Holly Springs Town Council
7:00 PM **Tuesday, June 16, 2026**
Regular Meeting
Holly Springs Town Hall Council Chambers
128 S. Main Street, 2nd Floor

Agenda

1. Call to Order
2. Pledge of Allegiance
3. Invocation
4. Adjustment and approval of June 16, 2026 meeting agenda

PUBLIC COMMENT PERIOD

Each speaker may speak up to 3 minutes, and the total comment period will be 30 minutes or less. Citizens should sign up with the Town Clerk to speak prior to the start of the meeting. Although the Council is interested in hearing your concerns, speakers should not expect Council action or deliberation on subject matter brought up during the Public Comment segment. Topics requiring further investigation will be referred to the appropriate town officials or staff and may be scheduled for a future agenda. Thank you for your consideration of the Town Council, staff, and other speakers.

RECOGNITIONS

5. Holly Springs High School Women's Soccer State Champions
6. Juneteenth Proclamation
7. July Parks and Recreation Month Proclamation

REQUESTS AND COMMUNICATIONS

8. Festival Street Design Project Overview

CONSENT AGENDA

9. May 19, 2026 Business Meeting and May 12 and 21, 2026 Workshop Meeting Minutes
10. End of Year Budget Amendments and Grants
11. Voluntary Annexation A25-10 Veridea S Village East
12. Engineering Design and Construction Standards Supplement #15
13. Holly Springs Rd. (Central) - Design Change Order #5

PUBLIC HEARINGS

14. Consideration of a Moratorium on Data Centers

NEW BUSINESS

15. Bridge Naming Endorsement in Honor of Deputy Mark R. Tucker

OTHER BUSINESS

MANAGER'S REPORT

CLOSED SESSION

ADJOURNMENT

In accordance with ADA regulations please contact the Town Clerk's office at least 48 hours before the meeting to request an auxiliary aid or service needed to participate in this meeting:
linda.mckinney@hollyspringsnc.gov 919-557-3900

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 5.

Recognitions
Title: Holly Springs High School Women's Soccer State Champions
Strategic Priority Area: Vibrant Community
Staff Resource: Mayor Kondratick

Action(s):
Honor the Holly Springs High School Women's Soccer Team for their State Championship.

Explanation:

- The Holly Springs High School Women's Soccer Team defeated Weddington to earn the 7A Championship, the first for Holly Springs High School Women's Soccer.
- Mayor Kondratick wishes to honor the 25 team members and their coaches for this achievement.

Background:

- The team finished the season with a record of 20-3-1.
- Coach Miller and members of the team will be present to accept the proclamation.

Funding Source(s):
N/A

Attachment(s):
1. HSHS Women's Soccer Champs

Proclamation

Office of the Mayor

WHEREAS, the Town of Holly Springs wishes to honor and recognize the Holly Springs High School Varsity Women's Soccer Team, comprised of 25 players and four coaches; and

WHEREAS, the team finished the 2026 season with an overall record of 20-3-1; and

WHEREAS, the team won their first State Championship after defeating Weddington, 2-1, in the 7A Championship at Durham County Memorial Stadium; and

WHEREAS, competing at a high level requires year-round effort; and

WHEREAS, the team's success requires the support of the athletes' families; and

WHEREAS, the Women's Soccer Team has exemplified strong leadership and a sense of determination during their games;

NOW, THEREFORE, I, Mike Kondratick, Mayor of the Town of Holly Springs, North Carolina, am hereby honored to recognize and celebrate the

Holly Springs High School Women's Soccer Team

and on behalf of the Holly Springs Town Council and citizens, I hereby commend them for their tireless effort and high achievement, and wish them success in their future endeavors.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the Town of Holly Springs, North Carolina, to be affixed on this 16th day of June, 2026.

Michael D. Kondratick, Mayor

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 6.

Recognitions
Title: Juneteenth Proclamation
Strategic Priority Area: Vibrant Community
Staff Resource: Mike Kondratick, Mayor

Action(s):
Proclaim June 19, 2026 as Juneteenth in Holly Springs.

Explanation:

- June 19, 2026 is the 161st anniversary of Juneteenth.
- June 19th is celebrated as Juneteenth throughout many communities in the United States.
- Declared a state holiday in Texas in 1979, Juneteenth is now recognized as a state holiday in 40 states.
- Holly Springs' celebration will include food trucks, local vendors, a free kids zone, and live music and performances.

Background:

- President Abraham Lincoln issued the Emancipation Proclamation on January 1, 1863, which freed enslaved people.
- The 13th Amendment to the Constitution, abolishing slavery, was ratified on December 6, 1865.
- African-Americans in Galveston, TX adopted June 19, 1866 as Juneteenth in celebration of the news of the Emancipation Proclamation reaching their community.
- Since 1866, the celebration has spread throughout the United States.

Funding Source(s):
N/A

Attachment(s):
1. Juneteenth 2026

Proclamation

Office of the Mayor

WHEREAS, the constitution of the United States details the rights of all citizens based on the philosophy of government outlined in the Declaration of Independence, which states "all men are created equal, that they are endowed by their creator with certain unalienable rights, that among these are life, liberty, and the pursuit of happiness"; and

WHEREAS, the Emancipation Proclamation, an executive order issued January 1, 1863, by President Abraham Lincoln, immediately freed approximately five hundred thousand people from generational bondage in the rebellious states; and

WHEREAS, word about the signing of the Emancipation Proclamation was delayed some two and one-half years, until June 1865, in reaching authorities and African Americans in the South and Southwestern United States; and

WHEREAS, African Americans in Galveston, TX, adopted June 19, 1866, as Juneteenth, a Black Independence Day in celebration of America's commitment to liberty and equality that has become a part of national African American history and culture; and

WHEREAS, the 13th Amendment to the Constitution of the United States, abolishing slavery everywhere, except for punishment of a crime, was ratified by Congress on December 6, 1865; and

WHEREAS, we understand that a written declaration is not enough, and that we, as Holly Springs residents, must be willing to do our part to ensure everyone, regardless of race, gender, or religion, is afforded equal access to the opportunities America has to offer;

NOW, THEREFORE, I, Mike Kondratick, Mayor of the Town of Holly Springs, North Carolina, do hereby proclaim June 19, 2026, as

Juneteenth

in Holly Springs and commend its observance to all residents.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the Town of Holly Springs, North Carolina, to be affixed on this 16th day of June, 2026.

Michael D. Kondratick, Mayor

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 7.

Recognitions
Title: July Parks and Recreation Month Proclamation
Strategic Priority Area: Vibrant Community
Staff Resource: LeeAnn Plumer, Parks & Recreation, Kristen Denton, Parks & Recreation, Mike Kondratick, Mayor

Action(s):
Proclaim July as Parks and Recreation Month in Holly Springs.

Explanation:

- July is Parks and Recreation Month, a program of the National Recreation and Parks Association (NRPA).
- This year's theme, "The Power of Parks and Recreation", celebrates how parks and recreation brings us together, strengthens our health and well-being, and builds more resilient, connected communities.
- In celebration of the month, staff has planned a variety of free activities for all ages and interests.
- Parks and recreation services are vitally important to establishing and maintaining quality of life, ensuring the health of all residents, and contributing to the economic and environmental well-being of our community.

Background:

- Since 1985, communities across America have celebrated July as Parks and Recreation Month.
- The goal is to raise awareness of the vital impact that parks and recreation has on communities across the United States.

Funding Source(s):
N/A

Attachment(s):
1. Parks and Recreation Month 2026

Proclamation

Office of the Mayor

WHEREAS, parks and recreation are an integral part of our lives in Holly Springs, as recognized by Town Council through its designation of "Vibrant Community" as one of the town's strategic initiatives; and

WHEREAS, parks and recreation are vitally important to establishing and maintaining quality of life, ensuring the health of all residents, and contributing to the economic and environmental well-being of a community and region; and

WHEREAS, parks and recreation promote time spent in nature, which positively impacts mental health by increasing cognitive performance and well-being; and

WHEREAS, parks and recreation encourage physical activities by providing space for popular sports, indoor and outdoor fitness opportunities, walking trails, and many other activities designed to promote active and healthy lifestyles; and

WHEREAS, parks and recreation programming and education activities, such as out-of-school time programming, youth sports, and environmental education, are critical to childhood development; and

WHEREAS, parks and recreation increase a community's economic prosperity through increased property values, expansion of the local tax base, increased tourism, the attraction and retention of businesses, and crime reduction; and

WHEREAS, parks and natural recreation areas improve water quality, protect groundwater, prevent flooding, improve the quality of the air we breathe, provide vegetative buffers to development, and produce habitat for wildlife; and

WHEREAS, Holly Springs recognizes the benefits derived from parks and recreation programs, facilities, services, and resources;

NOW, THEREFORE, I, Mike Kondratick, Mayor of the Town of Holly Springs, North Carolina, do hereby proclaim July 2026 as

Parks and Recreation Month

in Holly Springs and commend its observance to all residents.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the Town of Holly Springs, North Carolina, to be affixed on this 16th day of June, 2026.

Michael D. Kondratick, Mayor

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 8.

New Business
Title: Festival Street Design Project Overview
Strategic Priority Area: Growth Management & Economic Vitality
Vibrant Community
Staff Resource: Sean Ryan, Development Services

Action(s):

- Receive update from staff and the consultant team (Bolton & Menk) on the Avent Ferry Road Festival Street concept design project.

Explanation:

- The concept development for the Avent Ferry Road Festival Street began in May and survey work is currently underway.
- The project timeline includes four planned engagements with Town Council to provide updates, gather feedback, and guide key project decisions.
- This initial discussion will introduce the project scope, schedule, and major milestones while providing an opportunity for Council to share its vision for the corridor.
- Project consultant Bolton & Menk will present inspirational examples of potential roadway design features to help facilitate discussion and identify elements Council would like to consider as design concepts are developed.

Background:

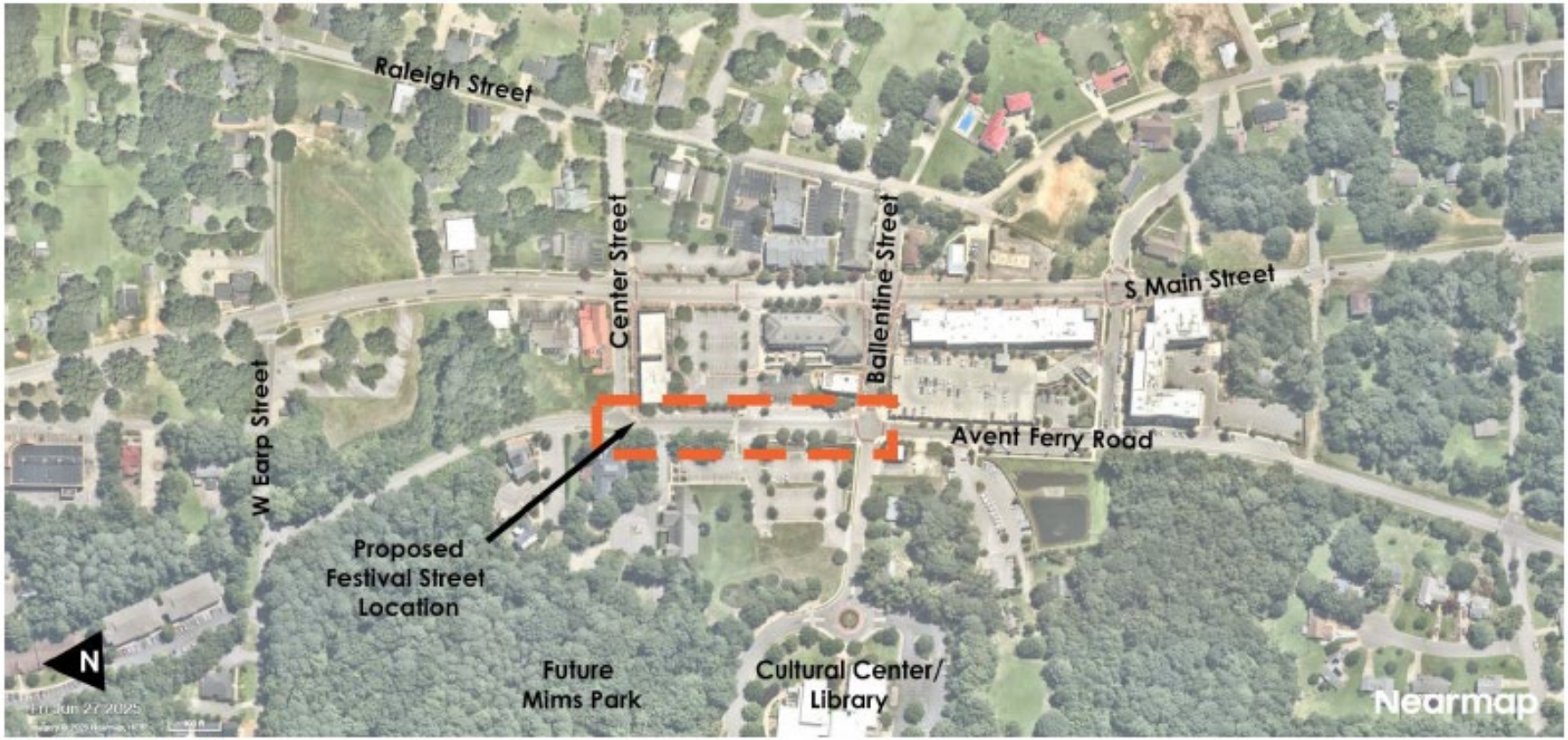
- In 2023, the Holly Springs Town Council adopted the Downtown Area Plan which describes the community's vision for the Downtown, with a specific focus on the Downtown core. The Plan aspires to create a downtown where people can live, work and be entertained.
- The Downtown Area Plan identified five key community priorities for Downtown, including the development of a Festival Street on Avent Ferry Road.
- The Festival Street concept is a redesign of portions of Avent Ferry Road to emphasize the pedestrian experience and allow for the closure to vehicular traffic during events. Through changes in paving materials and enhanced landscaping, the Festival Street can become an adaptive place to better connect Main Street and the Cultural Center.
- The Avent Ferry Road Festival Street is anticipated to have the following design characteristics:
    - A curbless street design to allow better flexibility as a public space.
    - Retractable bollards, entry features, or other elements to separate the Festival Street from vehicular travel and to protect pedestrians at all points of entry.
    - Paving materials and other street features that delineate vehicular areas and

create a low-speed street environment when vehicular use is allowed.
    - Paving materials and patterns and vegetation that provide a streetscape with a unique look and feel that also complements and reinforces the downtown brand.
    - Enhanced landscaping that provides a large tree canopy and enhances stormwater treatment.
    - Ability to accommodate periodic closures to vehicular traffic for events such as outdoor markets, parades, or community celebrations while maintaining the ability for the street to serve local business, institutional uses, and public parking lots, including designated on-street parking areas, when the street is not closed to vehicles.
    - Street lighting, overhead string lights, gathering spaces and seating, and public art.
    - Intersection improvements at Avent Ferry Road and W. Ballentine Street to improve pedestrian safety.
    - Other elements as determined through the design development process.
- Bolton & Menk, Inc. was awarded the contract for this project on March 17, 2026.

Funding Source(s):

Attachment(s):

1. FestivalStreetMap



Project Area Map

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 9.

Consent Agenda
Title: May 19, 2026 Business Meeting and May 12 and 21, 2026 Workshop Meeting Minutes
Strategic Priority Area: Organizational Excellence
Staff Resource: Linda McKinney, Town Clerk

Action(s):
Approve the minutes of the May 19, 2026 Business Meeting and the May 12 and May 21, 2026 Workshop Meetings.

Explanation:

- Minutes in draft form are attached for the Council's review.
- If there are any corrections, please notify the Town Clerk in advance of Tuesday night's meeting so that corrected versions of the draft minutes can be circulated for review before adoption of the Consent Agenda.

Background:

Funding Source(s):
N/A

Attachment(s):
1. 5.19.26 minutes - DRAFT
2. 5.12.26 workshop minutes - DRAFT
3. 5.21.26 budget workshop minutes - DRAFT

MINUTES

The Holly Springs Town Council met in regular session on Tuesday, May 19, 2026. Mayor Kondratick presided, calling the meeting to order at 7 p.m. A quorum was established as the Mayor and five Council members were present in the Chamber as the meeting opened.

Council Members Present: Mayor Mike Kondratick, Mayor Pro Tem Annie Drees, Council members Danielle Hewetson, Chris Deshazor, Sarah Larson, and Kara Foster.

Council Members Absent: none.

Staff Members Present in Chambers: Randy Harrington, *Town Manager;* Scott Chase and Daniel Weeks, *Assistant Town Managers;* John Schifano, *Town Attorney;* Linda McKinney, *Town Clerk* (recording the minutes); Jesse Dixon, *IT;* Corey Petersohn and MaryBeth Spoehr, *Budget and Sustainability;* Cassie Hack, *Director*, *Communications and Marketing*; LeeAnn Plumer, *Director, Parks & Recreation*; Adam Huffman, *Parks & Recreation*; Kendra Parrish, *Executive Director of Utilities and Infrastructure*; Carrie Mitchell, *Utilities and Infrastructure;* Tina Stroupe, *Finance Director;* Chris Hills, *Director of Development Services;* Conor Ryan, Elliot Blonshine, and Sarah Sularz, *Development Services;* Irena Krstanovic, *Director, Economic Development;* Neal Duncan, *Economic Development;* LeRoy Smith, *Fire Chief*; Paul Liquorie, *Police Chief.*

2. and 3. The Pledge of Allegiance was recited followed by an invocation by Mark Savoldi of The Church of Jesus Christ of Latter-Day Saints.

4. Agenda Adjustment: The May 19, 2026, meeting agenda was adopted with changes, if any, as listed: none

Motion: Drees
Second: Hewetson
Vote: Unanimous

Public Comment: At this time, an opportunity was provided for members of the audience who had registered to speak to address the Council, and the Clerk was asked for any written comments received prior to the meeting.

The following public comments were received in person:

Frank Malinski, of Harnett County, on behalf of Wake Co Fraternal Order of Police, asked Council to approve a resolution to name the bridge on Holly Springs Road over 540 after Sheriff's Deputy, Mark Tucker. He outlined Deputy Tucker's accomplishments and the reason for the request.

Craig Ashby, 201 Highland Springs Lane, said he was here to discuss the pricing of Parks and Recreation senior tours. He said some of them require nights in a hotel. The tours have been increasing in price and they are now unaffordable. He gave statistics to support his position. He also said the surcharge for non-residents was excessive. He compared the price to that of St. Bernadette's trip.

The following public comments were received in writing: One comment from Matt Bontrager regarding bicycle bells; one comment from Jack Deinhart regarding license plate readers; one comment from Brie Cooper regarding noise in 12Oaks; one comment from Rajh Reddy regarding noise in Trinity Creek; one comment from Olya Panus regarding Carolina Springs Park; one comment from Jerry Bowman regarding taxes; one anonymous comment regarding fees; one comment from Rachel Knapp regarding traffic, construction, and parks; one comment from Craig Ashby regarding parking at Sugg Farm Park.

Recognitions

5. Pride Month Proclamation

Mayor Kondratick proclaimed June as Pride Month in Holly Springs and presented the proclamation to the Pride of Holly Springs Committee. Donna Friend listed some Pride events coming up in Holly Springs.

6. Safe Boating Week Proclamation

Mayor Kondratick proclaimed May 16 – 22 as Safe Boating Week in Holly Springs and presented the proclamation to Kerry Holt-Johnson, Vice Commander of the Coast Guard Auxiliary.

7. Public Works Week Proclamation

Paige Scott, Director of Public Works, and Kendra Parrish, Executive Director of Utilities and Infrastructure, brought out their team. Ms. Scott said the theme for Public Works Week 2026 is *Rooted in Service, Powered by Community*. She outlined statistics for her department. Ms. Parrish outlined parts of her department considered under Public Works. Mayor Kondratick proclaimed May 17 – 23 as Public Works Week in Holly Springs and presented the proclamation to members of the Public Works staff.

Consent Agenda

The Council passed a motion to approve all items on the Consent Agenda. The motion carried following a motion by Mayor Pro Tem Drees, a second by Council member Hewetson, and a unanimous vote. The following actions were affected:

8. Minutes of April 14, 2026 Workshop Meeting and April 21, 2026 Business Meeting – The Council approved the minutes of the April 14, 2026 Workshop Meeting and the April 21, 2026 Business Meeting.

9. Minutes from November 10, 2025 Closed Session – The Council approved and unsealed the minutes of the November 10, 2025 Closed Session.

10. Monthly Budget Amendments – Council received the Manager's monthly budget amendment report.

A copy of the budget amendment is attached to these minutes.

11. Americans with Disabilities Act Transition Plan Update Contract - The Council awarded a contract to WT Group AEC, Inc. in the amount of $226,951 to complete an update to the Town of Holly Springs ADA Transition Plan.

PUBLIC HEARINGS

12. Voluntary Annexation A25-12 6200 Windy Farm Lane (Evanston)

Sarah Lipkin Sularz, Development Services, said this was to consider the annexation of +/- 53.868 acres located at 6200 Windy Farm Lane. She said the Resolution of Sufficiency for this

annexation was adopted by Council on March 17, 2026. It was continued due to the transfer of ownership of the property. She showed where the property is located in the ETJ and said it is contiguous to town limits and meets the requirements for annexation.

Mayor Kondratick opened the public hearing and the following input was received: none.

Mayor Kondratick closed the public hearing.

Action: Motion to adopt Annexation Ordinance A25-12.
Motion: Hewetson
Second: Larson
Vote: unanimous
A copy of Annexation Ordinance A25-12 is attached to these minutes.

