing water and sewer utilities within the right-of-way, including water and sewer lines, fire hydrants, valves, and manholes, that conflict with NCDOT's proposed road widening. These utilities must be relocated to prevent customer utility service disruptions within the construction corridor. This project also extends a line down NC 55 under the railroad trestle to create a new loop in the distribution system.

SR1010 Utility Relocation $3,000,000

This project relocates existing water and sewer utilities to accommodate NCDOT's widening of Ten Ten Road/Center Street to Kildaire Farm Road. The Town has existing water and sewer utilities within the right-of-way, including water lines, fire hydrants, valves, water service lines, and force mains that conflict with the NCDOT's proposed road widening.

US 64 Utility Relocation $2,500,000

This project extends a water line down Laura Duncan Road, under US 64, and ties into the existing water line running parallel with US 64. Utilities, including water lines, a force main, and gravity sewers, need to be relocated to accommodate US 64 improvements.

Water & Sewer Utility Fund Summary

The table below shows the Water & Sewer Utility Element's total capital needs and the revenue sources proposed to support these needs. Local revenue indicates the need for current year revenue to fund some projects or purchases in each year.

Water & Sewer Utility	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Little Beaver Creek Gravity Sewer Extension	300,000	1,000,000	-	-	-	-	1,300,000
Old Raleigh Road Water Line Replacement	850,000	3,500,000	-	-	-	-	4,350,000
Pump Mechanic Truck with 7-ton Crane	180,000	-	-	-	-	-	180,000
Wimberly Road Water Supply Vault	200,000	-	-	-	-	-	200,000
Abbington Gravity Sewer Extension	-	450,000	-	-	-	-	450,000
Apex Elementary Gravity Sewer Extension	-	70,000	330,000	-	-	-	400,000
Gateway	-	220,000	220,000	220,000	220,000	1,320,000	2,200,000
Green Level West Water Line Connection	-	100,000	300,000	-	-	-	400,000
NC 55 South Utility Relocation	-	1,000,000	-	-	-	-	1,000,000
Shearon Harris Road Water Line Connection	-	100,000	400,000	-	-	-	500,000
UV System Replacement	-	1,500,000	-	-	-	-	1,500,000
2.0 MG Elevated Water Storage Tank	-	-	100,000	350,000	7,350,000	-	7,800,000
Crossroads Water Line Connection	-	-	400,000	-	-	-	400,000
Green Level Church Water Line Connection	-	-	120,000	500,000	-	-	620,000
US 64 & New Hill Olive Chapel Water Loop	-	-	330,000	1,400,000	-	-	1,730,000
Zeno Road Water Line Connection	-	-	75,000	150,000	-	-	225,000
Davis Dr. & N. Salem Street Water Line Connection	-	-	-	350,000	-	2,000,000	2,350,000
Richardson Road Water Line Connection	-	-	-	60,000	600,000	-	660,000
US 64 Off Ramp Water Line Connection	-	-	-	100,000	225,000	-	325,000
Villages of Apex Water Line Connection	-	-	-	50,000	250,000	-	300,000
Castlewood & Orchard Villas Water Line Connection	-	-	-	-	200,000	1,000,000	1,200,000
NC 55 North Utility Relocation	-	-	-	-	-	2,225,000	2,225,000
SR 1010 Utility Relocation	-	-	-	-	-	3,000,000	3,000,000
US 64 Utility Relocation	-	-	-	-	-	2,500,000	2,500,000
Cary Projects Sub-Total	287,500	695,750	465,750	2,967,000	57,500	747,500	5,221,000
WWRWRF Sub-Total	629,000	782,000	4,437,000	119,000	29,452,500	425,000	35,844,500
Total	**$2,446,500**	**$9,417,750**	**$7,177,750**	**$6,266,000**	**$38,355,000**	**$13,217,500**	**$76,880,500**

Water & Sewer Utility Project Revenues	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Revenue
Capital Outlay	1,530,000	7,940,000	2,275,000	3,180,000	1,495,000	12,045,000	28,465,000
Designated Capital Funds	916,500	1,477,750	4,902,750	3,086,000	36,860,000	1,172,500	48,415,500
Total Revenue	**$2,446,500**	**$9,417,750**	**$7,177,750**	**$6,266,000**	**$38,355,000**	**$13,217,500**	**$76,880,500**

Section 6: Stormwater Utility Fund

Projects assigned to the Stormwater Utility element are funded through the Stormwater Enterprise Fund. This fund only pays for projects related to the stormwater system, and not for projects related to the Electric Fund, Water & Sewer Fund, or any General Fund related project.