13. Semiannual UDO Text Amendments 26-UDO-01

Cheryl Caines, Development Services, said this item was to conduct the public hearing for the proposed Unified Development Ordinance (UDO) amendments. Tonight will be the public hearing, then the amendments will go to the Planning Board, and come back to Council for a vote at their June 2nd meeting. She said the UDO is a living document with amendments suggested semi-annually to respond to policy updates, clarify interpretations, and respond to changes in community needs and desires.

Ms. Caines outlined the proposed amendments. The majority are minor changes or clarifications, but the others are: conversion of Special Use Permits to Conditional Zoning Districts; bars & fueling stations in Neighborhood Mixed Use districts; additional standards for drive through and car wash uses; requirements for lots fronting open space; electric vehicle parking requirements at schools; and retaining wall design. She explained the changes regarding uses with community impacts such as group homes, childcare centers, community support facilities, major infrastructure utilities, etc. She explained the process change and its benefits of enhanced citizen participation, the ability to address community wide impacts, and to propose changes responding to concerns.

Ms. Caines said that currently bars and tasting rooms require Conditional Zoning in a mixed-use neighborhood and fueling stations are not allowed. The proposed change would permit bars under a Permitted Use with additional Standards, and fueling stations with Conditional Zoning. Bars would be limited to 2,500 square feet with outdoor areas adjacent to residential requiring a six-foot opaque fence. Fueling stations would be limited to five fuel pumps and could not be placed within 300 feet of thoroughfare streets. She explained the drive through and car wash standards that prohibit circulation in front of buildings and prohibit accessory structures in front or corner yards.

Ms. Caines said that currently schools are subject to commercial and office standards regarding EV parking. The new standard would require 10% of staff parking spaces be EVSE-Ready, rather than 10% of all spaces in a 20-50 space parking lot. In larger lots, 20% of staff spaces must be EVSE-ready, and two of those shall be EVSE.

Council member Deshazor asked if the 5 fuel pumps meant five nozzles. Ms. Caines said it would be 10 nozzles – one on each side of the pump.

Mayor Kondratick opened the public hearing, and the following input was received: none.

Mayor Kondratick closed the public hearing

MPT Drees said she is glad to see the EV parking for schools and the Data Centers changes. She thinks the Special Use Permit change is good, but she is worried about the fee impact, particularly for community support facilities, because they are often nonprofits.

Council member Deshazor said, on the bars, it is important to note that this is not a restaurant, and he felt that was important to point out, especially for Planning Board.

Ms. Caines said that next steps are that the amendments will be forwarded to the Planning Board for review and recommendation at their May meeting.

14. Fiscal Year 2026-27 Recommended Budget Public Hearing

Corey Petersohn, Director of the Office of Budget, Innovation, and Strategy, said this item was the public hearing for the Fiscal Year 2026-27 recommended budget. He said that key takeaways are a total budget of $139,226,267 with the same low property tax rate of 34.35 cents per $100 of valuation. He said this is currently the lowest recommended tax rate in Wake County. Strategic investments include managing traffic & improving mobility; enhancing parks, facilities, and events; and managing growth and protecting the environment. Nineteen new positions are recommended to support strategic goals. He outlined the fee increases to garbage and recycling pickup, which are due to GFL increasing their charges to the Town. He said there is no increase to the yard waste pickup. Water, Wastewater and Stormwater fees are increasing by about 46 cents per day, for the average residential user. He explained that utility fees go to pay for the utilities, not to make a profit. These fees are increasing as we invest in projects to provide safe drinking water in compliance with all federal regulations with advanced wastewater treatment to protect our natural environment and to meet capacity needs for approved development and provide infrastructure for the future. He outlined five projects for water and wastewater, including the expansion of the Utley Creek Water Reclamation Facility, the TriRiver Water Filtration Facility expansion and Holly Springs & Fuquay-Varina conveyance line partnership to bring the water from the Cape Fear River, and two additional elevated water tanks and connections. These investments provide safe drinking water, advanced wastewater treatment to protect the environment, and increased capacity. The budget also includes funds for a rate study to be sure our rates are fair.

Mayor Kondratick opened the public hearing, and the following input was received: none.

Mayor Kondratick closed the public hearing

Mr. Petersohn said that next steps are the workshop on Thursday at the Law Enforcement Center with adoption scheduled for June 2nd.

15. Voluntary Annexation A25-08 Twin Springs

Sarah Sularz, Development Services, said that this annexation was advertised and the Resolution of Sufficiency was adopted on January 20, 2026. The public hearing was advertised and has been tabled to try to coordinate with the timing of the Fuquay-Varina case, as the project straddles the two jurisdictions. Due to Fuquay-Varina's process, this is being delayed and staff wishes to table it until further notice, at which time it will be readvertised.

Action: Motion to table Annexation Ordinance A25-08 until further notice.

Motion: Hewetson
Second: Drees
Vote: unanimous

NEW BUSINESS

16. Powell Place Rezoning 25-REZ-02 and Development Agreement

Conor Ryan, Development Services, said this item was a rezoning for the property at 7051 and 7121 Rouse Road, and the Development Agreement for the project. He said the public hearing was held on January 20, 2026 and, following adjustments to address the public's concerns, it went to Planning Board on April 28th and was now before Council for a decision. He showed where the property is, next

to Honeycutt Farm and said this was a Type 2 development, so the rezoning would be considered prior to Major Subdivision, which would be a quasi-judicial decision. He said they are seeking a Conditional Zoning District and explained the goals for such a zoning. He said the property is designated Mixed Residential Neighborhood and Natural Area on the Land Use and Character Plan, and zoned Rural Residential. He outlined the project history, from the initial neighborhood meeting in August of 2024 to the Planning Board meeting last month.

Mr. Ryan said that at the Public Hearing the key topics were road improvements needed on Rouse Road and Piney Grove Wilbon Road. He said that changes made since the public hearing were additional roadway widening along Rouse Road for approximately 450 feet east of the site drive; installation of right- and left-turn lanes into the site; developer request to NCDOT that the speed on Rouse Road be reduced to 35 miles per hour; and a commitment of $100,000 for the future installation of traffic signal at the intersection of Piney Grove Wilbon and Rouse Road. Staff considers this a success of the Public Hearing process where the applicant made adjustments according to the feedback received at the public hearing.

Mr. Ryan showed how the project had evolved since the first submittal, including the road improvements and changes in product type. He said the project will have 42 front-loaded detached dwellings, 13 rear-loaded detached dwellings, and 42 attached dwellings. There would be a centralized active recreation area incorporating the existing pond, enhanced Type A buffering around the perimeter, and additional offsite road improvements. He outlined the proposed standards that differ from the UDO including increased buffers, increased setbacks, lower density, and building façade design standards.

Elliot Blonshine, Development Services, said the site would be served by water and sewer with connections in Rouse Road and to the stubs at Honeycutt Farm, and extending along Rouse Road. He said the Utility allocation elements were constructed wetlands and LEED Certification. He showed the streets layout and the road widening along Rouse Road. He showed the sidepath that would connect to Honeycutt Farm and the three access points / stubs. He said there were eight study intersections in the traffic study, and the required improvements were three turn lanes. After the public hearing the developer offered an additional 450 feet of road widening, two additional turn lanes on Rouse Road and $100,000 fee-in-lieu toward a traffic signal.

Sara Kempin, Planning Board representative, said that the Planning Board voted to recommend approval with a vote of 6 – 1 with two absent. The one dissenting vote had concerns about the curvature of the road leading to the entrance on Rouse Road.

Mr. Ryan said that staff analysis found that the housing products and site design are consistent with the UDO and the Comprehensive Plan, the Conditional Zoning District standards create small design enhancements and increased buffering, and the additional commitments to road improvements per the Public Hearing comments are consistent with the requirements of the UDO, CTP, and Traffic Study Policy. Staff recommends approval.

Jason Barron, Morningstar Law, introduced his team: Jimmy Gaskins, KB Homes, and Lisa Lundeen, Traffic Engineer. Speaking for the applicant, Mr. Barron said this case is a good example of the benefits of the change of process. He said this project is the right scale for the community. It aligns with growth patterns, provides housing diversity, complements Honeycutt, improves connectivity, and provides a measurable public benefit. He gave details on the three housing types and the open space and amenities. He said the homes would be priced to be more attainable. He said they heard the public concerns and responded to them with their commitments to additional road widening, traffic signal fee-in-lieu, and requesting that NCDOT reduce the speed limit. He outlined the road widening, turn lane construction, repaving, and other traffic improvements committed to by the developer.

Mr. Baron summed up by repeating that this project is the right scale in the right place, is aligned with the Comprehensive Plan, provides housing diversity, and public benefits.

Council member Deshazor said there is only one entrance and it is close to the S curve on Rouse. He asked if there were discussions for a second entrance. Mr. Baron said there were limited options due to the limited road frontage. That is why they added the turn lanes. MPT Drees asked if the

small pond being filled in was a natural pond. Mr. Baron said both ponds on the property are man-made ponds. Mayor Kondratick asked what the distance was between the end of the road widening and the intersection of Rouse and Piney Grove Wilbon Rd. Mr. Baron said it was probably 800 feet. Mayor Kondratick asked how many additional trips would be added by this development. Lisa Lundeen, Traffic Engineer, said AM Peak is 40 trips and about 52 PM peak. Council member Larson asked if there was any traffic calming as you proceed north. Mr. Baron said there was no traffic calming toward Honeycutt, but the way the site is designed provides natural traffic calming by the curves in the neighborhood. Council member Hewetson said she appreciates that they were heard on the road improvements on Rouse Road. MPT Drees asked how many cars would exit through Honeycutt. Ms. Lundeen said about 7% would go that way and there is adequate capacity to handle that amount of traffic. Council member Foster asked at what point the traffic signal would be triggered. Ms. Lundeen said she doesn't know when, but she thinks it will be triggered in the future.

Randy Harrington, Town Manager, said that on DOT roads, you have to meet certain warrants. At this point it would not trigger a signal, but sometime down the road it would. But only NCDOT can make that decision. Council member Foster asked if there was a chance that NCDOT would deny the 35 mph speed limit request. Ms. Lundeen there is a chance, but they are actively coordinating with them. John Schifnao, Town Attorney, said that within town limits, the default is 35 miles per hour. Council and DOT have to agree to set a speed limit higher than 35.

Council member Deshazor asked about the calculation of density and whether it included the undevelopable land. Mr. Baron said it did not.

Mayor Kondratick asked if Wake County Public Schools took Evanston into account when saying there was adequate capacity. Mr. Ryan said they take into account projects that are approved, but not ones that are under review. He is not sure whether Evanston was considered. Council member Deshazor said we need to discuss with the schools about considering projects that are under review so that we get an accurate count. Council member Hewetson said many schools in our area are going from 4 tracts to 1 because enrollment is down. But it is worth a conversation.

Mayor Kondratick asked about per unit pricing. Mr. Baron said they project townhomes in the $300,000s to low $400,000s and the singles from mid $400,000s to low $500,000s. Council member Larson said she appreciates bringing in the ranch style and first floor masters as people age in place.

Council member Deshazor said he appreciates the work that was done, especially the road improvements. But he has a major concern in that area. We're doing a small portion of Rouse and adding traffic concerns him. Piney Grove Wilbon is horrid right now and we need to be thoughtful about that. He is a no on this because of roads. MPT Drees said she agrees with Council member Deshazor, because the DOT safety rating is red right at that curve. They won't be able to see well She thinks a lot of drivers will cut through Honeycutt Farm and make that neighborhood less safe. Mayor Kondratick said they have not had a chance to dive into what a more comprehensive solution is going to look like in this corridor, including down to the Rouse Rd. intersection. Council member Foster said she agrees with what everyone has said. Without that signal and this being the only exit point, adding all that extra traffic concerns her. She appreciates all the housing types, but in that area, without connections for other modes of transportation, traffic will be a challenge. Council member Hewetson said that given that we have all mentioned the response to our feedback in January, which was well received and they did what we asked for, she would recommend deferring until after the Piney Grove Wilbon meeting, when we have discussed the matter. Rather than vote no, she recommends a deferral. MPT Drees said she doesn't see issue going away after meeting and she would still be a no. Council member Larson said she agrees with Council member Hewetson. The applicant has gone over and beyond to take our feedback into consideration. She thinks for the size of the development, this is more than paying their fair share. There is a lot coming into that area and we should look at it holistically and take a macro view. This will push us towards getting the light and other improvements that are needed in this area.

Action 1: Motion to adopt Rezoning Ordinance RZ26-03 to adopt the Plan Consistency Statement, Statement of Reasonableness, and approve 25-REZ-02 Powell Place.

Motion: Larson
Second: Hewetson
Vote:
Aye: Larson, Hewetson
Nay: Deshazor, Foster, Drees
The motion failed.

Council member Deshazor said he would be ok with a deferral. He understands Council member Larson's comment about seeing the macro level – he's been saying that for a long time. But Rouse Rd. is two lanes with tight shoulders. We need to understand how the rest of that is going to happen. The S-curve is very dangerous. Also, he thinks about fire and rescue vehicles getting through those roads. He is concerned about people cutting through Honeycutt Farm. He said that for him, if we can look at that and get more detail and answer those questions it could become a yes. Council member Foster said she thinks this project will be good for housing affordability, but there is not a good option to reduce traffic. She would like to see something that shows how that would work. Council member Hewetson said if you put this in Fuquay Varina, they can live more affordably and will still drive up Piney Grove Wilbon through Holly Springs. She said half a signal and the road widening is worth it for her. Council member Foster said so many people are concerned about growth and traffic and they will ask us how this benefits them. Council member Larson said looking at our Future Land Use Plan and Strategic Plan, this fits the need for affordable housing. She appreciates staff and developer's work and pushing it down the line will add expenses. There are other developments coming that will benefit the area with further improvements.

Action 1: Motion defer consideration of 25-REZ-02 Powell Place to July 21, 2026.

Motion: Larson
Second: Hewetson
Vote:
Aye: Larson, Hewetson, Deshazor, Foster
Nay: Drees
The motion passes.

17. Committee and Board Appointments

Linda McKinney, Town Clerk, said that applications for Parks and Recreation Advisory Committee (PRAC) and Tree Advisory Committee (TAC) went live on the website at the beginning of February and closed the first Monday in April. PRAC has three openings and sixteen applications were received. Council discussed their nominations for PRAC.

Action 1: Motion to appoint Malinda Walker, Fred Stehle, and Thomas Rayle to three-year terms on the Parks and Recreation Advisory Committee from July 1, 2026 to June 30, 2029.

Motion: Hewetson
Second: Larson
Vote: unanimous

Tree Advisory Committee has four openings with staggered terms to shift them to the new schedule that aligns with Planning Board. Two openings are for terms ending February 29, 2028 and two for terms ending February 28, 2029. In addition, there is one opening for a Junior Member for one year. Council discussed their nominations for TAC.

Action 2: Motion to appoint Robin Haney and Autum Dean to the Tree Advisory Committee for terms ending February 29, 2028.

Motion: Drees
Second: Deshazor
Vote: unanimous

Action 3: Motion to appoint Marissa Parker and Tom Joyce to the Tree Advisory Committee for terms ending February 28, 2029.

Motion: Drees
Second: Deshazor
Vote: unanimous

Action 4: Motion to appoint Delila Devitt as Junior Member of the Tree Advisory Committee with a term ending June 30, 2027.

Motion: Drees
Second: Deshazor
Vote: unanimous

OTHER BUSINESS

Council member Foster said she appreciates everyone who applied to the boards and the effort staff has put into the items tonight. She appreciates the work the developers put in on their projects.

Council member Hewetson said she is always appreciative of board applications. We get so many wonderful passionate applicants. It is difficult to choose. She said she wanted to talk about the naming of the bridge. Council directed staff to add it to the June 16th meeting for consideration. She said Memorial day is coming up and she thanked those who made the ultimate sacrifice. Mayor Kondratick echoed that. And he said event season is coming up and that creates a lot of work for staff and he thanked them for their efforts. The FFA club at Felton Grove had a market event that was great.

MPT Drees asked if Council could ask town staff to look into the senior trips and compare us to other communities and track attendance over time. She said that people can start renting boats at Bass Lake on Memorial Day so wear your life vests. She thanked Mayor Kondratick for the Pride Proclamation. On the applications for committees, she used her matrix to make her decision, and it's tough but she tries to be measured and logical about it. Thanks to everyone who applied. She said that Wake County has Library on the Go. She asked if we could reach out to them and see if they will come and do an event in Holly Springs this summer while our library is closed.

Council member Deshazor wished everyone Happy Memorial Day, and Happy Mother's Day to all the mothers. He said he appreciated the tour of the Ops Campus. Regarding the budget, he said he appreciated the presentation from Mr. Petersohn. He said water rates are something he hears about. But people also say they want us to stop growth and development until we build the infrastructure. That is what we are doing with the water infrastructure. The Legislative Action Committee went to DC and asked for $2 million for this project. We also sat with state legislators and made that request. We are working for this. It is a hard pill to swallow, but it is needed for our future. Last, UNC Rex Hospital will be lit up purple for the week in honor of the Holly Springs High School teams in championships.

Council member Larson said that while rain is desperately needed, there are events this weekend: Summer at the Springs, the opening of Salamanders season. Watch the weather and bring an umbrella, but come out. Residents are encouraged to fill out the landfill survey from the County. And tomorrow we are touring the Sanford water plant.

Mayor Kondratick said in terms of events, there is a community conversation on June 1st at 6 pm at Oasis Church to discuss the Piney Grove Wilbon corridor. Anyone from that area or who is interested in this area is welcome. Council, staff, CAMPO and others will be there to walk residents through the challenges we have and options for moving forward in that area.

MANAGER'S REPORT

Randy Harrington, Town Manager, said on Memorial Day town offices will be closed. There is a one-day delay on garbage and recycling. The Hunt Center and Cultural Center will be closed as well as the Yard Waste Center. But the Hopper will be on its regular schedule.

CLOSED SESSION: Council entered into closed session pursuant to N.C.G.S. 143-318.11(a)(5) to instruct the negotiating agents on behalf of the town, with a motion by Council member Deshazor and a second by Council member Hewetson and a unanimous vote.

Motion to leave closed session was made by Council member Deshazor with a second by Council member Hewetson and a unanimous vote.

Adjournment: Council member Deshazor made a motion to adjourn at 9:50 pm. It was seconded by Council member Hewetson and passed with a unanimous vote.

Respectfully submitted on Tuesday, June 16, 2026.

Linda C. McKinney

Linda C. McKinney, Town Clerk

Addenda pages as referenced in these minutes follow and are a part of the official record.

MINUTES

The Holly Springs Town Council met in a workshop session on Tuesday, May 12, 2026 in the Council Chamber and via livestreaming. Mayor Kondratick presided, calling the meeting to order at 6:00 p.m. A quorum was established as the Mayor and four Council members were present in the room as the meeting opened.

Council Members Present in the room: Mayor Mike Kondratick, Mayor Pro Tem Annie Drees, Council members Chris Deshazor, Danielle Hewetson, and Sarah Larson.

Council Members Absent: Council member Kara Foster.

Staff Members Present in the room: Randy Harrington, Town Manager; Linda McKinney, Town Clerk (recording the minutes); Daniel Weeks, Assistant Town Manager; Scott Chase, Assistant Town Manager; John Schifano, Town Attorney; Kameron Womack, IT; Corey Petersohn, Director, Office of Budget, Innovation, and Strategy; MaryBeth Spoehr, Budget, Innovation, and Strategy; Cassie Hack, Director, Communications and Marketing; Tamara Ward and Kelly Miller, Communications and Marketing; Chris Hills, Director Development Services; Kendra Parrish, Executive Director of Utilities and Infrastructure; Rachel Ingham, Michael Leonas, and Tim Athy, Utilities & Infrastructure; LeeAnn Plumer, Director, Parks & Recreation; George Brown, Director, Office of Customer Care; Paige Scott, Director, Public Works; Paul Liquorie, Police Chief; LeRoy Smith, Fire Chief; Tina Stroupe, Finance Director; Sabrina McDonald, Director of Human Resources; Irena Krstanovic, Director of Economic Development; Jeff Wilson, Director IT.

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

1. **Recommended Budget Presentation:** Randy Harrington, Town Manager, gave an overview of the Manager's Recommended Budget for FY26-27. He highlighted the fact that the budget is aligned with Community feedback and the Strategic Plan. He said he would discuss the following areas: aligning with community feedback; key budget drivers; managing traffic and improving mobility; enhancing parks, facilities and events; managing growth and protecting the environment.

Mr. Harrington said the recent community survey contained several positive things such as exceeding the national average for satisfaction in 44 out of 46 categories. But he said staff is listening to residents about the oportunities for improvement, especially management of traffic, and management and planning of growth. Other notable findings are that Community Safety was rated as the most important strategic goal, and residents appreciate the investments in recreational and cultural offerings. He outlined the updates to the Strategic Plan, which is the blueprint for the budget.

Mr. Harrington said that key budget drivers are to recommend a balanced budget that is affordable and strategic, maintaining the same low property tax rate of 34.35 cents per $100 valuation. Key areas of investment include managing traffic and improving mobility; enhancing parks, facilities, and events; and managing growth and protecting the environment.

Mr. Harrington outlined the revenue sources and expense categories in the recommended budget of $139,226,267. He showed how Holly Springs is currently the second lowest tax rate in

Wake County, and about six cents below the municipal average rate. He outlined recommended new expenditures according to Strategic Priorities categories. He explained the new expenditures due to strategic priorities. He explained the recommended personnel investments which include 19 new positions to support facilities and programs. It also seeks to maintain us as an Employer of Choice by supporting mandatory increases to employer contributions for the NC Local Government Employee Retirement System, a 5% health insurance premium increase, and merit.

Mr. Harrington outlined the progress on Holly Springs Road Widening and the Intelligent Transportation System, and explained how the budget supported these projects. He said the Holly Springs Hopper is a success and 65% of its operating costs are covered by grant funds. The recommended budget includes funding to expand the service hours. There is also funding for greenways and pedestrian safety to enhance other modes of transportation.

Mr. Harrington said that enhancing parks, facilities and events includes Eagles Landing Park coming soon. The budget includes fundings for seven positions in anticipation of the park opening in late 2027. Other facilities getting investments are the North Main Athletic Complex, the Cultural Center, and the Operations Campus. Support for special events includes the recently launched 150th website, celebrating moments throughout 2026 and culminating in the Holly-Hoopla birthday bash in May of 2027, and additional support for special events and senior programming.

Mr. Harrington said that investments around managing growth and protecting the environment include building a new fire station at Rex Road to serve the fast-growing southwest part of town. This would be design phase, with construction anticipated to begin in 2028. Water and wastewater investments include the Utley Creek Water Reclamation Facility expansion and the TriRiver Water Filtration facility expansion. He said he is recommending a rate adjustment of $11.89 for the typical residential home. The total water and wastewater bill for 4,000 gallons of water would be $111.30 per month. An equivalent in bottled water would cost $5,040, not including shipping or wastewater expenses, making this a bargain for our residents. Stormwater infrastructure aims to protect property and the environment. An additional $2.5 million of needed stormwater system repairs and improvements have been identified. The current fee of $5.20 per month has not changed since January of 2021 and he recommends a fee adjustment to $6.50 per month to fund these critical investments. He outlined what the average monthly residential fee adjustment would be, noting no change to the property tax rate from Holly Springs, although Wake County is proposing an increase in their rate.

Mr. Harrington concluded that this budget has no property tax increase; has utility and stormwater fee adjustments to protect the environment and secure our water future. There are strategic investments in managing traffic, enhancing facilities and managing growth while protecting the environment. There are 19 new positions recommended to support strategic goals and growth. He outlined next steps and informed the public that the public hearing for the budget would be held on May 19th, the budget workshop on Thursday, May 21st, and budget adoption scheduled for June 2nd.

He said there were 3 things he wanted to talk about at the workshop: Holly Springs Hopper, Round-Up Program, future Transportation Bond. He asked the Council to email any questions by Monday so that they can be answered prior to the workshop.

Five-minute recess

2. 2025 Water Quality Report and Other Water Updates

Rachel Ingham, Utilities and Infrastructure, said the purpose of this was to provide Council and the public an overview of the 2025 Water Quality Report and give an update on drought conditions. She said Holly Springs is committed to providing clean drinking water and is fully

compliant. She said the EPA requires a Water Quality Report which covers things the EPA wants the public to know. It includes information about lead in drinking water, the source of drinking water and other water quality information. She outlined the way the EPA ensures safe drinking water standards through National Primary Drinking Water Regulations and the Safe Drinking Water Act.

Ms. Ingham said Holly Springs' water comes from the Cape Fear River. We currently have up to 5 Million Gallons a Day ("MGD") from Harnett Regional Water with an additional 5 MGD from them in the future. The TriRiver water treatment plant in Sanford will provide an additional 4 MGD. We are permitted to take 2 MGD from Jordan Lake.

Ms. Ingham said to put things in perspective as she discusses contaminants, Parts Per Billion ("PPB") would be the equivalent of a 4-inch hamburger in a chain of hamburgers circling the earth at the equator 2.5 times. Parts Per Trillion ("PPT") is the equivalent of a one-foot square floor tile on a floor the size of Indiana. She said that emerging contaminants right now include Per- and Polyfluoroaklyl Substances, commonly known as PFAS. These are manufactured chemicals used since the 1950s that are found in many common household items. They appear in drinking water at levels of 4-10 PPT, in carpets at levels of 471,000 PPT, in cosmetics at levels of 10,500,000 PPT, and in food packaging at levels of 876,000,000 PPT.

Ms. Ingham said that drinking water regulations are a process that takes years. In 2023 - 2025 PFAS sampling took place to help the EPA determine if regulation was needed. In 2024 a National Primary Drinking Water Regulation set maximum contaminant levels (MCLs) for PFAS, but enforcement does not happen at that point. By 2027 Initial Monitoring and reporting of PFAS levels is required to be completed. Next steps include the implementation of solutions to reduce PFAS in water and the MCLs being fully enforceable in 2029 and beyond, although that is expected to be shifted to 2030. Holly Springs' supplier, Harnett Regional Water, is currently testing, and studying engineering solutions to remove PFAS. The TriRiver Water treatment plant is under construction and will offer granular activated carbon, which is the best treatment method to remove PFAS.

Ms. Ingham said an emerging contaminant that is behind PFAS in the process is 1,4-dioxane, a manufactured chemical used as an industrial solvent in paints, adhesives, detergents, and personal care products. It has been studied since 2013 but there are no current drinking water standards. This is due to the lengthy process, challenges in detecting it in low concentrations, and treatment challenges. This chemical is more difficult to remove from water due to its properties. She said next steps include publishing the 2025 Annual Water Quality Report by May 2026, and launching the Emerging Contaminant page on the website later this month.

Ms. Ingham gave a drought update. As of tonight, Holly Springs is not under water restrictions. Most of the state is under Extreme Drought and staff is monitoring the situation. Residents are encouraged to practice mindful water use to conserve resources. She gave an update on the Sanford Water Filtration Facility, under construction. The site is well underway, and construction is expected to be complete in 2029.

In summary, Ms. Ingham said that Holly Springs is fully compliant with all drinking water regulations and is closely monitoring drought conditions, although not under any drinking water restrictions currently. Harnett Regional Water and TriRiver Water are both taking steps to reduce PFAS in advance of regulatory timelines. The Sanford Water Filtration Facility project is on schedule for completion in early 2029.

Council member Deshazor said he thinks a lot of our residents don't understand how important water is and what is behind it. He would like to explore ways to educate the public about water.

Mayor Kondratick asked about 1-4. Dioxane and the treatments available. Ms. Ingham said there is a treatment called advanced oxidative processes, which is usually a combination of ultraviolet light, hydrogen peroxide and ozone, that can treat it, but it is not a standard treatment. But the Sanford plant left space so it can be installed in the future.

MPT Drees said the website has tips on maximizing water conservation. She asked if the town practices those tips. Randy Harrington, Town Manager, said we have synthetic turf in a lot of areas so watering is not required. We have very limited irrigation areas in town. But he thinks we are practicing what we preach, but if you see something, say something. Ms. Ingham said that there are some exceptions to the irrigation schedule in stage one, for some types of places. You may see someone not following the residential schedule, but it may be because there are exceptions for that use.

3. 2027 Mayor and Council Retreat

Linda McKinney, Town Clerk, said she was seeking feedback from Council on the preferred dates and locations for the 2027 Mayor and Council Retreat. She said the two dates that are being considered are Feb. 4th through 6th, or February 11th through 13th. Either way it would be from after lunch on the Thursday to noon on the Saturday. Quotes have been received from four possible venues: The Rizzo in Chapel Hill, The Graylyn and the Kimpton-Cardinal in Winston-Salem, and the Grandover in Greensboro. Ms. McKinney outlined the differences in the venues. The Rizzo is significantly less expensive than the others, although they are all in the mid-$20k mark. Both the Rizzo and the Graylyn are familiar with our retreats and have a less busy feel which could have fewer distractions than the larger, more urban venues. She said the Rizzo is available the first weekend and, if Council preferred the second choice, would make an effort to free that up for us. Graylyn and Grandover are available either weekend, and Kimpton-Cardinal is only available Feb 4th through 6th.

Council **said** they would prefer the Rizzo Center and the February 4 -6 dates.

4. Other Business: Council member Larson thanked Mr. Harrington for his work on the budget. She said City Vision was last week and had good sessions on Affordable Housing, Disaster Response and Communications. She congratulated the Police Department for National Police Week. She said the Vertical Horizon concert was good. At Sugg Farm Wild about nature is coming up.

Council member Deshazor said there is a men's mental health walk at Apex next Saturday. Second, there's a lot of conversation about Google Fiber. Some people said we should stop them. But the State does not allow us to, and you should reach out to Google directly. They were very responsive last year.

MPT Drees said she was going to put Town Attorney, John Schifano, on the spot about water usage in Holly Springs. Mr. Schifano said we have, by ordinance, a Stage Zero which is odd-even depending on your address. There are a few requirements in the Ordinance. We are always supposed to conserve water. MPT Drees thanked everyone who tuned in for the budget and invited them to speak at the Public Hearing next week.

Mayor Kondratick said he was also at the Vertical Horizon concert, and it was very well done. Also, last night's Police Department awards event was outstanding, and he was honored to be there to honor the Police Department. Coming up this week: Tomorrow he will be at UNC Rex Hospital's celebration of Hospital Week. On Thursday at Parks and Recreation Advisory Committee he will present a Monarch Butterfly proclamation. If you can come, please do. On Friday downtown there will be an art walk. Finaly, he commended the members of Council who have been out and about in the community. He knows it is a big commitment of time.

Council member Hewetson said Summer at the Springs is next Friday. A different venue and atmosphere, but fun for the whole family. On the budget video she thanked Mr. Harrington for

everything he does to put it together. It makes everything that is happening in Holly Springs very exciting. She thanked him for his work on that.

5. Closed Session: none.

5. Adjournment:

Motion to adjourn was made by Council member Deshazor seconded by Council member Hewetson and passed with a unanimous vote. The May 12, 2026 workshop meeting of the Holly Springs Town Council was adjourned at 7:16 pm.

Respectfully submitted on Tuesday, June 16, 2026.

Linda C. McKinney

Linda McKinney
Town Clerk

MINUTES

The Holly Springs Town Council met in a workshop session on Tuesday, May 21, 2026 at the Law Enforcement Center and via livestreaming. Mayor Kondratick presided, calling the meeting to order at 6:00 p.m. A quorum was established as the Mayor and five Council members were present in the room as the meeting opened.

Council Members Present in the room: Mayor Mike Kondratick, Mayor Pro Tem Annie Drees, Council members Chris Deshazor, Danielle Hewetson, Kara Foster, and Sarah Larson.

Council Members Absent: none.

Staff Members Present in the room: Randy Harrington, Town Manager; Linda McKinney, Town Clerk (recording the minutes); Daniel Weeks, Assistant Town Manager; Scott Chase, Assistant Town Manager; John Schifano, Town Attorney; Kameron Womack, IT; Corey Petersohn, Director, Office of Budget, Innovation, and Strategy; MaryBeth Spoehr, Budget, Innovation, and Strategy; Cassie Hack, Director, Communications and Marketing; Tamara Ward and Kelly Miller, Communications and Marketing; Chris Hills, Director Development Services; Kendra Parrish, Executive Director of Utilities and Infrastructure; Rachel Ingham, Michael Leonas, and Tim Athy, Utilities & Infrastructure; LeeAnn Plumer, Director, Parks & Recreation; George Brown, Director, Office of Customer Care; Paige Scott, Director, Public Works; Paul Liquorie, Police Chief; LeRoy Smith, Fire Chief; Tina Stroupe, Finance Director; Sabrina McDonald, Director of Human Resources; Irena Krstanovic, Director of Economic Development; Jeff Wilson, Director IT.

Mayor Kondratick called the meeting to order at 6:20 p.m.

1. **Recommended Budget Presentation:** Randy Harrington, Town Manager, outlined what has already happened toward adopting a budget, including the presentation and Public Hearing, as well as answering their questions. He said that as Council discusses the recommended budget that any additions, deletions, or amendments to the recommended budget require support from at least three Council members. Additionally, state law requires a balanced budget, so any additions require an offsetting expenditure reduction, or identification of new funding. He said that there were a few areas he wanted to touch on and then it would be turned over to Council for discussion. These areas include expanded hours for the Hopper, the Utility Bill Round Up Program concept, timing considerations for a future transportation bond, and others.

Corey Petersohn, Director, Office of Budget, Innovation, and Strategy, said that FY27 recommended municipal water and wastewater rates in the County average $93.92 per month for a typical user of 4,000 gallons per month. He said that Fuquay-Varina's are higher than Holly Springs. Holly Springs' are higher than Raleigh, Apex, and Cary because of the rapid growth and the need to expand the service. He explained that this is related to the age and size of the water systems, as active investments are happening here. Further, the source of the water going to Raleigh, Apex, and Cary comes from closer to the cities, so the distance the water has to travel is less. MPT Drees asked if we were legally allowed to subsidize the utility fund and if others do. Mr. Harrington said the rating agencies frown on that as not being a sustainable way to run the business unit. MPT

Drees asked what the impact would be. Mr. Harrington said it would mean lower bond ratings, which make future investing less affordable.

Mr. Petersohn said that Holly Springs' proposed property tax rate is the lowest in the County and unchanged from last year. He showed how that worked out across different property values.

Council member Deshazor asked to go back to the water. He said an email was received about charging more to businesses than residences for water. He asked if it was a general practice to charge a different rate to businesses. Mr. Harrington said it is a common practice to charge a bulk rate, and that is generally lower. As you saw in the budget presentation, there are funds to do a rate study, which is a good thing to do on a regular basis. We would like to bring that back to you at the annual retreat to see what those results were. Council member Deshazor asked if Council would have an opportunity to change those rate increasaes that were decided in 2022. Mr. Harrington said it is the rate structure, rather than the rates. It would be a redistribution. Mr. Petersohn said that model is already adjusted every year based on the data. MPT Drees asked how long this rate increase plan was. Tina Stroupe, Finance Director, said we look out 10 years, but we can only feel comfortable predicting at 5 years because there are too many unknowns.

Mr. Petersohn said there is a language clarification change to the Personnel Policy to show that all full and part-time employees are elibilbe to use the gym and exercicse facilities at the Hunt Center. It is not a poicy change, but a clarification.

Chris Hills, Director of Development Services, gave statistics on ridership on the Hopper, and the availability to increase service without committing additional Town funds. He said that nearby municipalities that offer Saturday service have higest ridership from 11 am to 7 pm, and lower ridership on the earlier and later hours. A survey of current Hopper riders indicates that the preferred time on Saturday would be between 11 am and 5 pm, with a secondary preference of 9 am to 3 pm.

Mr. Hills outlined the costs associated with adding Saturday service and/or expanding weekday service. Adding 13 hours on Saturday would cost $32,899. Adding one additional hour (until 9 pm) on weekdays and seven hours on Saturday would cost $30,369. Either of these options would be covered by the additional grant funding available from CAMPO of $38,089. Staff recommends adding 13 hours on Saturdays, which would maximize the available grant money.

Council member Larson said she loves the Saturday option and thinks it would get us more new riders. Having the later end time on Saturday would also expand the ridership. Mayor Kondratick agrees, but asked, if we want to make changes as we implement this, what the process would be. Mr. Hills said as long as ridership is going up we do not want to make changes. But if we find hours that are not utilized, we could move those around to cover hours that are utilized. Council member Deshazor asked what happens with the banked hours with this option. Mr. Hills said we would be able to continue to utilize them. As the program expands in the future knowing where hours are not utilized, shifting to the utilized hours is a better option becaues reliability is important. Council member Deshazor said he likes Option 1. He thinks people will use this. He asked Economic Development to work with businesses to stay open to 10 pm so we can get folks there. MPT Drees said she likes Option 1. But asked if there was a risk to growing too quickly. Mr. Hills said from a perspective of funding, there is no risk. But we have seen that wait times are going to go up, so that is the tradeoff. That is where the number of vehicles is to be looked at in the future. Council member Deshazor asked if we could expand 10pm on Friday to use the rest of the grant. Mr. Hills said that staff worked really hard to find the right balance. He thinks it would be difficult to make that change at t his point. Council member Foster said she likes Option 1. But since not a lot of businesses are open until 10, how challenging would it be to make Fri and Sat until 9. Would that be less confusing. Mr. Hills said he understands but what we have is a 13 hour window. Over time as the data set moves, we can make changes. He suggested waiting to see what the data shows. MPT Drees said from her own polling, people who don't ride the Hopper now want later hours. If we

try on Saturday and examine that data, we can come back and see if people really do use that. Council member Hewetson said that makes sense. She said she still likes Option 2, but it makes sense that the reasons it would be used on the evenings tend to be restaurants and smaller businesses. She likes the extra hour on weekdays, but a 13 hour Saturday would be good to see. She said she could see needing more vehicles as wait times go up. That might be the next thing rather than other hours. Council member Deshazor said we are in month 5 and we are alreayd making a large change. He likes the idea of taking this step, monitoring it, and seeing what we do next. Mr. Harrington said he thinks what he is hearing is consensus for the Saturday option. Council confirmed that was their desire.

Tina Stroupe, Finance Director, said that the Round Up for Holly Springs Utility Assistance Program would be to create a framework wherein residents can voluntarily support other residents experiencing temporary financial hardships with paying the water bills. She explained how the program would work and how a non-profit partner, such as NeighborUp would be needed to objectively administer the program. Staff is asking for guidance if Council desires to implement such a program.

Ms. Stroupe said that historically 1% of the towns's 16,900 utility accounts are delinquent and only 0.5% get disconnected. She explained that disconnection only occurs if bills are 45 days past due and it is necessary to ensure the business remains solvent. She outlined the steps taken by the Town to notify people when their bill is delinquent.

MPT Drees asked about the fees charged if someone's water is disconected. Ms. Stroupe said there is a $10 late fee, and a $35 delinquent fee. You have time to pay your bill before you are cut off, but that fee is still assessed because we need to cover the administrative costs.

Ms. Stroupe offered examples of how residents could support this program, how the funds would be used, and how it would be administered. NeighborUp would require a 5% to 10% administration fee to do this. Eligibility requirements would need to be set and staff recommends going with NeighborUp's existing eligibilty process and recommends limiting assistance to one time in a 12-month period, limiting it to $200 per occrrence, and to assess all late fees. Council member Deshazor requested clarification of the percentage that would be paid to Neighbor Up. Ms. Stroupe said it is calculated on how much they grant as assistance, not the amount we have in the account. Council member Hewetson said this is a wonderful program, but she is sensitive to the optics of the 10% off the top and making sure the funds go only to Holly Springs residents. Ms. Stroupe explained that the Town would take in the donations, and hold that money. Our residents go to Neighbor Up and say they need help. We would send funds to NeighborUp who would send them back to us, OR NeighborUp would notify us whose account to apply the funds to and we apply it. Council member Foster asked if the program would be opt in or opt out. Ms. Stroupe said it is opt in. It is totally voluntarily. Council member Hewetson asked what the requirements were for application. Ms. Stroupe said NeighborUp is suggesting the same framework as other municipalities. They look at income and it is based on the poverty level. There are guidelines. We can work with NeighborUp if we want to set stricter guidelines.

Council member Larson asked if there were instances where NeighborUp can help pay just fees, not the bill, for cases like when a card is denied. Ms. Stroupe said we would have to talk to NeighborUp about that, but we can set our own guidelines for the way we want to make the program work. Mayor Kondratick asked how the staff recommendations track with other municipalities that use NeighborUp. Ms. Stroupe said we only heard back from one and they go up to $600, but they also have an electric utility. Holly Springs does not have electric so that is why they set a higher maximum. Council member Hewetson said we have a very generous community. What happens if our funds exceed the need? Ms. Stroupe said we would take direction from Council. But we could raise the maximum or allow applications more often than once every 12

months. Mr. Harrington said that's a good quesstion but in reality I'm not sure we will ever see that situation. Ms. Stroupe said the other municipality we talked to gets about $400 a month in donations. Council member Hewetson asked if a customer would have to elect every month or could they set it up to be motnhly. Samantha Sleeter, Deputy Finance Director, said residents could set it up to donate every month.

Ms. Stroupe said that if Council desires to move forward, staff would need to continue diescussions with NeighborUp to define the prupose, create eligibility guidelies, and determie administration fees or other costs to the Town. Staff would also need to coordinate with the current billing software team to make adjustments, communicate the program to residents, and collect funds for approximately 6-8 months prior to the official program start.

Council discussed seeing what level of donations come in over the first 6 months and discussing at that point whether the cap needs to increase or decrease, engaging with corporate partners, and how many customers could be helped. Council member Foster asked how much extra staff time would be required. Ms. Stroupe said satff time would be more in the beginning to get it up and running but then it would require applying donations to the account and reconciling the account. Mr. Harrington said he was hearing adgreement to move forward and staff will work within this frame work.

Randy Harrington, Town Manager, said we are a AAA rated organization, which gives us the lowest interest rates. Our financial advisors give us debt modeling that gives a us strong debt management. He gave an overview of general government debt capacity, and the debt model the Town uses for planning. He said that the debt affordablity model projects an additional capacity of around $100 million. He explained the potential debt issuance timeline for maximum benefit, assuming no change to the existing property tax rate. These issuances could be used for future fire stations, transportation projects, and the Operations Campus, Phase 2. He outlined ways the timing of a bond affects projects, and said that staff needs at least a 7-month runway prior to a bond vote to get through the Local Government Commission process. He pointed out the risks and benefits of setting the bond vote in 2027 or 2028. He said the Town is in a position at this point to do this without raising taxes.

Mayor Kondratick asked when staff would need an answer. Mr. Harrington said by the June Workshop, ideally. If we wait until September, there being no workshops in July and August, he is nervous about the level of staff analysis that would be needed, which makes a tight timeframe in the fall.

Council discussed the risks and benefits of moving forward in 2027 or 2028 given things going on at the state level, and the ballots in an odd year as opposed to an even year. They discussed having a flag ship project that would show progress to the public, and the difference in data between the earlier and later dates. Consensus was to have staff work on it this summer towards a 2027 bond, but if the numbers change at the retreat, Council can shift to 2028.