Capital Project Types: construction and improvement of stormwater infrastructure. These projects include vehicle additions and replacements necessary to maintain and repair stormwater infrastructure.

Plan Alignment: Stormwater Condition Assessment

The icon below signifies the Stormwater Utility element, and is located on the top right corner of the pages that are associated with these projects.

Stormwater Utility Element Projects

Stormwater	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Street Sweeper - Replacement	-	334,000	-	-	-	-	334,000
Excavator - Addition	-	-	-	225,000	-	-	225,000
Total	**$ -**	**$334,000**	**$ -**	**$225,000**	**$ -**	**$ -**	**$559,000**

FY25-26

Street Sweeper – Replacement $334,000

This project replaces the Town's only street sweeper (Unit #96) that will be over 22 years old at the replacement time. This vehicle is needed to reduce debris wash-off for stormwater management.

FY27-28

Excavator - Addition $225,000

This excavator will significantly increase the Town's stormwater maintenance repair capabilities.

Stormwater Utility Fund Summary

The table below shows Stormwater Utility Element's total capital needs and the revenue sources proposed to support these needs. Local revenue indicates the need for current year revenue to fund some projects or purchases in each year.

At this time, no issuance of additional debt is projected to be needed to meet the capital needs described above.

Stormwater Utility Project Costs	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Capital Cost
Street Sweeper - Replacement	-	334,000	-	-	-	-	334,000
Excavator - Addition	-	-	-	225,000	-	-	225,000
Total	**$ -**	**$334,000**	**$ -**	**$225,000**	**$ -**	**$ -**	**$559,000**

Stormwater Utility Project Revenues	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future Years	Total Revenue
Capital Outlay	-	334,000	-	225,000	-	-	559,000
Total Revenue	**$ -**	**$334,000**	**$ -**	**$225,000**	**$ -**	**$ -**	**$559,000**

Section 7: General Fund Project Funding

The following pages contain project funding details.

Transportation	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future	Total
Annual Pavement Management	**4,000,000**	**3,625,000**	**3,750,000**	**3,875,000**	**4,000,000**	**4,125,000**	**23,375,000**
- Intergovernmental Funds (Powell Bill Revenues)	2,157,200	2,265,060	2,378,313	2,497,229	2,622,090	2,753,195	14,673,087
- Designated Capital Funds	1,842,800	1,359,940	1,371,687	1,377,771	1,377,910	1,371,805	8,701,913
Annual Miscellaneous Road & Sidewalk Improvements	**450,000**	**300,000**	**300,000**	**300,000**	**300,000**	**300,000**	**1,950,000**
- Designated Capital Funds	450,000	300,000	300,000	300,000	300,000	300,000	1,950,000
Annual GoApex Transit Improvements	**200,000**	**200,000**	**200,000**	**200,000**	**200,000**	**200,000**	**1,200,000**
- Grants	100,000	100,000	100,000	100,000	100,000	100,000	600,000
- General Fund / Capital Outlay	100,000	100,000	100,000	100,000	100,000	100,000	600,000
Apex Peakway North Widening	**900,000**	**1,200,000**	**3,650,000**	**-**	**-**	**-**	**5,750,000**
- General Obligation Bonds	900,000	1,200,000	3,300,000	-	-	-	5,400,000
- General Fund / Capital Outlay	-	-	350,000	-	-	-	350,000
Center Street Railroad Crossing Improvements	**150,000**	**50,000**	**800,000**	**-**	**-**	**-**	**1,000,000**
- Designated Capital Funds	150,000	-	-	-	-	-	150,000
- General Obligation Bonds	-	50,000	800,000	-	-	-	850,000
Chatham Street Railroad Crossing Improvements	**150,000**	**50,000**	**800,000**	**-**	**-**	**-**	**1,000,000**
- Designated Capital Funds	150,000	-	-	-	-	-	150,000
- General Obligation Bonds	-	50,000	800,000	-	-	-	850,000
Felton Grove High School Improvements Cost Share	**300,000**	**-**	**-**	**-**	**-**	**-**	**300,000**
- General Fund / Capital Outlay	300,000	-	-	-	-	-	300,000
GoApex Transit Program	**100,000**	**690,000**	**-**	**-**	**-**	**-**	**790,000**
- Grants	100,000	690,000	-	-	-	-	790,000
Jessie Drive Phase 1	**1,500,000**	**4,350,000**	**-**	**-**	**-**	**-**	**5,850,000**
- General Obligation Bonds	1,500,000	4,350,000	-	-	-	-	5,850,000
Old US 1 at Friendship Road Improvements Cost Share	**200,000**	**-**	**-**	**-**	**-**	**-**	**200,000**
- Designated Capital Funds	200,000	-	-	-	-	-	200,000
Olive Chapel Rd at Apex Barbecue Road Improvements	**450,000**	**550,000**	**1,800,000**	**-**	**-**	**-**	**2,800,000**
- Designated Capital Funds	450,000	-	-	-	-	-	450,000
- General Fund / Capital Outlay	-	550,000	1,800,000	-	-	-	2,350,000
Safe Routes to School	**5,000,000**	**1,642,330**	**1,207,160**	**1,245,220**	**1,074,710**	**994,800**	**11,164,220**
- General Obligation Bonds	5,000,000	-	-	-	-	-	5,000,000
- General Fund / Capital Outlay	-	1,642,330	1,207,160	1,245,220	1,074,710	994,800	6,164,220
South Salem Street Bicycle Connection	**740,000**	**890,000**	**2,970,000**	**-**	**-**	**-**	**4,600,000**
- General Fund / Capital Outlay	740,000	890,000	2,970,000	-	-	-	4,600,000
Technology Drive Enhancements Cost Share (HL-0007)	**300,000**	**-**	**-**	**-**	**-**	**-**	**300,000**
- Designated Capital Funds	300,000	-	-	-	-	-	300,000
Vision Zero - Intersection Upgrades	**150,000**	**850,000**	**850,000**	**850,000**	**850,000**	**850,000**	**4,400,000**
- General Fund / Capital Outlay	150,000	850,000	850,000	850,000	850,000	850,000	4,400,000
Wayfinding Signage Fabrication & Installation	**400,000**	**500,000**	**500,000**	**-**	**-**	**-**	**1,400,000**
- General Fund / Capital Outlay	400,000	500,000	500,000	-	-	-	1,400,000