Five minute recess.

2. Council Discussion:

Mayor Kondratick outlined the procedure for the discussion of any changes desired.

Council discussed their priorities and goals for this budget. Mayor Kondratick said the takeaway is unanimity around transportation, traffic, and affordability. But he also heard interest in careful budget stewardship while maintaining appropriate staffing and service levels. Three Council members said they wanted to confirm that sidewalk connections are included as part of transportation and are a high priority.

There was discussion about the ramifications of the actions going on in the General Assembly that could potentially limit the town's ability to set property tax rates in the future.

Council discussed things that they would consider adding more funding for and how much investment it would take to move the needle. These included small business assistance, traffic signals, Intelligent Transportation Systems, renewing the Comprehensive Transportation Plan, and increasing the nonprofit grant line item. There was discussion about the role of and need for a Chief of Staff position, and seeding the Round Up Holly Springs program. Specific discussion was around reaching out to NeighborUp to see if there was any flexibility on the percentage, such as becoming a Strategic Partner with the Town.

Council consensus was to add $5,000 from the unallocated $10,000 to the nonprofit grant program and hold the other $5,000 as unallocated. Council further directed staff to investigate the possibility of expanding the small business grants to areas outside of Downtown, and to reach out to NeighborUp to see if there is flexibility on how they get paid to administer the Round Up program.

3. Closed Session: none.

4. Adjournment:

Motion to adjourn was made by Council member Deshazor seconded by MPT Drees and passed with a unanimous vote. The May 21, 2026 workshop meeting of the Holly Springs Town Council was adjourned at 9:30 pm.

Respectfully submitted on Tuesday, June 16, 2026.

Linda C. McKinney

Linda McKinney
Town Clerk

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 10.

Consent Agenda
Title: End of Year Budget Amendments and Grants and Annual Resolution Designating Official Depositories
Strategic Priority Area: Organizational Excellence
Staff Resource: Corey Petersohn, Budget, Innovation, and Strategy, Tina Stroupe, Finance

Action(s):

- Approve the end of year budget amendments for Fiscal Year 2025-2026 and adopt associated capital project ordinances included in the packet.
- Adopt Resolution 26-22 Designating Official Depositories and Securities Broker/Dealers in compliance with N.C.G.S. §§ 159-30, 159-31, and 159-25.
- Accept a North Carolina Great Trails State Grant for $300,000.

Explanation:

- The budget ordinance for the Town authorizes the Town Manager to approve inter-department budget amendments within the same fund, up to $50,000 with notification to Council within the following month.
- Amendments that alter the total appropriation and/or transfer greater than $50,000 between departments require approval from Town Council.
- Annually, at the close of a fiscal year, the Budget Department and Finance Department coordinate to conduct end-of-year budget amendments.
- End-of-year budget amendments are necessary to perform:
    - Technical adjustments for year-end financial reporting / audit purposes;
    - Update estimates for year-end revenues/expenditures;
    - True up debt service funds to match authorized debt issuances and payments in alignment with the debt model; and
    - Transfers to/from project funds and reserve funds to support authorized and approved project activities.
- All end-of-year adjustments are net neutral and do not increase the overall budget unless otherwise stated below with an identified revenue source.
- End-of-year adjustments are often made to maintain appropriate budget authority for all anticipated remaining expenses while maintaining operating contingency for any unforeseen circumstances within the final few weeks of the fiscal year.
- In some instances, final collection of revenues and expenditures associated with the close out of fiscal year 2025-2026 may not be received until after the end of the fiscal year.
- The following amendments are included in the packet:
    - Amendment 1 - Cost Allocation Update: The Town annually conducts a cost allocation study that it utilizes to distribute costs incurred in the General Fund to the Utility and Stormwater Funds. The Utility Fund and Stormwater Fund are

enterprise funds and therefore, all appropriate expenses associated with operating those funds are covered by their respective fund's revenue sources. Examples of typical expenses covered by the cost allocation are centralized type services such as human resources, finance, and other typical business type expenses. This amendment does not increase the total operating budget.

- Amendments 2, 3, & 4 - Updates to Personnel Expenses (General Fund, Utility Fund, and Stormwater Fund): These amendments are routine end of year actions to adjust budgeted amounts for salaries and benefits to align with projected end of year actual expenses. Salaries and benefits are budgeted annually based on projections to include merit adjustments, health insurance elections, new position salaries, as well as part-time and over-time related expenses. It is standard practice to require adjustments between departments within the same fund for audit and future financial reporting purposes. These amendments do not increase the total operating budget.
- Amendments 5 & 6 - Updates to Debt Service Fund Expenses (General Fund and Utility Fund): These amendments are to align the end-of-year budget with projections for debt service payments (both General Fund and Utility Fund) as well as debt service fund related fees. These fees and payments are based on Town Council approved debt issuances and in alignment with the Town's debt model. These amendments (net of transfers) do not increase the total operating budget.
- Amendment 7 - Operational Contingency: This amendment utilizes already collected revenues to ensure the Town has sufficient funding for bulk water purchases from Harnett County through the end of the fiscal year and funding for operational contingency for unforeseen end of year expenses in all major operating funds. This amendment is funded by already collected revenues and any transfer from the contingency account to another department's operating budget would be reported to Town Council at the next business meeting.
- Amendment 8 - Parks and Recreation Capital Project Ordinance (26-20): this Ordinance appropriates a NC Great Trails State Program grant for the Camp Branch greenway project. The Town was notified of this award earlier in the fiscal year and the Town funded match portion was included in the FY27 Budget Adoption. The $300,000 grant will go towards pre-construction / design services for the Camp Branch Greenway.
- Amendment 9 - Town Building Capital Project Ordinance (26-21): this Ordinance appropriates a transfer from the Town Building Fund to the Water Projects Fund as part of a technical correction for cost-sharing of the Operations Campus construction between General Fund supported, and Utility fund supported elements of the project. Additionally, this ordinance appropriates interest earnings for the purpose of covering debt issuance expenses. These adjustments do not change the construction cost of the project.
- Amendment 10 - Water Capital Project Ordinance (26-22): this Ordinance is the same as Amendment #9 but appropriates the Water Projects Fund receiving the transfer from the Town Building fund as well as the Utility supported investment earnings covering the utility-supported debt issuance expenses. These adjustments do not change the construction cost of the project.
- Amendment 11 - Subscription-Based Information Technology Arrangements (SBITAs) - this amendment is required to record SBITAs (software agreements) in accordance with governmental account standards (GASB statement No. 96). This amendment is a technical adjustment to establish the necessary budget authority to recognize the Town's right-to-use subscription assets and related liabilities from

the agreements. All expenses have a corresponding and offsetting revenue adjustment to meet the financial reporting requirements. This amendment does not have a material impact on the budget.
    - Amendment 12 - Arbitrage - this amendment appropriates an arbitrage rebate liability associated with the Town's 2021 General Obligation Bonds as required under federal tax regulations. This liability occurs when bond proceeds generate excess interest earnings, and a rebate is required per IRS requirements for maintaining tax-exempt bond issuances.
- North Carolina General Statutes §§159-30 and 159-31 require that local governments formally designate official depositories for public funds. NC General Statute §159-25 establishes finance officer responsibilities, including disbursement and signatory requirements.
- The Town periodically, but at least annually, updates its list of designated depositories and broker/dealers to reflect current relationships and ensure compliance with state law.

Background:

- End of year budget amendments are annual, technical clean-up processes in preparation of closing out the current fiscal year.
- All end of year adjustments maintain a balanced budget.
- Capital Project Ordinances appropriate all funds for all projects included within the fund. Included in the packet is a summary document detailing any changes to the capital funds.
- Resolution 26-22 is in compliance with all statutory requirements and updates the list of financial institutions and securities broker/dealers authorized to hold or invest the Town's funds and also affirms signatory controls, including dual-signature and electronic disbursement protocols required by §159-25. This is in alignment with the Town's financial policies, supports strong internal controls, and ensures continued protection and legal compliance in the handling of public funds.
- Deposits with all designated institutions will be secured as required under §159-30(b).

Funding Source(s):

- Amendments 1 - 7: Operating Budget - Genreal and Utility Revenue Sources
- Amendments 8 - 10: Community Investment Plan - Grants and Interest Earnings.
- Amendments 11 - 12: Operating Budget - Appropriated Fund Balances

Attachment(s):

1. Amendment 1 - Cost Allocation Update
2. Amendment 2 - General Fund Personnel Expenses
3. Amendment 3 - Utility Fund Personnel Expenses
4. Amendment 4 - Stormwater Fund Personnel Expenses
5. Amendment 5 - General Debt Service Fund Expenses
6. Amendment 6 - Utility Debt Service Fund Expenses
7. Amendment 7 - Operational Contingency
8. Summary of Ordinance Changes for June 16 2026
9. Amendment 8 - Parks and Recreation Project Ordinance (26-20)
10. Amendment 9 - Town Building Project Ordinance (26-21)
11. Amendment 10 - Water Projects Capital Ordinance (26-22)
12. Amendment 11 - SBITA
13. Amendment 12 - Arbitrage

14. Resolution 26-22 Designating Official Depository

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Cost Allocation FY26 **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is to update the cost allocation of General Fund Services provided for the Utility and Stormwater Funds. These adjustments maintain a balanced budget and do not increase the overall operating budget appropriation.

Expense

Account #	*Account Description*	*Increase*	*Decrease*
10-410-82.99	General Fund - Cost Allocation Adjustment		$ 3,529
10-411-01.10	General Fund - Cost Allocation Adjustment		$ 9,421
10-411-82.99	General Fund - Cost Allocation Adjustment		$ 11,866
10-412-11-01.10	General Fund - Cost Allocation Adjustment	$ 9,684	
10-412-11-82.99	General Fund - Cost Allocation Adjustment		$ 8,036
10-412-12-01.10	General Fund - Cost Allocation Adjustment		$ 23,471
10-412-12-82.99	General Fund - Cost Allocation Adjustment	$ 12,277	
10-412-13-01.10	General Fund - Cost Allocation Adjustment		$ 26,043
10-412-13-82.99	General Fund - Cost Allocation Adjustment	$ 8,946	
10-412-14-01.10	General Fund - Cost Allocation Adjustment		$ 3,631
10-412-14-82.99	General Fund - Cost Allocation Adjustment		$ 21,129
10-412-15-01.10	General Fund - Cost Allocation Adjustment		$ 8,616
10-412-15-82.99	General Fund - Cost Allocation Adjustment		$ 900
10-413-01.10	General Fund - Cost Allocation Adjustment	$ 41,872	
10-413-82.99	General Fund - Cost Allocation Adjustment	$ 3,842	
10-414-01.10	General Fund - Cost Allocation Adjustment	$ 26,714	
10-414-82.99	General Fund - Cost Allocation Adjustment		$ 17,320
10-422-21-01.10	General Fund - Cost Allocation Adjustment		$ 28,852
10-422-21-82.99	General Fund - Cost Allocation Adjustment	$ 85,285	
10-422-30-01.10	General Fund - Cost Allocation Adjustment		$ 1,655
10-422-30-82.99	General Fund - Cost Allocation Adjustment		$ 2,142
30-410-01.10	Utility Fund - Cost Allocation Adjustment	$ 8,795	
30-410-82.99	Utility Fund - Cost Allocation Adjustment		$ 45,876
31-410-01.10	Stormwater Fund - Cost Allocation Adjustment	$ 14,624	
31-410-82.99	Stormwater Fund - Cost Allocation Adjustment	$ 448	
	Total Expense:	**$ 212,487**	**$ 212,487**

Revenue

Account #	*Account Description*	*Increase*	*Decrease*
10-352	General Fund - Interest Earnings	$ 22,009	

31-352	Utility Fund - Interest Earnings		$ 37,081
31-352	Stormwater Fund - Interest Earnings	$ 15,072	
	Total Revenue:	**$ 37,081**	**$ 37,081**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.
Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Budget **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is to balance salaries and benefits related expenses across the General Fund utilizing existing lapse salaries and benefits. This amendment does not increase the total budget appropriation.

Expense			
Account #	***Account Description***	***Increase***	***Decrease***
10-411-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 5,000	
10-412-10-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 10,000	
10-412-10-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 4,000	
10-412-11-02.01	Gen Fund - Operating Budget - Personnel Expenses	$ 7,000	
10-412-11-05.01	Gen Fund - Operating Budget - Personnel Expenses	$ 4,000	
10-412-12-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 5,000	
10-412-12-01.02	Gen Fund - Operating Budget - Personnel Expenses	$ 10,000	
10-412-13-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 25,000	
10-412-13-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 6,000	
10-412-14-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 5,000	
10-412-14-02.04	Gen Fund - Operating Budget - Personnel Expenses	$ 1,000	
10-412-14-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 2,000	
10-412-15-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 45,000
10-412-15-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 3,000
10-412-15-02.04	Gen Fund - Operating Budget - Personnel Expenses		$ 3,000
10-412-15-02.06	Gen Fund - Operating Budget - Personnel Expenses		$ 2,000
10-412-15-02.07	Gen Fund - Operating Budget - Personnel Expenses		$ 5,000
10-413-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 25,000
10-414-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 30,000
10-414-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 14,000
10-416-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 7,000
10-416-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 1,000
10-418-18-01.02	Gen Fund - Operating Budget - Personnel Expenses	$ 30,000	
10-418-18-01.03	Gen Fund - Operating Budget - Personnel Expenses	$ 120,000	
10-418-18-01.06	Gen Fund - Operating Budget - Personnel Expenses	$ 50,000	
10-418-19-01.02	Gen Fund - Operating Budget - Personnel Expenses		$ 12,000
10-418-19-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 10,000
10-420-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 190,000	
10-420-01.03	Gen Fund - Operating Budget - Personnel Expenses	$ 86,000	
10-420-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 70,000	

10-422-21-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 7,000	
10-422-21-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 12,000
10-422-22-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 130,000
10-422-22-01.02	Gen Fund - Operating Budget - Personnel Expenses		$ 20,000
10-422-22-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 30,000
10-422-22-02.04	Gen Fund - Operating Budget - Personnel Expenses		$ 8,000
10-422-22-02.07	Gen Fund - Operating Budget - Personnel Expenses		$ 10,000
10-422-23-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 30,000
10-422-23-02.07	Gen Fund - Operating Budget - Personnel Expenses		$ 3,000
10-422-24-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 10,000
10-425-25-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 30,000	
10-425-25-01.02	Gen Fund - Operating Budget - Personnel Expenses	$ 62,000	
10-425-25-01.03	Gen Fund - Operating Budget - Personnel Expenses	$ 5,000	
10-425-25-01.04	Gen Fund - Operating Budget - Personnel Expenses	$ 1,000	
10-425-25-02.01	Gen Fund - Operating Budget - Personnel Expenses	$ 3,000	
10-425-25-02.04	Gen Fund - Operating Budget - Personnel Expenses	$ 5,000	
10-425-25-02.06	Gen Fund - Operating Budget - Personnel Expenses	$ 4,000	
10-425-25-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 7,000	
10-425-26-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 10,000	
10-425-27-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 15,000	
10-425-27-01.03	Gen Fund - Operating Budget - Personnel Expenses	$ 3,000	
10-425-27-02.06	Gen Fund - Operating Budget - Personnel Expenses	$ 5,000	
10-425-27-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 11,000	
10-425-28-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 15,000
10-425-28-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 10,000
10-425-29-01.02	Gen Fund - Operating Budget - Personnel Expenses	$ 20,000	
10-425-29-01.03	Gen Fund - Operating Budget - Personnel Expenses	$ 3,000	
10-425-29-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 3,000	
10-425-31-01.02	Gen Fund - Operating Budget - Personnel Expenses		$ 10,000
10-425-31-02.01	Gen Fund - Operating Budget - Personnel Expenses	$ 4,000	
10-425-39-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 6,000	
10-425-39-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 10,000
10-450-005-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 6,000	
10-450-005-02.01	Gen Fund - Operating Budget - Personnel Expenses	$ 2,000	
10-450-005-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 2,000	
10-450-010-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 30,000
10-450-010-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 15,000
10-450-010-02.04	Gen Fund - Operating Budget - Personnel Expenses		$ 2,000
10-450-010-02.07	Gen Fund - Operating Budget - Personnel Expenses		$ 3,000
10-450-011-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 40,000
10-450-011-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 14,000
10-450-011-02.07	Gen Fund - Operating Budget - Personnel Expenses		$ 5,000
10-460-015-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 60,000
10-460-015-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 10,000
10-460-015-02.04	Gen Fund - Operating Budget - Personnel Expenses		$ 5,000
10-460-015-02.07	Gen Fund - Operating Budget - Personnel Expenses		$ 5,000
10-460-020-01.01	Gen Fund - Operating Budget - Personnel Expenses	$ 28,000	

10-460-020-02.07	Gen Fund - Operating Budget - Personnel Expenses	$ 9,000	
10-460-025-01.01	Gen Fund - Operating Budget - Personnel Expenses		$ 150,000
10-460-025-02.01	Gen Fund - Operating Budget - Personnel Expenses		$ 30,000
10-460-025-02.04	Gen Fund - Operating Budget - Personnel Expenses		$ 9,000
10-460-025-02.07	Gen Fund - Operating Budget - Personnel Expenses		$ 20,000
10-460-025-02.13	Gen Fund - Operating Budget - Personnel Expenses		$ 28,000
	Total Expense:	**$ 881,000**	**$ 881,000**

Revenue			
Account #	***Account Description***	***Increase***	***Decrease***
	Total Revenue:	**$ -**	**$ -**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.
Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Budget **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is to balance salaries and benefits related expenses across the Utility Fund utilizing existing lapse salaries and benefits. This amendment does not increase the total budget appropriation.

Expense

Account #	*Account Description*	*Increase*	*Decrease*
30-412-10-01.01	Utility Fund- Operating Budget - Personnel Expense	$ 11,000	
30-412-10-02.07	Utility Fund- Operating Budget - Personnel Expense	$ 5,000	
30-412-11-01.01	Utility Fund- Operating Budget - Personnel Expense	$ 3,000	
30-413-32-01.01	Utility Fund- Operating Budget - Personnel Expense		$ 17,000
30-413-32-02.01	Utility Fund- Operating Budget - Personnel Expense		$ 5,000
30-413-42-01.01	Utility Fund- Operating Budget - Personnel Expense		$ 20,000
30-414-01.01	Utility Fund- Operating Budget - Personnel Expense		$ 20,000
30-450-005-01.01	Utility Fund- Operating Budget - Personnel Expense		$ 26,000
30-450-030-01.01	Utility Fund- Operating Budget - Personnel Expense	$ 42,000	
30-450-030-02.01	Utility Fund- Operating Budget - Personnel Expense	$ 1,000	
30-450-030-02.04	Utility Fund- Operating Budget - Personnel Expense	$ 3,000	
30-450-030-02.05	Utility Fund- Operating Budget - Personnel Expense	$ 1,000	
30-450-030-02.06	Utility Fund- Operating Budget - Personnel Expense	$ 2,000	
30-450-030-02.07	Utility Fund- Operating Budget - Personnel Expense	$ 7,000	
30-450-035-01.01	Utility Fund- Operating Budget - Personnel Expense		$ 24,000
30-450-050-01.01	Utility Fund- Operating Budget - Personnel Expense		$ 1,000
30-450-055-01.01	Utility Fund- Operating Budget - Personnel Expense	$ 20,000	
30-450-055-01.03	Utility Fund- Operating Budget - Personnel Expense	$ 12,000	
30-450-055-02.04	Utility Fund- Operating Budget - Personnel Expense	$ 1,000	
30-450-055-02.06	Utility Fund- Operating Budget - Personnel Expense	$ 1,000	
30-450-055-02.07	Utility Fund- Operating Budget - Personnel Expense	$ 6,000	
30-450-060-01.04	Utility Fund- Operating Budget - Personnel Expense	$ 2,000	
30-450-060-02.01	Utility Fund- Operating Budget - Personnel Expense	$ 1,000	
30-450-060-02.07	Utility Fund- Operating Budget - Personnel Expense	$ 1,000	
30-460-020-01.01	Utility Fund- Operating Budget - Personnel Expense		$ 6,000
	Total Expense:	**$ 119,000**	**$ 119,000**

Revenue

Account #	*Account Description*	*Increase*	*Decrease*

	Total Revenue:	**$ -**	**$ -**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.
Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Budget **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is to balance salaries and benefits related expenses across the Stormwater Fund utilizing existing lapse salaries and benefits. This amendment does not increase the total budget appropriation.

Expense			
Account #	***Account Description***	***Increase***	***Decrease***
31-450-065-01.01	Stormwater Fund - Operating - Personnel Expenses	$ 3,000	
31-450-065-02.07	Stormwater Fund - Operating - Personnel Expenses	$ 3,000	
31-450-070-01.01	Stormwater Fund - Operating - Personnel Expenses	$ 11,000	
31-450-070-01.03	Stormwater Fund - Operating - Personnel Expenses	$ 7,000	
31-450-070-02.07	Stormwater Fund - Operating - Personnel Expenses	$ 4,000	
31-412-10-01.01	Stormwater Fund - Operating - Personnel Expenses	$ 1,000	
31-412-02.01	Stormwater Fund - Operating - Personnel Expenses	$ 1,000	
31-460-01.01	Stormwater Fund - Operating - Personnel Expenses		$ 15,000
31-460-02.01	Stormwater Fund - Operating - Personnel Expenses		$ 5,000
31-460-02.07	Stormwater Fund - Operating - Personnel Expenses		$ 10,000
	Total Expense:	**$ 30,000**	**$ 30,000**

Revenue			
Account #	***Account Description***	***Increase***	***Decrease***
	Total Revenue:	**$ -**	**$ -**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.

Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Budget **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is to balance expenses within the General Fund Debt Service Fund by adjusting budget to match updated accounts utilized by the Finance Department for debt service payments and fees for property tax collection. This amendment does not increase the total fund appropriation.

Expense			
Account #	***Account Description***	***Increase***	***Decrease***
60-81.02	General Fund Debt Service Fund Expenses	$ 15,000	
60-81.62	General Fund Debt Service Fund Expenses	$ 1,500	
60-413-82.09	General Fund Debt Service Fund Expenses		$ 21,828
60-413-12.01	General Fund Debt Service Fund Expenses		$ 421,830
60-416-75.010	General Fund Debt Service Fund Expenses	$ 421,830	
60-418-8525.001	General Fund Debt Service Fund Expenses	$ 100	
60-420-8520.003	General Fund Debt Service Fund Expenses	$ 71,615	
60-420-8525.003	General Fund Debt Service Fund Expenses		$ 67,062
60-422-8520.003	General Fund Debt Service Fund Expenses	$ 70,000	
60-422-8520.004	General Fund Debt Service Fund Expenses		$ 69,825
60-422-8525.003	General Fund Debt Service Fund Expenses	$ 300	
60-432-8525.001	General Fund Debt Service Fund Expenses	$ 100	
60-460-8525.002	General Fund Debt Service Fund Expenses	$ 100	
	Total Expense:	**$ 580,545**	**$ 580,545**

Revenue			
Account #	***Account Description***	***Increase***	***Decrease***
	Total Revenue:	**$ -**	**$ -**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.
Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Budget **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is for adjusting Utility Debt Service anticipated expenses for the close out of the fiscal year in alignment with authorized debt issuances since budget adoption. This amendment transfers funds from the Utility Fund to the Debt Service fund, net of that, the amendment does not increase the budget.

Expense			
Account #	***Account Description***	***Increase***	***Decrease***
61-430-8500.003	Utility Debt Service Fund Expenses	$ 100,000	
61-430-8510.020	Utility Debt Service Fund Expenses	$ 134,900	
61-430-8515.020	Utility Debt Service Fund Expenses	$ 19,000	
61-430-8520.003	Utility Debt Service Fund Expenses	$ 70,000	
61-430-8555.001	Utility Debt Service Fund Expenses	$ 449,200	
30-95.61	Utility Fund - Transfer to Debt Service	$ 773,100	
30-95.71	Utility Fund - Transfer to Capital Reserve		$ 773,100
	Total Expense:	**$ 1,546,200**	**$ 773,100**

Revenue			
Account #	***Account Description***	***Increase***	***Decrease***
61-355.01	Utility Debt Service Fund -Transfer In	$ 773,100	
	Total Revenue:	**$ 773,100**	**$ -**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.
Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Budget **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is to ensure all operating funds have an appropriate level of budget contingency and approved funds for end of year projections to include bulk water purchase from Harnett County and operational contingency in the General Fund and Stormwater Fund utilizing actual collected revenues.

Expense			
Account #	***Account Description***	***Increase***	***Decrease***
30-450-045-25.01	Utility Fund - Water Purchases	$ 400,000	
31-410-02.12	Stormwater Fund - Operational Contingency	$ 50,000	
10-410-82.98	General Fund - Operational Contingency	$ 100,000	
	Total Expense:	**$ 550,000**	**$ -**

Revenue			
Account #	***Account Description***	***Increase***	***Decrease***
30-305.02	Utility Fund - Water Sales Commercial	$ 400,000	
31-352	Stormwater Fund - Interest Earnings	$ 50,000	
10-352	General Fund - Operational Contingency	$ 100,000	
	Total Revenue:	**$ 550,000**	**$ -**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.
Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Summary of Ordinance Changes for June 16, 2026, Town Council

Note – Project ordinances appropriate financial sources for all projects within the project fund. These funds are managed through a long-term project ordinance, rather than an annual budget, ensuring funds are available for the entire life of the project.

Parks and Recreation Capital Project Ordinance

Current Ordinance Appropriation	**$142,907,257**
NC Great Trails Grant for Camp Branch Greenway	$300,000
Parks and Recreation Capital Project Ordinance (26-20)	**$143,207,257**

Town Buildings Capital Project Ordinance

Current Ordinance Appropriation	**$46,294,628**
Operations Campus (Transfer to Water Fund)	$478,742
Operations Campus Debt Issuance Expenses	$219,782
Town Buildings Capital Project Ordinance (26-21)	**$46,993,152**

Water Capital Project Ordinance

Current Ordinance Appropriation	**$259,200,277**
Operations Campus (Transfer From Town Building Fund)	$478,742
Operations Campus (Offsetting Revenue Reduction)	($478,742)
Operations Campus Debt Issuance Expenses	$219,781
Sanford TriRivers Project Debt Issuance Expenses	$836,348
Water Capital Project Ordinance (26-22)	**$260,256,406**

Ordinance No. 26-20
Date Submitted: June 16, 2026
Date Adopted: June 16, 2026

Parks and Recreation Capital Project Ordinance
HOLLY SPRINGS, NORTH CAROLINA

BE IT ORDAINED by the Town Council of Holly Springs, North Carolina, that, pursuant to Section 13.2 of Chapter 159 of the General Statutes of North Carolina, the following capital project ordinance is hereby adopted:

SECTION I: The project authorized by this ordinance consists of parks and recreation capital projects.

SECTION II: The officers of this unit are hereby directed to proceed with the capital project within the terms of the budget contained herein.

SECTION III: Parks and Recreation Fees shall be deposited directly in the fund and the following amounts are appropriated for the project funds effective June 16, 2026:

Parks and Recreation Capital Project Fund	
Expenditures:	
Parks and Recreation Capital Project Fund	143,207,257
Total	**143,207,257**

SECTION IV: The following revenues are anticipated to be available to complete these projects:

Park and Recreation Capital Project Fund	
Revenues:	
Bond Proceeds	114,287,668
Transfer In	19,182,049
Other Grants	4,089,000
State Grants	4,034,340
Federal Grants	1,133,000
Miscellaneous Revenues	481,200
Total	**143,207,257**

SECTION V: The Finance Officer hereby directed to maintain within the project funds detailed accounting records.

SECTION VI: The Budget Officer is directed to include a detailed analysis of the past and future costs and revenues on this capital project in every budget submission made to the Town Council.

SECTION VII: The Town Manager is authorized to amend expenditures within the fund for expenditures that are authorized per section I of this ordinance that do not change the total appropriation within the fund.

SECTION VIII: Copies of this capital project ordinance shall be furnished to the Clerk to the Town Council, and to the Budget Officer and the Finance Officer for direction in carrying out this project.

SECTION IX: All ordinances in conflict with this ordinance are hereby repealed or amended to reflect the controlling nature of this Ordinance.

The provisions of this ordinance shall become effective June 16, 2026, in accordance with the laws of the State of North Carolina.

Adopted this, the 16th day of June 2026.

Town of Holly Springs by

_____
Michael D. Kondratick, Mayor

ATTEST:

_____
Linda McKinney, Town Clerk

Ordinance No. 26-21
Date Submitted: June 16, 2026
Date Adopted: June 16, 2026

Town Building Capital Project Ordinance
HOLLY SPRINGS, NORTH CAROLINA

BE IT ORDAINED by the Town Council of Holly Springs, North Carolina, that, pursuant to Section 13.2 of Chapter 159 of the General Statutes of North Carolina, the following capital project ordinance is hereby adopted:

SECTION I: The project authorized by this ordinance consists of construction of town buildings and general government capitalized assets.

SECTION II: The officers of this unit are hereby directed to proceed with the capital project within the terms of the budget contained herein.

SECTION III: Town Building Project Fees and Revenues shall be deposited in the fund effective June 16, 2026:

Town Building Project Fund	
Expenditures:	
Town Buildings Projects	46,993,152
Total	**46,993,152**

SECTION IV: The following revenues are anticipated to be available to complete these projects:

Town Building Project Fund	
Revenues:	
Limited Obligation Bond	39,790,215
State Grants	2,900,000
Transfers In	2,084,131
Other Revenue Sources	2,218,806
Total	**46,993,152**

SECTION V: The Finance Officer hereby directed to maintain within the project funds detailed accounting records.

SECTION VI: The Budget Officer is directed to include a detailed analysis of the past and future costs and revenues on this capital project in every budget submission made to the Town Council.

SECTION VII: The Town Manager is authorized to amend expenditures within the fund for expenditures that are authorized per section I of this ordinance that do not change the total appropriation within the fund.

SECTION VIII: Copies of this capital project ordinance shall be furnished to the Clerk to the Town Council, and to the Budget Officer and the Finance Officer for direction in carrying out this project.

SECTION IX: All ordinances in conflict with this ordinance are hereby repealed or amended to reflect the controlling nature of this Ordinance.

The provisions of this ordinance shall become effective June 16, 2026, in accordance with the laws of the State of North Carolina.

Adopted this, the 16th day of June 2026.

Town of Holly Springs by

_____
Michael D. Kondratick, Mayor

ATTEST:

_____
Linda McKinney, Town Clerk

Ordinance No. 26-22
Date Submitted: June 16, 2026
Date Adopted: June 16, 2026

Water Capital Project Ordinance
HOLLY SPRINGS, NORTH CAROLINA

BE IT ORDAINED by the Town Council of Holly Springs, North Carolina, that, pursuant to Section 13.2 of Chapter 159 of the General Statutes of North Carolina, the following capital project ordinance is hereby adopted:

SECTION I: The project authorized by this ordinance consists of Water system projects.

SECTION II: The officers of this unit are hereby directed to proceed with the capital project within the terms of the budget contained herein.

SECTION III: The following amounts are appropriated for the project funds effective June 16, 2026

Water Project Fund	
Expenditures:	
Water Projects	260,256,406
Total	**260,256,406**

SECTION IV: The following revenues are anticipated to be available to complete these projects:

Water Project Fund	
Revenues:	
Revenue Bonds	153,320,203
State Grants & Reimbursements	36,627,457
Transfers In	29,955,195
Limited Obligation Bond Proceeds	22,681,690
Private Contributions	8,870,347
Federal Grants	6,592,000
Other Utility Sources	2,209,514
Total	**260,256,406**

SECTION V: The Finance Officer hereby directed to maintain within the project funds detailed accounting records.

SECTION VI: The Budget Officer is directed to include a detailed analysis of the past and future costs and revenues on this capital project in every budget submission made to the Town Council.

SECTION VII: The Town Manager or designee is authorized to amend expenditures within the fund for expenditures that are authorized per section I of this ordinance that do not change the total appropriation within the fund.

SECTION VIII: Copies of this capital project ordinance shall be furnished to the Clerk to the Town Council, and to the Budget Officer and the Finance Officer for direction in carrying out this project.

SECTION IX: All ordinances in conflict with this ordinance are hereby repealed or amended to reflect the controlling nature of this Ordinance.

The provisions of this ordinance shall become effective June 16, 2026, in accordance with the laws of the State of North Carolina.

Adopted this, the 16th day of June 2026.

Town of Holly Springs by

_____
Michael D. Kondratick, Mayor

ATTEST:

_____
Linda McKinney, Town Clerk

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Budget **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is required to record software Subscription-Based Information Technology Arrangements (SBITAs) in accordance with governmental accounting standards. Since these agreements do not conform to fiscal years, this is a financial transaction required for recognizing the liability.

Expense			
Account #	***Account Description***	***Increase***	***Decrease***
10-418-18-90.08	General Fund - Police - SBITA	$ 25,451	
10-414-90.08	General Fund - IT - SBITA	$ 155,461	
30-413-42-90.08	Utility Fund - Finance SBITA	$ 148,013	
	Total Expense:	**$ 328,925**	**$ -**

Revenue			
Account #	***Account Description***	***Increase***	***Decrease***
10-355.18	General Fund - Other Sources - SBITA	$ 180,912	
30-355.18	Utility Fund - Other Sources - SBITA	$ 148,013	
	Total Revenue:	**$ 328,925**	**$ -**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.
Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Town of Holly Springs
FY2025-26 Budget Amendment Request

BE IT ORDAINED by the Town Council of the Town of Holly Springs, North Carolina, that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2026.

Department: Budget **Date:** 6/16/2026

Reason for Budget Amendment:

This amendment is appropriating an arbitrage rebate liability associated with the Town's 2021 General Obligation Bonds as required under federal tax regulations. This occurs when bond proceeds generate excess interest earnings and is an IRS requirement for tax-exempt bond issuances.

Expense			
Account #	***Account Description***	***Increase***	***Decrease***
60-432-8600.004	General Debt Service - Arbitrage GO Bonds	$ 860,000	
	Total Expense:	**$ 860,000**	**$ -**

Revenue			
Account #	***Account Description***	***Increase***	***Decrease***
60-355.11	General Debt Service - Appropriated Fund Balance	$ 860,000	
	Total Revenue:	**$ 860,000**	**$ -**

Department Head Signature (or electronic submission)

Town Manager Signature (if necessary)

Town Manager has authorized Department Directors to transfer operating funds within their department.
Town Manager is authorized to approve transfers between departments within the same fund up to $50,000.
All inter-departmental transfers will be reported to Town Council by the following month.
Amendments that change the total budget or departmental transfers over $50,000 require Town Council approval.

Resolution No. 26-22
Date Adopted: June 16, 2026
Effective Date: June 16, 2026

RESOLUTION OF THE HOLLY SPRINGS TOWN COUNCIL DESIGNATING OFFICIAL DEPOSITORIES AND SECURITIES BROKER/DEALERS AND AFFIRMING COMPLIANCE WITH NCGS §§159-30, 159-31 AND 159-25

WHEREAS, North Carolina General Statutes (NCGS) §159-30 requires that local governments establish a depository or depositories for public funds; and

WHEREAS, NCGS §159-31 further requires that the governing body of a local government formally designate the official depositories for its funds; and

WHEREAS, NCGS §159-30(a) also authorizes local governments to invest funds in accordance with a formal policy and to designate securities broker/dealers for the management of such investment deposits; and

WHEREAS, NCGS §159-25 sets forth the duties of the finance officer, including the requirement that all checks and drafts be signed by the finance officer or a deputy finance officer and countersigned by another official designated by the governing board, and further provides guidance for the authorization and oversight of disbursements; and

WHEREAS, the Town Council of the Town of Holly Springs desires to ensure compliance with these statutes, and ensure that all public funds of the Town of Holly Springs be deposited in a secure and efficient manner, by formally designating both official depositories and security broker/dealers for the Town's funds; and

WHEREAS, the Town's Finance Director has reviewed the qualifications of potential depositories and securities broker/dealers to ensure their ability to comply with all applicable legal requirements and provide adequate security for the Town's funds;

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Holly Springs, North Carolina, as follows:

Section 1. Designation of Official Depositories and Securities Broker/Dealers

The following financial institutions and securities broker/dealers are hereby designated as official depositories for the Town of Holly Springs in accordance with the Town's cash management and investment policies and NCGS §§159-30 and 159-31 until further notice, without order of priority:

1. First National Bank of Pennsylvania
2. Truist Bank
3. JPMorgan Chase Bank
4. PNC Bank

5. First Bank
6. United Community Bank
7. U.S. Bank
8. Regions Bank
9. Pinnacle Bank
10. North Carolina Capital Management Trust
11. North Carolina Cooperative Liquid Assets Securities System (CLASS)
12. Multi-Bank Securities, Inc.
13. North Carolina Ancillary Governmental Participant Investment Program **(AGPIP)/BNY**
14. Wells Fargo Bank, National Association

Section 2. Authorization to Deposit, Withdraw, and Invest Funds

The Town Manager, Finance Director, or their designee are hereby authorized to deposit funds into, withdraw funds from, and invest funds with the official depositories and securities broker/dealers listed above, as necessary for the transaction of Town business, in accordance with applicable financial policies, and to comply with the requirements of NCGS §§159-30 and 159-31.

Section 2a. Signatory Requirements

In accordance with NCGS §159-25(b), all checks or drafts on the official depositories of the Town shall be signed by the Finance Officer or a properly designated deputy finance officer and countersigned by the Town Manager or Assistant Town Manager. No check or draft shall be issued or honored unless it bears the signature of both authorized individuals, as required by law.

The Finance Officer or a duly authorized deputy finance officer is also authorized to initiate electronic disbursements, including but not limited to Automated Clearing House (ACH) transfers and wire transfers, from the official depositories of the Town. Such disbursements shall be executed under the direction of the Finance Officer, with appropriate oversight and documentation to ensure compliance with §159-25(b) and the safeguarding of public funds, and a record of such transactions in the Town's accounting system.

Section 3. Security of Deposits

All deposits in the official depositories shall be secured in compliance with the provisions of NCGS §159-30(b) to ensure the safety of public funds. The Town Manager or Finance Director is hereby authorized to take any action necessary to ensure proper collateralization and security for all deposits, as required by law.

Section 4. Effective Date

This resolution shall take effect immediately upon adoption and shall remain in effect until superseded by a subsequent resolution or action of the Town Council.

Adopted by the Holly Springs Town Council on this, the __ day of ___, 2026.

Town of Holly Springs by

_____
Michael D. Kondratick, Mayor

ATTEST:

_____
Linda C. McKinney, Town Clerk

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 11.

Consent Agenda
Title: Voluntary Annexation A25-10 Veridea S Village East
Strategic Priority Area: Growth Management & Economic Vitality
Staff Resource: Sarah Sularz, Development Services

Action(s):
Adopt Resolution 26-21 directing the Town Clerk to investigate the sufficiency of annexation petition A25-10, and setting the public hearing to July 21, 2026.

Explanation:

- The Town has received a petition for voluntary annexation of 1.53 +/- acres, a small driveway access portion of a large parcel and the adjacent street right-of-way.
- The property is located on the east side of Old Holly Springs Apex Rd. across from Carolina Springs Blvd. and is owned by Wake County.
- The property is in the Town's Extraterritorial Jurisdiction (ETJ) and is contiguous with the Town Limits.
- This annexation is associated with an industrial project located in the Town of Apex as part of the Veridea project. The roadway being constructed to serve this project crosses the Town's ETJ to create a 4-way signalized intersection at Carolina Springs Blvd and Veridea Parkway.
- The annexation will ensure that the Town has the alibility to provide emergency response services in the corridor.

Background:

- Pursuant to NCGS 160A-31(c) Council is required, upon receiving a petition for annexation, "to cause the clerk of the municipality to investigate the sufficiency thereof and to certify the result of the investigation and to fix a date for public hearing on the question of annexation."
- Service Comment Letters were sent out to town departments. No service related issues were identified.

Funding Source(s):
N/A

Attachment(s):
1. A25-10 Map
2. A25-10 Resolution of Sufficiency

Annexation Information

Annexation Number

A25-10

Total Acres

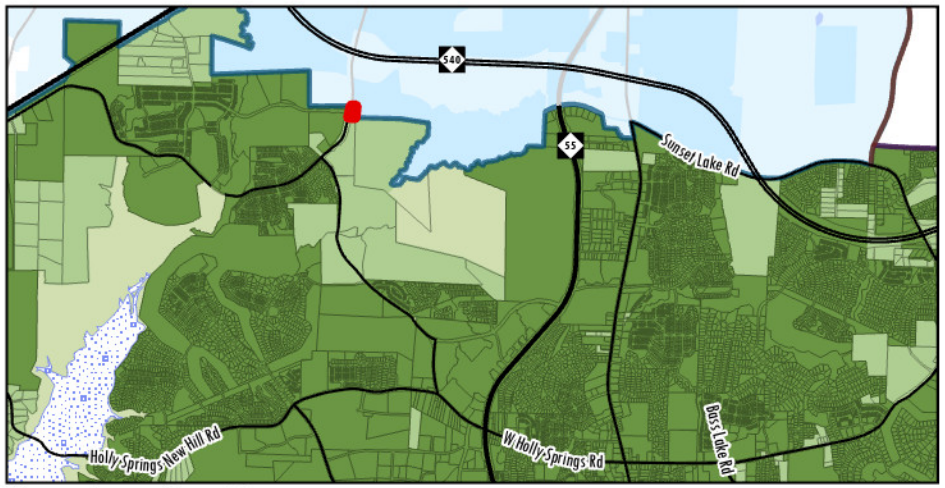
1.53 +/- | Deed Acres

Property Address

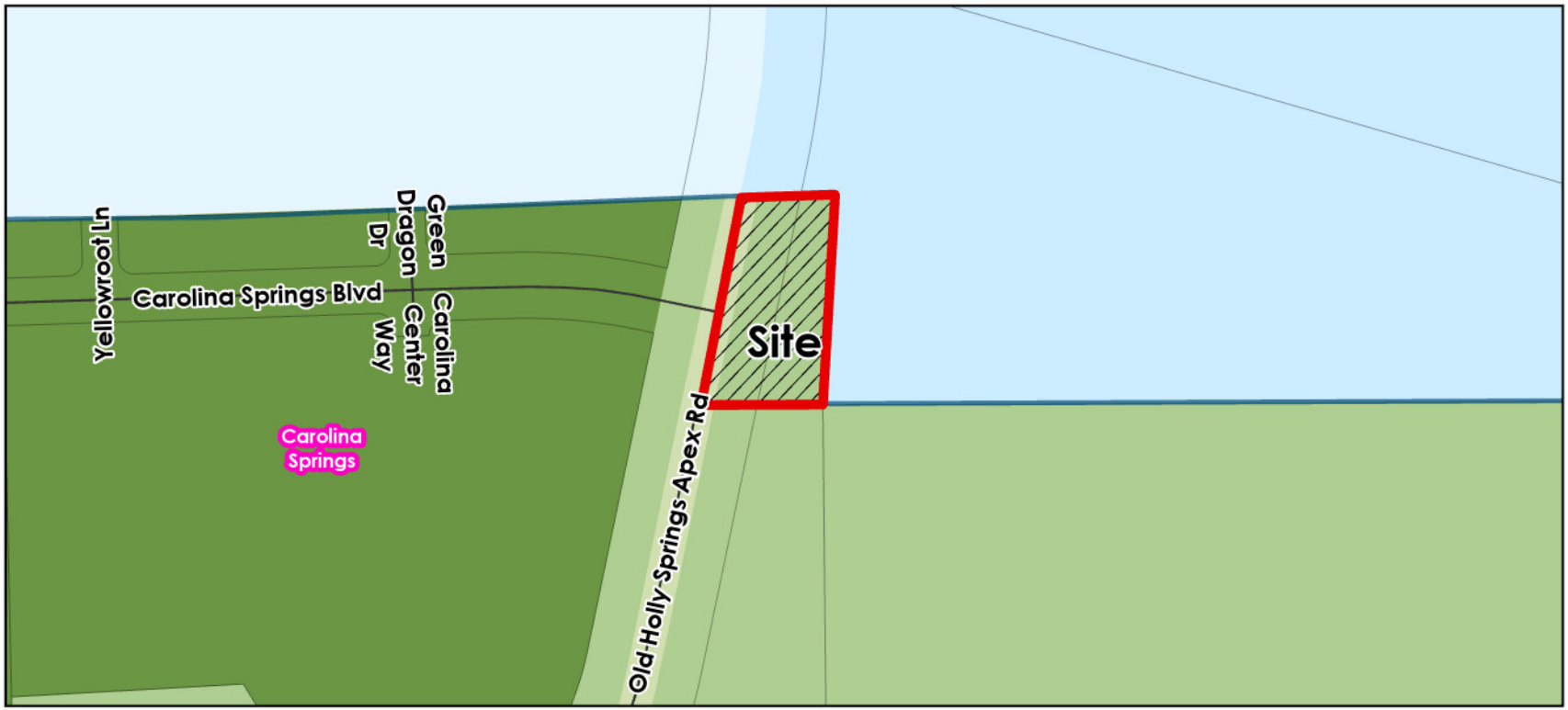
3705 Old Holly Springs Apex Rd.