Transportation (Cont.)	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future	Total
West Williams Street Sidewalk	**150,000**	**50,000**	**750,000**	**-**	**-**	**-**	**950,000**
- General Obligation Bonds	150,000	-	750,000	-	-	-	900,000
- General Fund / Capital Outlay	-	50,000	-	-	-	-	50,000
Apex Peakway Southwest Landscaping	**-**	**75,000**	**250,000**	**-**	**-**	**-**	**325,000**
- General Fund / Capital Outlay	-	75,000	250,000	-	-	-	325,000
GPS Emergency Vehicle Preemption	**-**	**205,000**	**220,000**	**235,000**	**-**	**-**	**660,000**
- General Fund / Capital Outlay	-	205,000	220,000	235,000	-	-	660,000
Jones Street Improvements	**-**	**300,000**	**-**	**-**	**-**	**-**	**300,000**
- General Fund / Capital Outlay	-	300,000	-	-	-	-	300,000
Pavement Management Backlog	**-**	**5,000,000**	**-**	**-**	**-**	**-**	**5,000,000**
- General Obligation Bonds	-	5,000,000	-	-	-	-	5,000,000
S-line Mobility Hub	**-**	**460,000**	**-**	**-**	**-**	**-**	**460,000**
- Grants	-	230,000	-	-	-	-	230,000
- General Fund / Capital Outlay	-	230,000	-	-	-	-	230,000
Salem Street Downtown Streetscape, Gathering Space, & Alleys	**-**	**2,350,000**	**2,765,000**	**2,430,000**	**-**	**-**	**7,545,000**
- Grants	-	2,350,000	650,000	2,430,000	-	-	5,430,000
- General Fund / Capital Outlay	-	-	2,115,000	-	-	-	2,115,000
Center Street and Chatham Street Sidewalk Phase 2	**-**	**-**	**260,000**	**205,000**	**1,300,000**	**-**	**1,765,000**
- General Fund / Capital Outlay	-	-	260,000	205,000	-	-	465,000
- To Be Determined	-	-	-	-	1,300,000	-	1,300,000
Jessie Drive Phase 2	**-**	**-**	**2,330,000**	**3,000,000**	**-**	**9,300,000**	**14,630,000**
- General Obligation Bonds	-	-	2,330,000	320,000	-	9,300,000	11,950,000
- To Be Determined	-	-	-	2,680,000	-	-	2,680,000
Davis Drive at Salem Church Road Realignment	**-**	**-**	**-**	**800,000**	**2,700,000**	**3,500,000**	**7,000,000**
- General Fund / Capital Outlay	-	-	-	800,000	-	-	800,000
- General Obligation Bonds	-	-	-	-	-	3,500,000	3,500,000
- To Be Determined	-	-	-	-	2,700,000	-	2,700,000
Tingen Road Pedestrian Bridge	**-**	**-**	**-**	**4,000,000**	**-**	**-**	**4,000,000**
- To Be Determined	-	-	-	4,000,000	-	-	4,000,000
Traffic Signal System Partnership	**-**	**-**	**-**	**180,000**	**160,000**	**2,200,000**	**2,540,000**
- General Fund / Capital Outlay	-	-	-	180,000	160,000	-	340,000
- General Obligation Bonds	-	-	-	-	-	2,200,000	2,200,000
Vision Zero – Bike & Pedestrian	**-**	**-**	**-**	**600,000**	**400,000**	**2,000,000**	**3,000,000**
- General Fund / Capital Outlay	-	-	-	600,000	400,000	-	1,000,000
- General Obligation Bonds	-	-	-	-	-	2,000,000	2,000,000
NC 55 Sidewalk & Enhancement Cost Share (U-2901)	**-**	**-**	**-**	**-**	**2,000,000**	**-**	**2,000,000**
- General Fund / Capital Outlay	-	-	-	-	2,000,000	-	2,000,000
US 64 Sidewalk & Enhancement Cost Share (U-5301)	**-**	**-**	**-**	**-**	**2,000,000**	**-**	**2,000,000**
- To Be Determined	-	-	-	-	2,000,000	-	2,000,000
Apex Peakway Southeast Connector	**-**	**-**	**-**	**-**	**-**	**27,320,700**	**27,320,700**
- General Obligation Bonds	-	-	-	-	-	27,320,700	27,320,700

Parks, Recreation & Cultural Resources	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future	Total
Annual Greenway Feasibility and Development	**500,000**	**400,000**	**400,000**	**400,000**	**400,000**	**400,000**	**2,500,000**
- General Fund / Capital Outlay	500,000	400,000	400,000	400,000	400,000	400,000	2,500,000
Environmental Education Center	**1,000,000**	**4,165,000**	**-**	**-**	**-**	**-**	**5,165,000**
- Designated Capital Funds	1,000,000	-	-	-	-	-	1,000,000
- Installment Purchase / Capital Lease	-	4,165,000	-	-	-	-	4,165,000
KidsTowne Playground Renovation	**250,000**	**2,000,000**	**750,000**	**-**	**-**	**-**	**3,000,000**
- General Fund / Capital Outlay	250,000	2,000,000	750,000	-	-	-	3,000,000
Pleasant Park Baseball and Softball Complex	**14,350,000**	**-**	**-**	**-**	**-**	**-**	**14,350,000**
- Limited Obligation Bonds	14,350,000	-	-	-	-	-	14,350,000
Street Hockey Rink & Inclusive Playground	**650,000**	**1,000,000**	**800,000**	**-**	**-**	**-**	**2,450,000**
- General Fund / Capital Outlay	650,000	1,000,000	800,000	-	-	-	2,450,000
Beaver Creek Greenway Extension	**-**	**250,000**	**2,386,000**	**2,256,500**	**2,256,500**	**8,340,000**	**15,489,000**
- General Fund / Capital Outlay	-	250,000	2,386,000	2,256,500	2,256,500	-	7,149,000
- General Obligation Bond	-	-	-	-	-	8,340,000	8,340,000
Hunter Street Park Renovation	**-**	**125,000**	**775,000**	**-**	**-**	**-**	**900,000**
- General Fund / Capital Outlay	-	125,000	775,000	-	-	-	900,000
Big Branch Greenway	**-**	**-**	**-**	**639,000**	**150,000**	**4,260,000**	**5,049,000**
- General Fund / Capital Outlay	-	-	-	639,000	150,000	-	789,000
- General Obligation Bond	-	-	-	-	-	4,260,000	4,260,000
Jaycee Park Expansion	**-**	**-**	**-**	**500,000**	**-**	**2,500,000**	**3,000,000**
- General Fund / Capital Outlay	-	-	-	500,000	-	-	500,000
- General Obligation Bond	-	-	-	-	-	2,500,000	2,500,000
Middle Creek Greenway	**-**	**-**	**-**	**450,000**	**150,000**	**4,000,000**	**4,600,000**
- General Fund / Capital Outlay	-	-	-	450,000	150,000		600,000
- General Obligation Bond						4,000,000	4,000,000
Reedy Branch Greenway	**-**	**-**	**-**	**972,000**	**350,000**	**6,480,000**	**7,802,000**
- General Fund / Capital Outlay	-	-	-	972,000	350,000		1,322,000
- General Obligation Bond	-	-	-	-	-	6,480,000	6,480,000
Seymour Athletic Fields/Nature Park Operations & Maintenance Building	**-**	**-**	**-**	**-**	**1,250,000**	**15,450,000**	**16,700,000**
- General Fund / Capital Outlay	-	-	-	-	1,250,000	-	1,250,000
- General Obligation Bond	-	-	-	-	-	15,450,000	15,450,000
Apex Community Park Parking Lot Expansion	**-**	**-**	**-**	**-**	**-**	**950,000**	**950,000**
- General Fund / Capital Outlay	-	-	-	-	-	950,000	950,000
Olive Farm Park	**-**	**-**	**-**	**-**	**-**	**44,750,000**	**44,750,000**
- General Obligation Bond	-	-	-	-	-	44,750,000	44,750,000
Seymour Athletic Fields/Nature Park Parking Lot Expansion & Turf Renovation	**-**	**-**	**-**	**-**	**-**	**3,575,000**	**3,575,000**
- General Obligation Bond	-	-	-	-	-	3,575,000	3,575,000
Wimberly Road Park	**-**	**-**	**-**	**-**	**-**	**97,500,000**	**97,500,000**
- General Obligation Bond	-	-	-	-	-	97,500,000	97,500,000