Contiguous to Town Limits

■ Yes ☐ No



Town Location Map



Property Location Map

Holly Springs
Town Limits
ETJ

Apex
Town Limits
ETJ

Fuquay-Varina
Town Limits
ETJ

Cary
Town Limits
ETJ

Subdivision

Apex/Cary Annexation Agreement

Apex/Holly Springs Annexation Agreement

Cary/Holly Springs Annexation Agreement

FV/Holly Springs Annexation Agreement

Shearon Harris Lake

Future Lake Level

Parcels

Resolution No. 26-21
Date Adopted: June 16, 2026
Annexation No.: A25-10

RESOLUTION OF THE HOLLY SPRINGS TOWN COUNCIL DIRECTING THE TOWN CLERK TO INVESTIGATE A PETITION RECEIVED UNDER G.S. 160A-58 AND FIXING THE DATE OF A PUBLIC HEARING ON THE QUESTION OF ANNEXATION

WHEREAS, a petition requesting annexation of an area described in said petition was received by the Town of Holly Springs; and

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 Holly Springs deems it advisable to proceed in response to this request for annexation, subject to the Clerk's satisfactory investigation of the sufficiency of the petition; and

WHEREAS, the area proposed for annexation is described as follows:

Lying and being in Holly Springs Township, Wake County, North Carolina, and more particularly described as follows:

BEGINNING AT THE INTERSECTION OF THE COMMON CORNER OF RXR LEN APEX OWNER LLC PIN: 0740241030 AND WAKE COUNTY PIN: 0740026492 WITH THE EASTERN RIGHT OF WAY LINE OF OLD HOLLY SPRINGS APEX ROAD RECORDED AMONG THE LAND RECORDS OF WAKE COUNTY, NORTH CAROLINA IN BOOK OF MAPS 2022 PAGE 2, THENCE NORTH 89°45'44" EAST A DISTANCE OF 59.47 FEET TO A POINT; THENCE SOUTH 04°58' 10" WEST A DISTANCE OF 362.56 FEET TO A POINT; THENCE NORTH 88° 36' 32" WEST A DISTANCE OF 107.88 FEET TO A POINT; THENCE NORTH 12°33'12" EAST A DISTANCE OF 367.11 FEET TO A POINT WHICH IS THE POINT OF BEGINNING, HAVING AN AREA OF 0.69 ACRES - 30,163 SQUARE FEET.

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

Section 1. The Town Clerk is hereby directed to investigate the sufficiency of the above described petition and to certify as soon as possible to the Holly Springs Town Council the result of her investigation.

Section 2. Subject to the Town Clerk's satisfactory result of her investigation, a public hearing on the question of annexation of the area described herein will be held at the Town Hall Council Chambers, located at 128 S. Main Street, at 7 p.m. (or as soon thereafter as is practicable) on

Section 3. Notice of the public hearing shall be published in the Raleigh News & Observer, newspapers having general circulation in the Town of Holly Springs, at least ten (10) days prior to the date of the public hearing.

Adopted this, the 16th day of June 2026.

ATTEST:

Michael D. Kondratick, Mayor

Linda C. McKinney, Town Clerk

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 12.

Consent Agenda
Title: Engineering Design and Construction Standards Supplement #15
Strategic Priority Area: Growth Management & Economic Vitality
Organizational Excellence
Vibrant Community
Community Safety
Staff Resource: Kylie Davis, Utilities and Infrastructure, Sara Emig, Utilities and Infrastructure, Kendra Parrish, Utilities and Infrastructure

Action(s):
Approve Supplement #15 to the Engineering Design and Construction Standards.

Explanation:

- The Town's Engineering Design and Construction Standards (EDCS) are updated periodically to maintain consistency, improve clarity, and align Town practices with current State guidelines. Supplement #15 includes revisions across multiple utility and infrastructure sections, with updates focused on modernization, improved coordination, and clearer expectations for designers and developers.
- The requested updates improve consistency across all development standards, align with State guidelines, support clear expectations for designers and contractors, and enhance the quality and coordination of public infrastructure construction.

Key Update Areas:

- Pump Stations & Wastewater Systems:
  - Added standards for pump station demolition and abandonment.
  - Added requirement for fiber-optic connectivity for all pump stations.
  - Updated equipment and SCADA (Supervisory Control and Data Acquisition) references to reflect current Town practices.
- Water System Standards:
  - Added comprehensive standards for waterline, water service, hydrant, and appurtenance abandonment.
  - Updated references for meter installation and clarified requirements for dead-end mains.
  - Added standards for hydrant installations at greater depths.
- Sanitary Sewer Systems:
  - Added repair, modification, and abandonment standards for existing sewer infrastructure.
  - Updated requirements for work on active sewer mains and clarified bypass pumping and demolition expectations.

    - Modernized standards for manholes and abandonment procedures.
- Town Standard Details:
    - Refined gateway and streetscape details to maintain consistency with the town's branding.
    - Updated pump station layouts and erosion control details for improved clarity and state alignment.

Background:

- The Engineering Design and Construction Standards (EDCS) establish the minimum specifications required by the Town for public infrastructure, including but not limited to utilities, roadways, and greenways.
- Both private development and the town's capital projects must adhere to these standards to ensure high-quality infrastructure that can be efficiently maintained as part of the town's public system.
- Consistent enforcement of the EDCS leads to infrastructure that is sustainable, durable, cost-effective and aligned with long-term asset maintenance goals.
- Design and construction best practices and materials are constantly evolving and improving in quality, availability, and efficiency; Town staff from multiple departments regularly review and contribute updates to the standards to reflect current construction materials and best practices.

Funding Source(s):

N/A

Attachment(s):

1. 6.00 Updated June 2026_#15
2. 7.00 Updated June 2026 #15
3. 13.00 Updated June 2026_#15 (1)
4. HS373_Sec_Gateway_Sign_Post_Foundation
5. HS374_Welcome_Sign
6. HS622_1of2
7. HS622_2of2
8. HS1003 Townhome Lot EC
9. HS823_2026 (1)
10. EDCS Supp 15 Summary of Changes

SECTION 6.00
WATER DISTRIBUTION

SUB-INDEX

SECTION 6.00

WATER DISTRIBUTION

6.01 WATER DISTRIBUTION PIPE

A. General

Water system expansions shall meet all requirements of these standards. In addition, the *North Carolina Administrative Code Title 15A Chapter 18 Subchapter C – Water Supplies* (15A NCAC 18C) is hereby incorporated into the Town's standards for water system expansions. This specification section identifies minimum equipment and construction requirements for water system expansions that are to be owned and operated by the Town of Holly Springs. This section does not address every aspect of water system expansion; it is the design engineer's (Designer's) responsibility to supplement these requirements as necessary to produce a complete set of plans and specifications.

All utility extension permits must be obtained prior to construction. Refer to the Town Code of Ordinances Section 16 for further requirements.

B. Design

Location: Water lines shall be extended along the entire roadway frontage length of any proposed project. All public water mains shall be located within dedicated right of way or dedicated easements with a minimum width of 20 feet. Landscape plantings, fences, or structures shall not be allowed within water line easements.

Sizing: Water lines shall be sized in accordance with the Town's "Comprehensive Plan" or as directed by the Executive Director of Utilities and Infrastructure Services. In residential areas, mains shall be 6-inch and 8-inch diameters. Six-inch mains shall be used only when a good grid exists. The total maximum length of 6-inch and 8-inch line, without connection to a larger main, is 1200 feet and 2000 feet, respectively. Four-inch water mains are permitted on residential cul-de-sacs less than 400 feet long, if no hydrant is required. Where a sufficient grid network does not exist, lines shall be upsized additionally to provide adequate fire flow as directed by the Executive Director of Utilities and Infrastructure Services. If there is adjacent developable property, an adequate size line to properly serve future development shall be provided sufficient for any future project to meet Town standards.

C. Material

All water mains shall be ductile iron. The use of Polyvinyl Chloride (PVC) pipe must be approved by the Executive Director of Utilities & Infrastructure Services,

and, if approved, must be blue in color and conform to the specifications of AWWA C900. The Engineering Department will maintain a list of approved manufacturers of other water distribution products. New manufacturers must submit requests for approval to the Engineering Department. Additional information such as catalogs, list of installations in the area, or material samples may be required. A written response will be mailed to the applicant accepting or rejecting the product within 90 days of the receipt of all necessary information.

Ductile Iron Pipe shall be designed and manufactured in accordance with AWWA C150 and C151 for a laying condition Type 2 and a working pressure as follows:

3-12 inches	350 psi
14-20 inches	250 psi
24 inches	200 psi
30-54 inches	150 psi

Pipe Joints shall be of the 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. Galvanized steel pipe will not be allowed as a material for water mains or water services lines.

Steel Encasement for water/sewer pipes are required for the following Street Classifications to avoid traffic disruption in the future:

- Controlled Access Highway

For carrier pipes that employ cathodic protection anticorrosion systems, the carrier and casing pipes shall be effectively insulated from one another. Carrier and casing shall be cathodically protected as a unit.

See Section 5.03 Boring and Jacking for more casing pipe size requirements.

D. Installation

Ductile iron pipe shall be manufactured and installed in accordance with requirements set forth in the most recent revision of AWWA C600/C605 and the Rules Governing Public Water Systems. Materials shall be handled in such a manner to protect them from damage at all times.

All water mains shall be installed with a minimum cover of 4 feet and maximum of 6 feet measured from the top of the pipe to the finished surface grade (or as otherwise directed by Executive Director of Utilities and Infrastructure Services). Where waterlines cross NCDOT roadways or major Town roadways, as determined by the engineer, pipe encasement shall be required. When water lines are installed along a roadway which does not have curb and gutter or which are planned to be widened in the future, the water line shall be installed at 4.5 feet minimum depth below edge of existing pavement. In addition, all waterline installation shall be

placed to prevent conflict with future road improvements or foreseeable vertical alignment changes. Where air release valves are located on water mains the lines should be a minimum of 6 feet below the existing edge of pavement in this area.

The laying conditions for ductile iron pipe shall be certified by a Professional Engineer licensed in the State of North Carolina and installed in accordance with AWWA C600 and the Ductile Iron Pipe Research Association.

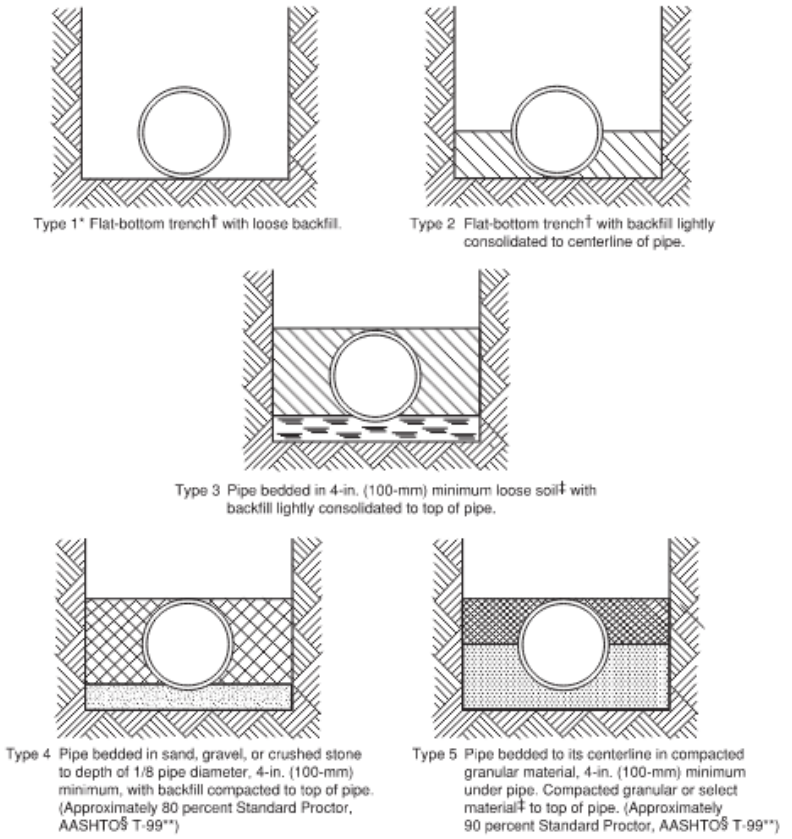


Figure 1: Laying Conditions for Ductile Iron Pipe (AWWA C600)

Locater devices as manufactured by 3M Corporation shall be placed directly on top of distribution water mains along major thoroughfares and cross-country installations (and as otherwise directed by the Executive Director of Utilities and Infrastructure Services) at 100 foot intervals and turns/bends. Locater tape shall also be required to be installed at 2 feet above the pipe.

All construction relating to the utility improvements which will be maintained by the Town must be performed by a contractor licensed in North Carolina. Proof of licensure will be required at the Project Preconstruction Meeting. Operation of existing valves and fire hydrants shall be by Town staff only.

. Town water mains that are 16-inches or greater are considered water transmission mains. Service connections to the Town's water transmission mains are prohibited. A proposed water main connection to the Town's water transmission mains requires an exception granted by the Executive Director of Utilities & Infrastructure. All requests are subject to completing a hydraulic study to confirm adequate pressure can be maintained in the system.

6.02 FIRE HYDRANTS (Public and Private)

A. Location

All fire hydrants shall be installed on a minimum 6-inch waterline with minimum of 20' width easement including 5 feet beyond fire hydrant. Only 1 fire hydrant may be installed on a dead end 6-inch line. There shall be at least 1 fire hydrant at each street intersection located in accordance with the Standard Detail section of these Standards (TOHS Detail HS613). Each fire hydrant shall have a valve on the hydrant service leg, located within 2 feet of tee on the main line.

No building lot shall be more than 350' from fire hydrant.

In residential areas, the maximum distance between fire hydrants, measured along street centerlines, shall be 500 feet. In residential areas, the minimum fire flow shall be 1000 gpm with a minimum system pressure of 25 psi for 1 hour.

In business, office and institutional, and industrial districts, the maximum distance between hydrants, measured along street centerline, shall be 300 feet. When business, office and institutional, and industrial intersections are not more than 450 feet apart, no hydrant is required between intersections. The minimum fire flow in these areas shall be 1500 gpm with a minimum system pressure of 25 psi for 2 hours.

The minimum number of fire hydrants available to a building shall not be less than that listed in Table A1. The number of fire hydrants available to a complex or subdivision shall not be less than that determined by spacing requirements listed in Table A1 when applied to fire apparatus access roads and perimeter public streets from which fire operations could be conducted.

Existing fire hydrants on public streets are allowed to be considered as available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads.

The average spacing between fire hydrants shall not exceed that listed in Table A1.

Exception: The Office of the Fire Marshal is authorized to accept a deficiency of up to 10 percent where existing fire hydrants provide all or a portion of the required fire hydrant service.

Regardless of the average spacing, fire hydrants shall be located such that all points on streets and access roads adjacent to a building are within the distances listed in Table A1.

Table A1
NUMBER AND DISTRIBUTION OF FIRE HYDRANTS

FIRE-FLOW REQUIREMENTS (gpm)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS (Feet) [a, b, c]	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT [d]
1,750 or less	1	300	250
2,000-2,250	2	300	225
2,500	3	300	225
3,000	3	300	225
3,500-4,000	4	300	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more [e]	200	120

[a.] Reduce by 100 feet for dead-end streets or roads.
[b.] Where streets are provided with median dividers that cannot be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis.
[c.] Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.
[d.] Reduce by 50 feet for dead-end streets or roads.
[e.] One hydrant for each 1,000 gallons per minute or fraction thereof.

When new buildings are constructed, or existing buildings expanded, all points of exterior walls for buildings shall be within 150' of a fire access lane. When a fire access lane is provided then all portions of exterior walls are required to be within 300' of a hydrant. The maximum length of fire access lanes without an approved turn-a-round is 150'. Hydrants shall be located at least 40 feet from the building or as specified by the Town of Holly Springs Fire Department, Office of the Fire Marshal. See Section 6.07E for fire hydrants required for automatic fire sprinkler systems.

Where sprinkler systems or standpipe systems are used, the fire department connections (FDC) shall be located on the street side of the building and within 100 feet of a fire hydrant and at fall zone line or as specified by the Office of the Fire Marshal, and shall be located so that nothing obstructs direct access. Where a sprinkler system or a riser room are required, outside access in accordance with the N.C. Building Code shall be provided. Backflow prevention for sprinkler systems shall be as specified in Section 6.06 of these Standards. Flow data for system design shall be field-verified by the designer. The Town will provide assistance with opening valves and hydrants for the collection of data for system design. FDC's can be mounted on single story buildings only.

A hydraulic report signed, sealed, and dated within 12 months by an Engineer may be required by the Town to document meeting the minimum fire flow and system pressure requirements. On all thoroughfares and collectors with access points only at street intersections, hydrants shall be located at each street intersection and staggered at 1000 foot intervals along the street. Where these intersections are less than 1200 feet apart, no hydrant is required between the intersections.

B. Specifications

Hydrants shall conform to AWWA C502 with a minimum valve opening of 4½ inches. All fire hydrants shall be furnished with a 5 inch Storz/quick connect coupling on the steamer outlet with a chained cap. The Storz connection shall be by the hydrant manufacturer and only come as part of the hydrant assembly. No adapters for the Storz connection are allowed. Hydrants shall also be furnished with: double 2½-inch hose connections with caps and chains, National Standard Threads, mechanical joint, 1½-inch pentagon operating nut, open left, painted Sherwin Williams pro industrial urethane alkyd enamel safety yellow B54 Y157, bronze to bronze seating, a minimum 3½-foot bury depth with 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, as furnished by Mueller "Centurion" (A-421), Kennedy 'Guardian', American Darling (MK-73), Clow or Waterous. 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 for a working pressure of 250 psi or greater.

All hydrants and Fire Access Lanes shall be installed and operational before any combustible material is brought onto the site.

C. Installation

Hydrants shall be set plumb, properly located with the pumper nozzle facing the closest curb. 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 not be less than 5/8 inch diameter stock and coated with bituminous paint. All fire hydrants shall be newly painted in accordance with NFPA standards. A minimum of 8 cubic feet of stone shall be placed around the hydrant. The backfill around the hydrants shall be thoroughly compacted. Hydrant installation shall be in accordance with the Standard Details section of these Standards. Fire hydrants shall be installed on a clear level space with a minimum of five (5) feet clearance provided and maintained on all sides of a fire hydrant for immediate access. There must be clearance with a minimum of 18"-24" from center of 5" Storz cap to grade and shall be installed with positive drainage.

1. 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 grip ring connections, Aquagrip, Romac, or approved equal.

D. Relocation

For installations where hydrants will be relocated, all hydrants with greater than 20 years operational service, as indicated by the date of manufacture provided on the hydrant, shall be replaced with a new fire hydrant in accordance with Engineering Design and Construction Standards. The fire hydrant being replaced shall be returned to the Town of Holly Springs Public Works Department.

For installations where the hydrant to be relocated has less than 20-years of operational service, the existing hydrant may be relocated. The existing hydrant shall be disinfected, flushed and pressure tested prior to being placed back into service.

E. Fire Flow Requirements for Buildings

2. One- and two-family dwellings

The minimum fire-flow and flow duration requirements for one-and two-family dwellings having a fire-flow calculation area that does not exceed 3,600 square feet (344.5m2) shall be 1,000 gallons per minute at 25psi for 1 hour.

Fire-flow and flow durations for dwellings having a fire-flow calculation area in excess of 3,601 square feet and greater shall not be less than specified in tables E1 and E2 at 25psi.

3. Buildings other than one- and two-family dwellings.

The minimum fire-flow and flow duration for buildings other than one-and two-family dwellings shall be as specified in tables E1 and E3, but no less than 1,500 gallons per minute at 25psi.