Public Safety	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future	Total
Engine (Pumper) - Replacement	**1,019,000**	**-**	**-**	**-**	**-**	**-**	**1,019,000**
- Installment Purchase / Capital Lease	1,019,000	-	-	-	-	-	1,019,000
Radio Replacement	**764,050**	**764,050**	**764,050**	**-**	**-**	**-**	**2,292,150**
- General Fund / Capital Outlay	764,050	764,050	764,050	-	-	-	2,292,150
Self-Contained Breathing Apparatus Replacement	**325,000**	**325,000**	**325,000**	**325,000**	**-**	**-**	**1,300,000**
- General Fund / Capital Outlay	325,000	325,000	325,000	325,000	-	-	1,300,000
Driving Simulator	**-**	**279,000**	**-**	**-**	**-**	**-**	**279,000**
- General Fund / Capital Outlay	-	279,000	-	-	-	-	279,000
Engine (Pumper) - Replacement	**-**	**1,019,000**	**-**	**-**	**-**	**-**	**1,019,000**
- Installment Purchase / Capital Lease	-	1,019,000	-	-	-	-	1,019,000
Ladder (Aerial) - Replacement	**-**	**-**	**1,688,000**	**-**	**-**	**-**	**1,688,000**
- Installment Purchase / Capital Lease	-	-	1,688,000	-	-	-	1,688,000
Rescue Retrieval Van	**-**	**-**	**194,000**	**-**	**-**	**-**	**194,000**
- General Fund / Capital Outlay	-	-	194,000	-	-	-	194,000
Rescue - Replacement	**-**	**-**	**-**	**936,000**	**-**	**-**	**936,000**
- Installment Purchase / Capital Lease	-	-	-	936,000	-	-	936,000
Fire Pumper for Station 7	**-**	**-**	**-**	**-**	**-**	**1,125,000**	**1,125,000**
- Installment Purchase / Capital Lease	-	-	-	-	-	1,125,000	1,125,000
Fire Pumper for Station 8	**-**	**-**	**-**	**-**	**-**	**1,324,000**	**1,324,000**
- Installment Purchase / Capital Lease	-	-	-	-	-	1,324,000	1,324,000