4. Water supply for buildings equipped with an automatic sprinkler system.

For building equipped with an approved automatic sprinkler system, the water supply shall be capable of providing the greater of:

1. The automatic sprinkler system demand, including hose stream allowance.

2. The required fire-flow.

Table E1

MINIMUM REQUIRED FIRE-FLOW AND FLOW DURATION FOR BUILDINGS

(Appendix B of the 2018 NC Fire Prevention Code)

FIRE-FLOW CALCULATION AREA (square feet)					FIRE-FLOW (gallons per minute)[1]	FLOW DURATION (hours)
Type 1A and 1B[2]	Type IIA and IIIA[a]	Type IV and V-A[a]	Type IIB and IIIB[a]	Type V-B[a]		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600	1,500	
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800	1,750	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200	2,000	2
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700	2,250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400	2,500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300	2,750	
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3,000	
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	3
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-183.400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4,500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	4
—	—	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
—	—	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
—	—	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
—	—	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
—	—	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
—	—	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
—	—	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
—	—	191,401-Greater	138,301-Greater		85,101-Greater	

a. Types of construction are based on the NC Building Code

b. Fire-Flow is measured at 25 psi residual pressure.

TABLE E2

REQUIRED FIRE-FLOW FOR ONE-AND TWO-FAMILY DWELLINGS

FIRE-FLOW CALCULATION AREA (square feet)	AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIUM FIRE-FLOW (gallons per minute)	FLOW DURATION (hours)
0-3,600	No automatic sprinkler system	1,000	1
3,601 and greater	No automatic sprinkler system	Value in Table E1	Duration in Table E1 at the required fire-flow rate
0-3,600	Section 903.3.1.3 of the NC Fire Code Section P2904 of the NC Residential Code	1,000	Duration in Table E1 at the required fire-flow rate
3601 and greater	Section 903.3.1.3 of the NC Fire Code Section P2904 of the NC Residential Code	1/2 value in Table E1 but no less than 1,000	1

Table E3

REQUIRED FIRE -FLOW FOR BUILDINGS OTHER THAN ONE-TWO FAMILY DWELLINGS

Automatic Sprinkler System (Design Standard)	MINIMUM FIRE-FLOW (gallons per minute)	FLOW DURATION (hours)
No automatic sprinkler system	Value in Table E1	Duration in Table E1
Section 903.3.1.1 of the NC Fire Code	25% of the value in Table E1 but no less than 1,500	Duration in Table E1 at the reduced flow rate
Section 903.3.1.2 of the NC Fire Code	25% of the value in Table E1 but no less than 1,500	Duration in Table E1 at the reduced flow rate

6.03 VALVES AND APPURTENANCES

A. Location

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; and 1 valve on each hydrant branch. When a loop section of waterline is connected back into the feeder main within a distance of 200 feet or less, only 1 valve will be required in the feeder main.

Where no waterline intersections are existing, a main line valve shall be installed at every 100 feet per 1-inch diameter main up to a distance of 2000 feet between valves.

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 Executive Director of Utilities & Infrastructure, in order to enhance flow, water quality, and/or pressure in the affected area.

Blowoff assemblies shall be a minimum of 2 inches and installed at the end of all dead-end waterlines. Where there is not sufficient pressure or fire hydrants located to thoroughly flush the system, a larger blowoff may be required. On large diameter mains or other circumstances, larger blowoffs may be required by the Executive Director of Utilities and Infrastructure Services.

Combination air valves shall be installed at high points of waterlines 12 inches in diameter or larger, as directed by the Executive Director of Utilities and Infrastructure Services. All new air release valves shall be installed in precast manholes. Existing lines in which an air release valve is installed can use a dog house manhole. Water lines 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. The size of air valve shall be designed by a Professional Engineer registered in North Carolina. Combination air valves or other types of air release valves may be required at other locations as directed by the Executive Director of Utilities and Infrastructure Services.

All new construction air release manholes shall be a precast manhole. Doghouse manholes can only be installed on existing water lines.

Water lines crossing stream beds will be required to be installed with restrained joint pipe inside a steel encasement pipe.

B. Specifications

Gate Valves greater than 2 inches shall meet all requirements of AWWA C500 for a working pressure of 150 psi. All shall be mechanical joint with iron body,

resilient wedge seat type in accordance with AWWA C509 with a non-rising stem and open left with a double O-ring seal. Gate valves shall be installed in a vertical position.

Valve Boxes shall be cast iron of the screw or telescopic type with a 5-inch opening with "water" stamped on the cover. Valve box ring adjustments will not be allowed. Locking valve boxes may be required as determined by the Executive Director of Utilities and Infrastructure Services. All castings shall be made in the United States.

Butterfly Valves shall be installed in waterlines 24 inches or greater. All shall meet the requirements of AWWA C504 with mechanical joints, 2-inch operating nut and open left.

Blowoff Assemblies shall be constructed as shown in the Standard Details Section of these Standards. The valves shall be an AWWA iron body gate valve with a non-rising stem and a 2-inch operating nut.

Pipe Fittings shall be compact fittings in accordance with AWWA C153. Joints for fittings shall be mechanical joint and lined with cement mortar with a seal coat of bituminous material, all in accordance with AWWA C104.

Reaction Blocking for all fittings or components subject to hydrostatic thrust shall be securely anchored by the use of concrete thrust blocks poured in place. The required reaction areas are shown in the Standard Details Section of these Standards. Concrete shall be installed so that it does not interfere with the removal of fittings. Material for reaction blocking shall be 3000 psi concrete. Alternative restraining methods may be considered only in unusual circumstances and must be designed by a Professional Engineer registered in North Carolina and approved by the Executive Director of Utilities and Infrastructure Services.

Tapping Sleeves shall be stainless steel sleeves with stainless steel flanges meeting the material requirement of AWWA C223 and AWWA C228. The sleeves shall be mechanical joint to the main line and flanged to the tapping valve. Mechanical joint outlet connections shall be compatible with ANSI/AWWA C111/A21.11.

Tapping Saddles shall be used on mains 16 inches and larger. Saddles shall be made of stainless steel 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 maximum size saddle outlet for each size of pipe to be tapped shall be as follows:

Size pipe to be tapped	Maximum size saddle outlet
16”	8”
18”	8”
20”	10”
24” and larger	12”

Combination Air Valves shall be of the single housing style that combines the operation of both an air/vacuum and air release valve. The valve shall be manufactured for a 150 PSIG working pressure and be sized by the Engineer. The valve must meet the requirements of AWWA C512 and be installed in accordance with the Standard Details Section of these Standards.

C. Installation

Valves shall be properly located, operable and at the correct elevation. All valves and reducers shall be rodded to a nearby tee or cross if possible. As shown in the Standard Details Section of these Standards. If reducers cannot be rodded, concrete blocking or other restraining methods will be required. The valve box shall be centered over the wrench nut and seated on compacted backfill without touching the valve assembly. The maximum depth of the valve nut shall be 5 feet, unless approved by the Executive Director of Utilities & Infrastructure Services. When valve extension kits are used, they must be manufactured by the same company which manufactured the valve.

All valve boxes in roadways shall be encased in a trowel-finished 30” diameter circle by 12” thick circular pad of 3000 psi concrete beneath the asphalt course with the cover flush with the top of the pavement.

Valve boxes outside roadways shall be flush with finished grade with a 2’x2’x6” concrete encasement or precast concrete donut.

Precast concrete valve box encasements may be used for valve box encasement outside of paved areas only.

6.04 WATER SERVICE TAPS

A. Materials

Corporation Stops shall be brass, complete with a flared or compression coupling and AWWA Standard threads as per AWWA C800. Taps shall be located at 10 or 2 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.

The maximum size of direct taps without a fitting, tapping sleeve or saddle for ductile iron water mains shall be as follows:

4" main - ¾" tap
6" main - 1" tap
8" main - 1¼" tap
10" main - 1½" tap
12" main - 2" tap

No burned taps will be allowed and each corporation stop will be wrapped with Teflon tape for ductile iron pipe water mains.

Service Saddles shall be bronze body (85-5-5 waterworks brass) and double strap for taps with silicon bronze nuts conforming to ASTM A98 and factory-installed grade 60 rubber gaskets.

Copper Service Tubing shall be type K soft copper tubing per ASTM B88. The longest available length of service line should be used with no unions. As an example, for a ¾-inch service connection, no union shall be used in the installation of 100 feet or less. Unions shall be made with flare type couplings.

Meter Boxes for ¾-inch Services shall be 18 inch depth cast iron MBX-1 and a complete unit (less meter) for setting a 5/8 by 3/4-inch water meter. Meter box grade adjuster rings are not acceptable.

Meter Boxes for 1-inch Services shall be 18 inch depth cast iron box and cover with a meter yoke and/or copper resetter. Meter box grade adjuster rings are not acceptable.

Meter Boxes for 1½ and 2-inch Services shall be lightweight polymer concrete as indicated in the Standard Details Section of these Standards. Piping for 1½ and 2-inch water meters shall be constructed from brass and copper tubing and shall be equipped with angled check valve outlets and by-pass flanged valve or by-pass flanged ball valve inlets. Meter boxes shall not be allowed in travel lanes or traffic areas. Meter box grade adjuster rings are not acceptable.

Meters for ¾" services shall meet the requirements of AWWA C700 and be supplied by the Town of Holly Springs. Coordinate installation with the Town.

Meters for services 1 inch and greater shall meet the requirements of AWWA C700 and be paid for by the Developer. Coordinate installation with the Town. .
Meters 2 inches and greater shall require a 2 inch bypass and shall require a meter test port. A strainer shall be provided upstream of the meter.

Meter Boxes shall not be located in sidewalk or travel lanes, except as noted below.

Meter Vaults within paved areas shall meet HS-20 loading requirements and shall be located outside travel areas. The access door 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. Positive drainage shall be provided for all meter vaults. Positive drainage shall be construed to mean a "daylight" drain not less than 4" schedule 40 PVC pipe with flap valve on the end. Vault dimensions must be sized to ensure pipe work will fit within the vault. When installing pipe work, ensure it is spaced evenly within the vault.

All vaults over 2" in size shall be in below ground vault unless in riser room.

B. Individual Water Services

Individual water services shall be provided from the main to each water meter for single family residences in accordance with the Standard Details section of these Standards. Multi-family units may be in accordance with the Standard Detail for multi-family units in the Standard Details section of these Standards. All connections shall be made by wet taps.

Service connections shall be made perpendicular from the main line and shall run straight horizontally toward the meter and then vertically to the meter which shall be located at the edge of the right of way or easement of the served property. Refer to the standard detail on water service installations for more information. No water meter box or vault shall be located in streets, sidewalks, or parking areas in residential areas. For non-residential development, individual services are required for each business space. In non-residential areas, meter locations shall be approved on a case-by-case basis. Provisions for backflow prevention shall be as specified in Section 6.06 of these Standards.

All water service connections to existing and new water manis shall be made by a licensed Contractor in the State of North Carolina and in accordance with these Standards.

Water meters shall be sized based on water demand. Water meter size shall be determined from the following table; or as otherwise specified by the Executive Director of Utilities and Infrastructure Services. All non-residential projects shall submit sealed calculations prepared in conformance with the AWWA Manual of Practice for approval of type of meter and meter size by the Town.

WATER METER SIZING

		Load Range (number of fixture units)	
Meter Size (inches)	Flow Range (GPM)	Supply Systems Predominately for Flush Tanks	Supply Systems Predominately for Flush Valves
5/8" PD	0 - 20	1 – 22	1 - 8
1" PD	20 - 50	22 – 140	9 - 50
1½" PD	50 - 100	140 – 450	50 - 275
2" C	100 - 200	450 – 1000	275 - 1000
3" C	200 - 400	1000 – 2500	1000 - 2500
4" C	400 - 600	2500 – 5000	2500 - 5000

PD = Positive Displacement
T = Turbine (may be required on a case-by-case basis)
C = Compound (must be sized on a case-by-case basis)

6.05 CLEARANCE BETWEEN WATER MAINS, AND NON-POTABLE WATER LINES

Water mains shall be laid at least 10 feet laterally (measured edge to edge) from existing or proposed sanitary sewer unless local conditions or barriers prevent a 10-foot lateral separation--in which case:

(1) The water main is laid in a separate trench, with the elevation of the bottom of the water main at least 18 inches above the top of the sewer; or
(2) The water main is laid in the same trench as the sewer with the water main located at one side on a bench of undisturbed earth, and with the elevation of the bottom of the water main at least 18 inches above the top of the sewer.

Water mains shall be laid at least 10 feet laterally (measured edge to edge) or 18-icnhes above existing or proposed reclaimed water distribution lines, in accordance with the most recent revision to 15A NCAC 18C .0906 (e).

A water main that crosses a sewer/reclaimed line shall be laid a minimum vertical distance of 18 inches from the outside of the water main and the outside of the sewer/reclaimed, either above or below the sewer/reclaimed, with preference to the water main located above the sewer/reclaimed. One full length of water pipe shall be located so that both joints will be as far from the sewer/reclaimed as possible.

When water mains must cross sewer mains, the water mains shall cross at an approximate 90° angle unless adequate vertical separation is provided.

Where it is infeasible to maintain the required 18 inches of vertical separation between a water main and a sanitary sewer main, a Professional Engineer licensed in the state of North Carolina can submit justification of the deviation according to special conditions lister under the most recent revision of 15A NCAC .0906 (c) and .0906 (f).

To allow for construction and repair, a minimum distance of 12 inches shall be maintained between the outside of the water main and the outside of all other utilities. Where it is infeasible to maintain the required 12 inches of vertical separation between a water main and other utilities, a Professional Engineer licensed in the state of North Carolina must seek to defend a special consideration per 15A NCAC .0904(c).

Water lines that cross and run beneath storm drainage pipes that are greater than or equal to 42" diameter (single pipe) or 36" diameter (multiple pipes) and/or streams or creeks shall be installed as restrained joint pipe and enclosed in casing pipe. A minimum cover of 5 feet shall be provided over the pipe for underwater stream crossings, in accordance with the Recommended Standards for Water Works (Ten State Standards) and the Rules Governing Public Water Systems. Installation may be by bore and jack or excavation at discretion of Executive Director of Utilities and Infrastructure Services.

For required separation and clearance from water main to reclaimed water reference Section 11.00.

6.06 BACKFLOW PREVENTION AND CROSS CONNECTION

A. General

Cross-Connection shall mean any unprotected actual or potential connection or structural arrangement between a public or a consumer's water system and any other source or system through which it is possible to introduce any contamination or pollution, other than the intended potable water with which the system is supplied. All construction shall be required to comply with the Town of Holly Springs Ordinance for the Control of Backflow and Cross-Connection No. 03-09 in its entirety, in addition to the following:

All residential water services for domestic purposes shall be provided with a dual check backflow prevention device on the meter setter within the meter box. Dual check valves must comply with AWWA Standard C-510.

All irrigation services and non-residential services shall be provided with reduced pressure principle backflow prevention installed in accordance with the State of North Carolina and the Foundation for Cross Connection Control and Hydraulic Research at the University of South Carolina (USC) and AWWA Standard C-511.

This includes all service connections to fire sprinkler systems. Reduced pressure zone (RPZ) backflow preventers shall be installed aboveground immediately behind the meter (on the private side). Alternate installations shall comply with Town Ordinance 03-09 as noted above, and require approval of the Executive Director of Utilities and Infrastructure Services. Above-ground installations that service any use other than single family residential users will require an insulated box mounted on a 4" concrete slab, wired for a heater and provided with a heater. A 4" concrete slab shall be provided for underground RPZ's and for insulated boxes.

6.07 AUTOMATIC FIRE SPRINKLER SYSTEMS

A. General

Working drawings and calculations for all fire sprinkler systems and standpipe systems, prepared by a Professional Engineer registered in North Carolina, shall be submitted to the Town of Holly Springs Inspection Department for approval before installation begins.

B. Design

Approved working plans shall be in complete compliance with NFPA No. 13, 13D, 13R, 14, 231, 231C, 231F and Town specifications. A NFPA above ground material and test certificate, and a NFPA underground material and test certificate are required after completion of designated and approved work. Design shall include backflow prevention measures, details on any proposed fire pumps and/or tanks, calculations to ensure that the allowable pressures in the Town system are maintained. Flow data for system design shall be field-verified by the designer. The Town will provide assistance with opening valves and hydrants for the collection of data. Fire lanes are required in front of all FDC, Riser Rooms, Fire Hydrants, PIV, and other entrances and exits as determined by the Town or Office of the Fire Marshal.

C. Post Indicator Valve (PIV)

A post indicator valve (PIV) shall be provided on the Town's side at the right of way or edge of easement. The valve shall be locked in open position monitored by an electronic tamper switch. When backflow prevention devices are contained within a building, an outside access (above the finish floor elevation) shall be provided. The top of the post indicator valve shall be installed at 30-42 inches from the finished grade, minimum of 5' of unobstructed access perimeter shall be maintained around the PIV and must be protected from vehicular obstruction. The Town shall maintain up to, but not including, the post indicator valve. The post indicator valve shall be painted red and must be protected from vehicular obstruction with means of steel bollards when not located behind curb. In urban settings, a wall mounted indicator valve may be used where there is no suitable

location for a post mounted indicator valve. Wall mounted indicator valves shall be centered 30-42 inches above the finished grade. It shall be greater than 10 feet from any door, window or protected opening along the wall.

Post indicator valve is to be located as close as possible to the tap of the water main.

D. Backflow Prevention

When a fire protection system is proposed an RPZ type backflow prevention device as approved by USC (with make and model specified) shall be required. RPZ's shall be located inside a riser room in a location shown on the construction plans. Existing structures shall be exempt from this section until such time any structure is sold, remodeled or improvements to the property exceeding the sum of $2,500.00 are made, or a new occupancy permit is otherwise required for the property.

E. Fire Department Connection (FDC)

Where automatic fire sprinkler systems or standpipe systems are used, a Fire Department Connection (FDC) with check valve [reference detail section 6, HS625] shall be red in color, provided on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access or as otherwise approved by the Office of the Fire Marshal. The Fire Department Connection shall be located 36 inches above proposed grade and within 100 feet of a fire hydrant and at fall zone line or as specified by the Office of the Fire Marshall, and shall be located so that nothing obstructs direct access. A 5 foot clearance shall be provided around the FDC connection and labeled with 6 inch contrasting colored letters. When a sprinkler system serves only part of a large structure, the fire department connection shall be labeled as to which section of the structure that sprinkler riser serves. This labeling shall be a minimum of 2 inch lettering on a permanent sign. FDC shall have a 5" Storz connection with chained cap. FDC's can be mounted on single story buildings only.

F. Dedicated Riser Room

A dedicated sprinkler riser room providing an entry door to the room from the exterior of the building in accordance with NC Building Code shall be provided. 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. The exterior riser room door plus all other required or Town designated fire exits shall have a protected clearance of 5 feet from any obstruction by vehicular movement by means of curbing, bollards, or concrete bumpers.

G. Access

Any building, other than a residential building with less than four units, shall have installed a "Knox Box", a key box entry system per North Carolina Fire Code, to be used by the local fire department in case of emergency. The key box shall contain master keys necessary for access to all portions of the premises. The Office of the Fire Marshal may specify such supplemental information as floor plans, lists of chemicals and hazardous materials located within the building to be required within the Knox Box.

This Knox Box shall be mounted on the exterior entrance to the dedicated riser room or at the normal fire department entrance when 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 normal fire department entrance door. This Knox Box shall be ordered online at www.knoxbox.com and shall be in place before a Certificate of Occupancy is issued. Keys to access the facility shall be provided to the Town Fire Department by the owner/manager.

Existing structures shall be exempt from this section until such time as any such structure is sold, remodeled or improvements to the property, exceeding the sum of $2,500.00, are made, or a new occupancy permit is otherwise required for the property.

H. Identification

The exterior door leading to the dedicated sprinkler riser room shall be labeled with minimum 4 inch lettering designating "SPRINKLER RISER ROOM" in a contrasting color. Durable vinyl lettering is suggested.

I. Installation

All gas or electrical panels must be protected with steel bollards from vehicular traffic.

J. 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 mounted framed zone map, removable from the wall. Nomenclature shall correspond with the zone map.

When there is no sprinkler system in building, the fire alarm control panel or remote annunciator shall be located at the normal fire department entrance.

6.08 FIRE DEPARTMENT ACCESS

A. Fire Access and Fire Lanes

Fire Access
The following guidelines represent the Town's efforts to maintain consistency concerning Fire Department emergency access. It is the Town's responsibility to ensure adequate access for the Fire Department and other responding agencies. The Town therefore reserves the right to require modifications to established requirements if, in the Town's opinion, the access cannot be provided or may be compromised.

All access roadways shall be built to street standards as described in the Town's Engineering Design and Construction Standards. The roadway design shall be prepared and certified by a Design Professional. All required access roadways shall be properly maintained and kept clear for emergency use at all times. Any alternatives to these specifications shall be reviewed and approved by the Office of the Fire Marshal prior to construction.

FIRE APPARATUS ACCESS ROAD – A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, Public Street, Private Street, parking lot lane, alley ways and access roadway.

FIRE LANE – A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus.

Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of the NC Fire Code and Town Standards and shall extend to within 150 feet of all portions of the facility or all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building or facility. The fire official is authorized to increase the 150 feet where:
The building is equipped throughout with an approved automatic sprinkler system installed in accordance with the NC Fire Code and applicable NFPA standards.
Fire apparatus access roads cannot be installed due to location on property, topography, waterways, non-negotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.
There are not more than two Group R-3 or Group U occupancies.