Public Facilities	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future	Total
Brine Equipment Relocation	**150,000**	**-**	**-**	**-**	**-**	**-**	**150,000**
- General Fund / Capital Outlay	150,000	-	-	-	-	-	150,000
Fire Station 3 Renovation	**500,000**	**3,000,000**	**-**	**-**	**-**	**-**	**3,500,000**
- General Fund / Capital Outlay	500,000	-	-	-	-	-	500,000
- Installment Purchase / Capital Lease	-	3,000,000	-	-	-	-	3,000,000
Mechanical (HVAC/Chiller) Upgrades to Town Facilities	**405,000**	**-**	**-**	**-**	**-**	**-**	**405,000**
- General Fund / Capital Outlay	405,000	-	-	-	-	-	405,000
Town Hall Remodel	**900,000**	**900,000**	**900,000**	**-**	**-**	**-**	**2,700,000**
- General Fund / Capital Outlay	-	900,000	900,000	-	-	-	1,800,000
- Limited Obligation Bonds	900,000	-	-	-	-	-	900,000
Town Facility Solar Initiative	**670,000**	**670,000**	**670,000**	**-**	**-**	**-**	**2,010,000**
- General Fund / Capital Outlay	670,000	670,000	670,000	-	-	-	2,010,000
Yard Waste Transfer & Processing Center Feasibility Study	**250,000**	**-**	**-**	**-**	**-**	**-**	**250,000**
- General Fund / Capital Outlay	250,000	-	-	-	-	-	250,000
Fire Department Administration Building	**-**	**500,000**	**6,000,000**	**-**	**-**	**-**	**6,500,000**
- Designated Capital Funds	-	500,000	-	-	-	-	500,000
- Installment Purchase / Capital Lease	-	-	6,000,000	-	-	-	6,000,000
Parking Lot and Internal Street Maintenance	**-**	**350,000**	**500,000**	**250,000**	**180,000**	**600,000**	**1,880,000**
- General Fund / Capital Outlay	-	350,000	500,000	250,000	180,000	600,000	1,880,000
Warehouse/Storage Building	**-**	**1,080,000**	**-**	**-**	**-**	**-**	**1,080,000**
- Installment Purchase / Capital Lease	-	1,080,000	-	-	-	-	1,080,000
Depot Parking Lot Repurposing	**-**	**-**	**-**	**250,000**	**-**	**2,000,000**	**2,250,000**
- General Fund / Capital Outlay	-	-	-	250,000	-	-	250,000
- Installment Purchase / Capital Lease	-	-	-	-	-	2,000,000	2,000,000
Fleet Fluid Pumps/Reclamation	**-**	**-**	**-**	**-**	**-**	**100,000**	**100,000**
- General Fund / Capital Outlay	-	-	-	-	-	100,000	100,000
Land Purchase for Affordable Housing	**-**	**-**	**-**	**-**	**-**	**500,000**	**500,000**
- General Fund / Capital Outlay	-	-	-	-	-	500,000	500,000
Police Department Addition & Renovation	**-**	**-**	**-**	**-**	**-**	**6,600,000**	**6,600,000**
- Installment Purchase / Capital Lease	-	-	-	-	-	6,600,000	6,600,000
Public Safety Station 7	**-**	**-**	**-**	**-**	**-**	**10,640,000**	**10,640,000**
- Installment Purchase / Capital Lease	-	-	-	-	-	10,640,000	10,640,000
Public Safety Station 8	**-**	**-**	**-**	**-**	**-**	**10,940,000**	**10,940,000**
- Installment Purchase / Capital Lease	-	-	-	-	-	10,940,000	10,940,000

Public Works and Environmental Services	FY24-25	FY25-26	FY26-27	FY27-28	FY28-29	Future	Total
Fleet Services Field Response Truck - Replacement	**-**	**240,000**	**-**	**-**	**-**	**-**	**240,000**
- Installment Purchase / Capital Lease	-	240,000	-	-	-	-	240,000
Grapple Truck - Addition	**-**	**386,000**	**-**	**-**	**-**	**-**	**386,000**
- Installment Purchase / Capital Lease	-	386,000	-	-	-	-	386,000
Rear Loader - Addition	**-**	**640,000**	**-**	**-**	**-**	**-**	**640,000**
- Installment Purchase / Capital Lease	-	640,000	-	-	-	-	640,000
Leaf Truck - Addition	**-**	**-**	**325,000**	**-**	**355,000**	**-**	**680,000**
- Installment Purchase / Capital Lease	-	-	325,000	-	355,000	-	680,000
Right of Way Mowing Tractor - Replacement	**-**	**-**	**160,000**	**-**	**-**	**-**	**160,000**
- Installment Purchase / Capital Lease	-	-	160,000	-	-	-	160,000
Leaf Truck - Replacement	**-**	**-**	**-**	**340,000**	**-**	**360,000**	**700,000**
- Installment Purchase / Capital Lease	-	-	-	340,000	-	360,000	700,000
Tandem Semi Tractor w/ Wet Line - Addition	**-**	**-**	**-**	**-**	**210,000**	**-**	**210,000**
- Installment Purchase / Capital Lease	-	-	-	-	210,000	-	210,000
Dump Truck - Replacement	**-**	**-**	**-**	**-**	**-**	**185,000**	**185,000**
- Installment Purchase / Capital Lease	-	-	-	-	-	185,000	185,000

Town of Apex

CAPITAL PROJECT ORDINANCE AMENDMENT 2024-21

61 - General Capital Project Fund

BE IT ORDAINED, by the Council of the Town of Apex that the Capital Project Ordinance previously entitled "General Capital Project Fund" be amended as follows:

Section 1. The revenues anticipated for the projects are:

61-9225-0102-39102: Bond Proceeds	900,000
Total Town Hall Renovation Revenues	**$900,000**
61-9225-0114-39732: Transfer from Water/Sewer Fund	518,000
61-9225-0114-39730: Transfer from Electric Fund	518,000
61-9225-0114-39710: Transfer from General Fund	1,160,500
Total ERP Conversion Revenues	**$2,196,500**
61-9225-0120-39710: Federal Grants	117,000
61-9225-0120-39710: Transfer from General Fund	670,000
Total Town Solar Initiatives Revenues	**$787,000**
61-9225-0115-36100: Interest Earned	4,000
61-9225-0115-39710: Transfer from General Fund	400,000
Total Wayfind Plan Revenues	**$404,000**
61-9225-0121-39710: Transfer from General Fund	100,000
Total GoApex Route 2 Expansion Revenues	**$100,000**
61-9225-0116-36100: Interest Earned	1,900
61-9225-0116-39710: Transfer from General Fund	764,100
Total Public Safety Radio Revenues	**$766,000**
61-9225-0117-36100: Interest Earned	3,000
61-9225-0117-39710: Transfer from General Fund	325,000
Total Fire SCBA Revenues	**$328,000**

Section 2. The expenditures anticipated are:

61-9225-0102: Town Hall Renovations	900,000
61-9225-0114: ERP Conversion	2,196,500
61-9225-0120: Town Solar Initiatives	787,000
61-9225-0115: Wayfind Plan Implementation	404,000
61-9225-0121: GoApex Route 2 Expansion	100,000
61-9225-0116: Public Safety Radio Project	766,000
61-9225-0117: Fire SCBA Replacement Project	328,000
Total Expenditures	**$5,481,500**

63 - Street Improvements Capital Project Fund

BE IT ORDAINED, by the Council of the Town of Apex that the Capital Project Ordinance previously entitled "Street Improvements Capital Project Fund" be amended as follows:

Section 3. The revenues anticipated for the projects are:

63-9250-1126-39778: Transfer from Transportation Reserve	200,000
Total Old US 1/Friendship Rd Improvements Cost Share Revenues	**$200,000**
63-9250-1021-39778: Transfer from Transportation Reserve	150,000
Total Center Street Railroad Crossing Improvements Revenues	**$150,000**
63-9250-1022-39778: Transfer from Transportation Reserve	150,000
Total Chatham Street Railroad Crossing Improvements Revenues	**$150,000**
63-9250-1127-39778: Transfer from Transportation Reserve	300,000
Total Technology Drive Enhancements Cost Share Revenues	**$300,000**
63-9250-1128-39778: Transfer from Transportation Reserve	450,000
Total Olive Chapel Rd at Apex Barbecue Rd Improvements Revenues	**$450,000**
63-9250-1129-39710: Transfer from General Fund	233,800
Total Transportation Easement Acquisitions Revenues	**$233,800**
63-9250-1124-39710: Transfer from General Fund	740,000
Total South Salem Street Bicycle Connection Revenues	**$740,000**

Section 4. The expenditures anticipated are:

63-9250-1126: Old US 1/Friendship Rd Improvements Cost Share	200,000
63-9250-1021: Center Street Railroad Crossing Improvements	150,000
63-9250-1022: Chatham Street Railroad Crossing Improvements	150,000
63-9250-1127: Technology Drive Enhancements Cost Share	300,000
63-9250-1128: Olive Chapel Rd at Apex Barbecue Rd Improvements	450,000
63-9250-1129: Transportation Easement Acquisitions	233,800
63-9250-1124: South Salem Street Bicycle Connection	740,000
Total Expenditures	**$2,223,800**

65 - Water & Sewer Capital Project Fund

BE IT ORDAINED, by the Council of the Town of Apex that the Capital Project Ordinance previously entitled "Water & Sewer Capital Project Fund" be amended as follows:

Section 5. The revenues anticipated for the projects are:

65-9275-1219-39774: Transfer from System Development Fee Fund	287,500
Total Cary - Apex Water Treatment Plant Projects Revenues	**$287,500**
65-9275-1237-39774: Transfer from System Development Fee Fund	300,000
Total Little Beaver Creek Gravity Sewer Extensions Revenues	**$300,000**
65-9275-1203-39774: Transfer from System Development Fee Fund	629,000
Total WWWRF Revenues	**$629,000**
65-9275-1235-39732: Transfer from W/S Fund	200,000
Total Wimberly Road Water Supply Vault Revenues	**$200,000**
65-9275-1238-39732: Transfer from W/S Fund	850,000
Total Old Raleigh Road Water Line Replacement Revenues	**$850,000**

Section 6. The expenditures anticipated are:

65-9275-1219: Cary - Apex Water Treatment Plant Projects	287,500
65-9275-1237: Little Beaver Creek Gravity Sewer Extensions	300,000
65-9275-1203: WWWRF	629,000
65-9275-1235: Wimberly Road Water Supply Vault	200,000
65-9275-1238: Old Raleigh Road Water Line Replacement	850,000
Total Expenditures	**$2,266,500**

66 - Electric Capital Project Fund

BE IT ORDAINED, by the Council of the Town of Apex that the Capital Project Ordinance previously entitled "Electric Capital Project Fund" be amended as follows:

Section 7. The revenues anticipated for the projects are:

66-9300-1407-39730: Transfer from Electric Fund	175,000
Total System Fault Indicators - SCADA Revenues	**$175,000**
66-9300-1406-39730: Transfer from Electric Fund	500,000
Total LED Street Light Replacements/Upgrades Revenues	**$500,000**
66-9300-1408-39730: Transfer from Electric Fund	230,000
Total Mount Zion Upgrades Revenues	**$230,000**

Section 8. The expenditures anticipated are:

66-9300-1407: System Fault Indicators	175,000
66-9300-1406: LED Street Light Replacements/Upgrades	500,000
66-9300-1408: Mount Zion Upgrades	230,000
Total Expenditures	**$905,000**

67 - Recreation Capital Project Fund

BE IT ORDAINED, by the Council of the Town of Apex that the Capital Project Ordinance previously entitled "Recreation Capital Project Fund" be amended as follows:

Section 9. The revenues anticipated for the projects are:

67-9200-0005-39777: Transfer from Recreation Reserve	1,000,000
67-9200-0005-33230: Wake County Grants	2,300,000
67-9200-0005-39102: Bond Proceeds	11,050,000
Total Pleasant Park Revenues	**$14,350,000**
67-9200-0013-39710: Transfer from General Fund	650,000
Total Street Hockey Rink / Inclusive Playground Revenues	**$650,000**
67-9200-0014-39710: Transfer from General Fund	250,000
Total KidsTowne Playground Renovation Revenues	**$250,000**
67-9200-0006-39710: Transfer from General Fund	500,000
Total Annual Greenway Allocation Revenues	**$500,000**
67-9200-0009-39777: Transfer from Recreation Reserve	1,000,000
Total Environmental Education Center Revenues	**$1,000,000**

Section 10. The expenditures anticipated are:

67-9200-0005: Pleasant Park	14,350,000
67-9200-0013: Street Hockey Rink / Inclusive Playground	650,000
67-9200-0014: KidsTowne Playground Renovation	250,000
67-9200-0006: Annual Greenway Allocation	500,000
67-9200-0009: Environmental Education Center	1,000,000
Total Expenditures	**$16,750,000**

Section 11. Within five (5) days after adoption, copies of this Amendment shall be filed with the Finance Officer and Town Clerk.

Adopted this the 11th day of June, 2024.

Attest:

Jacques K. Gilbert, Mayor

Allen L. Coleman, CMC, NCCCC
Town Clerk

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CLOSED SESSION

Meeting Date: June 11, 2024

Item Details

Presenter(s): Laurie Hohe, Town Attorney

Department(s): Legal Services

Requested Motion

Motion to go into closed session pursuant to NCGS 143-318.11(a)(3) to discuss the handling of the matter of Williams v. Town of Apex.

Approval Recommended?

Yes

Item Details

NCGS § 143-318.11(a)(3)

"To consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body"

Attachments

- N/A

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CLOSED SESSION

Meeting Date: June 11, 2024

Item Details

Presenter(s): Laurie Hohe, Town Attorney

Department(s): Legal Services

Requested Motion

Motion to go into closed session pursuant to NCGS 143-318.11(a)(3) to consult with the Town Attorney in order to preserve attorney-client privilege.

Approval Recommended?

N/A

Item Details

NCGS § 143-318.11(a)(3)

"To consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body"

Attachments

- N/A

| Agenda Item | cover sheet

for consideration by the Apex Town Council

Item Type: CLOSED SESSION

Meeting Date: June 11, 2024

Item Details

Presenter(s): Allen Coleman, Town Clerk

Department(s): Town Clerk's Office

Requested Motion

Possible motion to enter into closed session pursuant to NCGS § 143-318.11(a)(6) to consider a personnel matter.

Approval Recommended?

N/A

Item Details

NCGS § 143-318.11(a)(6)

"To consider the qualifications, competence, performance, character, fitness, conditions of appointment, or conditions of initial employment of an individual public officer or employee or prospective public officer or employee; or to hear or investigate a complaint, charge, or grievance by or against an individual public officer or employee"

Attachments

- N/A