Fire department apparatus access to buildings used for high-piled combustible storage shall comply with the applicable provisions of the NC Fire Code.

Fire apparatus access roads shall have an unobstructed width of not less than 20 feet and an unobstructed vertical clearance of not less than 13 feet 6 inches.
The Office of the Fire Marshal shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations.
Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.
Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) in length shall be provided with an approved area for turning around fire apparatus. Proposed turn around area shall not be located within proposed residential lots. See TOHS Detail HS367
Grass pavers are also an acceptable alternative to concrete, asphalt or gravel for the 120' Hammerhead or the acceptable alternative to the 120' Hammerhead. Specification and data sheets on the proposed pavers will need to be submitted to the Fire Department for approval
Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO Standard Specification for Highway Bridges. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges when required by the code official. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, approved barriers, approved signs or both shall be installed and maintained when required by the code official.
The grade of the fire apparatus access road shall be within the limits established by the Office of the Fire Marshal based on the fire department's apparatus.

B. Gates

Gates securing the fire apparatus access roads shall comply with all of the following criteria:
The minimum unobstructed gate width shall be 20 feet.
The gate shall have a Knox Box mounted to it, with keys or access cards to open the gate in the event of an emergency.
Gates shall be of the swinging or sliding type, unless approved by the Office of the Fire Marshal.
Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.
Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be approved by Office of the Fire Marshal.
Manual opening gates shall not be locked with a padlock or chain and padlock unless they are capable of being opened by means of forcible entry tools; locking device specifications shall be submitted for approval by the Office of The Fire Marshal.

The Office of the Fire Marshal is authorized to require the installation and maintenance of gates or other approved barricades across fire apparatus access roads, trails or other access ways, not including public streets, alleys or highways. When required, gates and barricades shall be secured in an approved manner. Roads, trails and other access ways that have been closed or obstructed shall not be trespassed on or used unless authorized by the owner and the Office of the Fire Marshal.

The installation of security gates across a fire apparatus access road shall be approved by the Office of the Fire Marshal. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times. Electric gate operators, where provided, shall be listed in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

C. Two Points of Access

The Office of the Fire Marshal may require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

When two points of access are required, they shall be placed a distance apart of at least one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses. The Town shall not allow the second access point to be limited to use by emergency responders only. The second access shall always be available for public use in case the other access is blocked.

Buildings or facilities located in Commercial and Industrial Developments and exceeding 30 feet or 3 stories in height shall have at least 2 means of fire apparatus access. Buildings or facilities having a gross building area of more than 62,000 square feet shall have at least 2 means of fire apparatus access. If the buildings or facilities are provided with an approved automatic fire sprinkler system, the gross building area can be increased to 124,000 square feet with one access road.

Fire apparatus access roadways shall have a minimum unobstructed width of 26 feet in the immediate vicinity of any building of portion of building more than 30 feet in height. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet and a maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building.

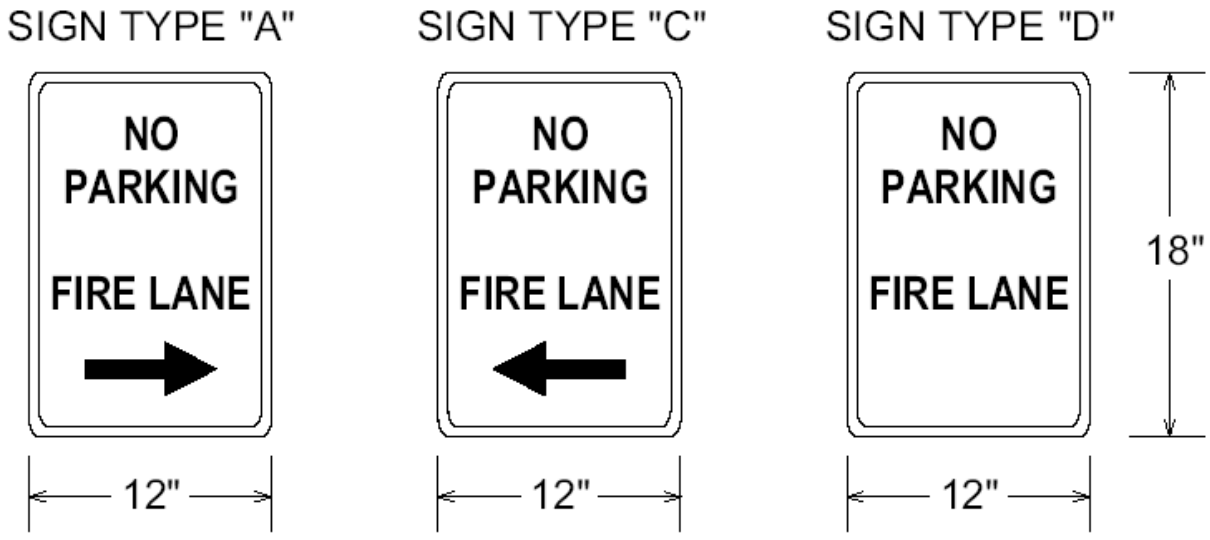
Maintenance of the required access shall be considered during the planning stages and installation of Fire Department access roadways, fire hydrants, or connections. This includes the potential growth of trees and/or other vegetation over the years.

D. Fire Lanes

A plan shall be submitted for approval to the Office of the Fire Marshal which indicates all fire lanes and proposed fire lane sign placements for the project site.

The general requirement designates that any building located more than 150 feet from a public road, or which exceeds 30 feet in height and is set back more than 50 feet from a public road, shall have a fire lane.
Fire lanes shall be a minimum width of 20 feet and shall be properly marked and signed to designate the access as a “fire lane” as specified by the Office of the Fire Marshal. For specifications of the fire lane cross section, refer to Section 3 of these standards.
All fire lanes shall be marked in accordance with one of the following requirements:
Continuously painted yellow striping along the fire lane with “No Parking - Fire Lane” printed with minimum 8-inch high letters at 40-foot intervals or as directed by the Office of the Fire Marshal;
Continuously painted yellow curb along the fire lane with “No Parking - Fire Lane” printed with minimum 8-inch high letters at 40-foot intervals or as directed by the Office of the Fire Marshal;
The installation of the MUTCD standard sign showing “No Parking - Fire Lane” placed at each end of the fire lane and at 50-foot intervals with arrows on the signs or a continuously painted yellow strip along both sides of the fire lane (or an additional sign beneath the fire lane sign lettered as “both sides”). Signs shall be a type R8-31 or equivalent reflective sign no less than 12 inches x 18 inches in size, white background, with the wording “No Parking - Fire Lane” in red letters.

Signs shall be posted at the following minimum height:
60 inches to the top of the sign when pedestrians do not pass by or under the sign. This application includes signs mounted on the building face, a column, or other fixed mounting surface;
84 inches to the top of the sign when the pedestrian path does pass by or beneath the sign. This application includes signs mounted on a fixed metal post located in a sidewalk and/or traffic island.



The above fire lane requirements shall also apply to all fire hydrant islands located along the face and sides of a hydrant.
Fire Lanes shall be installed and inspected in accordance with these Standard Specifications as well as the NC Fire Code. The Office of the Fire Marshal shall have the authority to designate fire lanes as deemed necessary for Fire Department access.
Roadways, driveways, and access ways shall not be marked as fire lanes without first obtaining approval from the Office of the Fire Marshal.

E. Fire Safety During Construction

There shall be no open burning within the Town's jurisdiction, unless approved by the Office of the Fire Marshal.

Fire Safety during construction, alteration, or demolition shall be maintained according to the NC Fire Code and other applicable provisions of NFPA 241.

Fire safety during construction and demolition is essential to maintain a safe and efficient project. The use of temporary heating equipment, flammable and combustible liquids storage, use and dispensing, explosives storage, handling and use, and all other general fire safety requirements shall be adhered to according to the NC Fire Code.

Vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided within 100 feet of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions.

The fire protection water supply system, including fire hydrants, shall be installed and be in at least the 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.

Any existing fire hydrant removed from service due to construction/demolition activities shall be placed back into service by the Owner/Developer within 14 calendar days from the date it was taken out of service or a timeframe approved by the Office of the Fire Marshal.

The Fire Department shall be notified at least 24 hours before fire hydrant(s) or water line impairment.

6.09 TESTING AND INSPECTION

Under no circumstance shall any waterline system valve be operated without prior approval by the Development Inspector. Damage to Town infrastructure resulting from illegal operation of valves shall be the responsibility of the Contractor. In addition, the Contractor shall be subject to a fine for operating a valve without prior approval.

All materials shall be inspected by the Development Inspector before they shall be allowed to be installed. Materials rejected by the Development Inspector shall be immediately removed from the job site.

The Contractor shall furnish all materials, labor, equipment, and shall pay for the water used to perform all testing and inspections to the satisfaction of the Development Inspector. The Contractor shall obtain a Water Blowoff Permit from the Town Engineering Department for use when blowing off water mains.

Water service taps shall not be made until after all water main testing is completed, and bacteriological testing is satisfactory.

A. Hydrostatic Testing

Hydrostatic testing shall be done in accordance with AWWA C600. No valve in the existing Town of Holly Springs water system shall be operated without authorization from the Construction Inspector via a Water Blowoff Permit. Each section of line which is to be hydrostatically tested shall be slowly filled with water at a rate which will allow complete evacuation of air from the line. Once the line is full, it shall be blown off at a minimum of 2.5 FPS to flush and remove any debris. The line must be pretested at 200 psi provided that 200 psi is no less than 1.25 times the stated working pressure of the pipeline measured at the highest elevation along the test section and no less than 1.5 times the stated working pressure of the pipeline measured at the lowest elevation along the test section for 2 hours prior to contacting inspector for testing. Hand pumps shall not be used for the pressure testing of water mains. Taps used for testing purposes shall be removed after testing in accordance with Section 6.11 of these Standards.

Each water line shall be tested to a pressure of 200 psi as measured at the lowest elevation of the line, provided that 200 psi is no less than 1.25 times the stated working pressure of the pipeline measured at the highest elevation along the test section and no less than 1.5 times the stated working pressure of the pipeline measured at the lowest elevation along the test section for a duration of 2 hours. The test pressure shall not exceed the thrust restraint design pressures or 1.5 times the pressure rating of the pipe or joint, whichever is less (as specified by the manufacturer). The pressure gauge used in the hydrostatic test shall be calibrated in increments of 10 psi or less. At the end of the test period, the leakage shall be measured with an accurate water meter. Note that all visible leaks are to be repaired regardless of the amount of leakage. The Development Inspector may require pressure tests to be performed in smaller segments to determine if there is a problem

with a particular section of waterline. No chlorine dosage will be allowed in line during testing.

Fire line need to be tested all the way up to the slab through the riser room by the Development Inspector.

ALLOWABLE LEAKAGE	
Pipe Size (inches)	Amount of Allowable Leakage (gallons per 1000 feet of pipe)
4	0.85
6	1.28
8	1.70
12	2.56
16	3.40
20	4.24
24	5.10

B. Chlorination

All additions or replacements to the water system shall be chlorinated before being placed in service. Such chlorination must take place under the supervision of the Construction Inspector.

Chlorination of a completed line shall be carried out in the following manner:

1) The specific procedure and order of testing shall follow ANSI/AWWA C651 and be approved by the Construction Inspector before beginning the chlorination process.

2) Taps shall be made at the control valve at the upstream end of the line and at all extremities of the line including valves.

3) Before the main is chlorinated, it shall be filled with potable water to eliminate air pockets and flushed to remove particulates. Flushing velocity in the main shall no be less than 3 feet per second.

3) Drinking water treatment chemicals and drinking water system components shall be ANSI/NSF Standard 60 and 61 compliant. In accordance with ANSI/AWWA C651 4.1.3., a solution of water containing calcium hypochlorite (HTH, 65% available chlorine by weight) shall be introduced into the line by regulated pumping at the control-valve tap. Using ANSI/AWWA C651 4.4

Continuous Feed Method of Chlorination, the solution shall be of such a concentration that the line shall have a uniform concentration of 50 ppm total chlorine immediately after chlorination.

4) 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 in order that a uniform concentration will be produced in mains. *Note that for projects that are surrounded by populated development areas, the Construction Inspector can require that the circulation of HTH solution be accompanied with mechanical pumping.*

5) HTH solution shall remain in lines for no less than 24 hours or as directed by the Executive Director of Utilities and Infrastructure Services.

6) Extreme care shall be exercised at all times to prevent the HTH solution from entering existing mains.

C. <u>Bacteriological Sampling</u>

All new water systems shall be valved off from the existing water system until a satisfactory bacteriological sample is obtained and the Construction Inspector has authorized the use of the new water system.

1. Free residual chlorine after 24 hours shall be at least 10 ppm or the Construction Inspector shall require that the lines be rechlorinated.

2. Flushing of lines may proceed after 24 hours, provided the free residual chlorine analysis is satisfactory. Flushing shall be continued until a chlorine test kit shows that the lines contain only the normal chlorine residual.

3. Samples for bacteriological analysis shall be collected by the Construction Inspector a minimum of 16 hours after flushing is completed. The Contractor shall furnish such help as may be required to secure the required samples. Samples shall be collected and delivered to the Utley Creek Water Reclamation Facility Laboratory or other state-approved, certified laboratory by the Construction Inspector.

4. If bacteriological test results are unsatisfactory, the Contractor shall immediately obtain another Water Blowoff Permit, rechlorinate and retest the lines, proceeding with such measures as are necessary to secure properly disinfected lines.

6.10 FIRE PROTECTION DURING CONSTRUCTION

The fire protection water supply system, including fire hydrants, shall be installed and tested prior to placing combustible materials on the project site.

6.11 IRRIGATION SYSTEMS

No mainlines or valves shall be allowed within the utility strip (between the sidewalk and curb). Lateral will be allowed and shall be placed within 1 ft of sidewalk. Pipe material for all lines within the public right of way shall be a minimum of 2 feet deep and Schedule 40 PVC or greater for all lateral irrigation lines.

Irrigation systems shall have a backflow preventer installed in accordance with Section 6.06 of these Standards. All irrigation systems are required to secure a plumbing permit from the Code Enforcement Department prior to installation and shall be inspected after installation. A separate meter is required for irrigation systems.

All irrigation line street crossings shall be contained within a ductile iron or steel encasement pipe. The Town may, in some instances, permit irrigation systems installed in the medians of Town-maintained roadways. These systems must also have french drains installed behind the curb and gutter and piped to a storm drainage collection system. These systems shall be allowed only when some permanent mechanism is established for the private perpetual maintenance of the system(s).

Wells may be kept maintained for irrigation purposes after public utility connection, if they are on the opposite side of the single-family dwelling where the public water and/or sewer service is located.

6.12 REPAIR AND ABANDONMENT

Joint Leaks of cast iron pipe, ductile iron pipe, and PVC pipe shall use a bell joint leak repair clamp as manufactured by Rockwell, or other approved equal.

Line Breaks or Punctures shall be repaired by a full circle repair clamp as manufactured by Rockwell, Mueller, or other approved equal.

Line Splits or Blow Outs shall be repaired by replacing the damaged section with ductile iron pipe with a cast iron coupling at each end. The following cast pipe couplings shall be used for each pipe material indicated:

A.C. Pipe - Rockwell 441 cast coupling or other approved equal
Ductile Iron Pipe - Rockwell 431 cast coupling or other approved equal
PVC Pipe - Rockwell 411 cast coupling or other approved equal

For A.C. Pipe to PVC or Ductile Iron Pipe connections, use a cast pipe coupling with different end diameters sized specifically for the pipe materials, and pipe outside diameter at each end.

A. 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 brass 3-piece flare unions.

b. A corporation stop pulled out of a PVC pipe water main shall have a new service saddle and a new corporation stop installed on the water main.

c. A corporation stop pulled out of a ductile iron pipe water main shall have a full circle repair clamp placed over the old tap hole. A new tap shall be made and a new corporation stop installed on the water main.

B. 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. With prior approval from the Executive Director of Utilities & Infrastructure, grout filling and abandoning in place, in accordance with minimum NCDOT standards, may be allowed.

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 specified compressive strength 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. This shall be in accordance with minimum NCDOT standards.

C. Abandonment of Existing Water Services

a. 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.

D. Fire Hydrant Assembly Abandonment

a. 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 Town 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.

E. Blowoff Assembly Abandonment

a. 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.

F. Combination Air Valve Abandonment

a. 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.

b. 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.

END OF SECTION 6.00

SECTION 7.00
SANITARY SEWER

SUB-INDEX

SECTION 7.00
SANITARY SEWER

7.01 GRAVITY SEWER MAINS

A. General

Gravity sewer extensions shall meet all requirements of these standards. In addition, the *Minimum Design Criteria for the Permitting of Gravity Sewers* and *Alternative Design Criteria for Minimum Separation for Sewer Systems to Wetlands*, prepared by the Division of Water Resources of NC DEQ, and the *North Carolina Administrative Code Title 15A Chapter 02 Subchapter T Waste Not Discharged to Surface Waters* (15A NCAC 02T) are hereby incorporated into the Town's standards for gravity sewer design. This specification section identifies minimum equipment and construction requirements for gravity sewer extensions that are to be owned and operated by the Town of Holly Springs. This section does not address every aspect of gravity sewer extensions; it is the design engineer's (Designer's) responsibility to supplement these requirements as necessary to produce a complete set of plans and specifications.

All utility extension permits must be obtained prior to construction. Refer to the Town Code of Ordinances Section 16 for further requirements.

B. Design

Location

1. All public sanitary sewer mains shall be installed in dedicated street right of way or in dedicated utility easements. Sanitary sewer mains installed in Town of Holly Springs maintained streets shall be located in the center of travel lanes. Mains located within N.C. Department of Transportation right of way shall be placed outside of pavement limits, in accordance with NCDOT standards. See Section 2.10 for landscape plantings within Utility easements.

2. Minimum widths of public sanitary sewer easements shall be:

Pipe Size (inches)	Pipe Depth (feet)	Easement Width (feet)
< 12	< 20	20
< 12	> 20	30
12 - 24	< 20	30
12 - 24	> 20	40

> 24	All depths	Executive Director of Utilities and Infrastructure Services Specified

a) Additional width of easement will be required when easement contains multiple utilities.

b) Additional temporary construction easement may be required for any sewer not constructed at the time the easement is recorded.

c) Sewer mains shall be centered within their easements.

d) All sewer mains that extend as an outfall between residential lots shall have a minimum 30ft easement.

3. Outfalls shall require accessibility with a maximum cross slope of 6:1.

4. Proposed sanitary sewers paralleling a creek shall be designed to a proper depth to allow lateral connections such that all creek crossings will be below stream bed elevation unless otherwise approved by the Executive Director of Utilities and Infrastructure Services. The top of the sewer main shall have a minimum of one foot of cover between steel encasement pipe and the stream bed. In addition, the following is required:

a) Sewer lines crossing stream beds will be required to be installed with restrained joint pipe inside a steel encasement pipe in accordance with the Standard Details section of these standards (Reference TOHS HS607).

b) Sewer lines crossing under storm drainage pipe containing a single pipe greater than 42 inches or multiple pipes greater than 36-inches will be required to be installed with restrained joint pipe inside a steel casing pipe. Installation may be by bore and jack or excavation which will be at the discretion of the Executive Director of Utilities and Infrastructure Services. All encasements to be extended a minimum of 10 feet beyond the stream bank and/or storm drainage pipe.

5. Sanitary sewer mains shall not be installed under any portion of water impoundments unless approved by the Executive Director of Utilities and Infrastructure Services.

6. The following minimum separations must be maintained:

a) Any private or public water supply source, including WS-1 waters or Class I or Class II impounded reservoirs used as a source of drinking water – 100 feet;

b) Any waters classified WS-II, WS-III, B, SA, ORW, HQW or SB (from normal high water [or tide elevation] – 50 feet);

c) Any other stream, lake, or impoundment – 25 feet or as required by State law.

Where the required minimum separations cannot be maintained, ferrous sanitary sewer pipe with joints equivalent to water main standards shall be used. However, in no instance may sanitary sewer lines be installed less than 25 feet from a private well or less than 100 feet from a public water supply source (or as required by State law).

7. Sanitary sewer lines shall be extended to adjacent upstream property lines, in order to serve all upstream properties. These lines shall be sized to serve all upstream tributary areas in accordance with the Master Land Use Plan or approved developments (whichever results in the larger flow).

8. All non-residential swimming pools shall be discharged into the storm sewer system after dechlorination.

Size

1. The minimum size of public gravity sanitary sewer mains shall be 8 inches.

2. Major interceptors shall be sized in accordance with the "Master Wastewater Plan of the Town of Holly Springs." In areas not included in the master plan, new sewer interceptors shall be designed based on the proposed land use (in accordance with the Town's Master Land Use Plan) of the contributory area. The following flow factors shall be used:

Residential, (Single-Family) 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), or use the Town's approved flow reduction of 255 gpd/unit, whichever is less.

Residential (Multi-Family) and 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).

3. For existing sewer systems, an additional allowance shall be made to the above flow factors where the existing flow exceeds these values and immediate remedial measures are not proposed.

4. The ratio of peak to average daily flow shall be 2.5.

5. Sanitary sewers shall be designed to carry the projected peak flow at no more than ½ full. The recommended minimum velocity for sanitary sewer lines is 2 fps. The minimum slope for the uppermost reach of a sanitary sewer line shall be 1.00%.

The minimum grades for public sanitary sewers shall be as follows:

Main Size (inches)	Minimum Slope (feet/100 feet)
8	0.40
12	0.22
16	0.14
18	0.12
21	0.10
24	0.08
30	0.06

6. The maximum grade for sanitary sewers is 10%. The maximum velocity in sanitary sewers is 15 feet per second. These limits may be exceeded with the approval of the Executive Director of Utilities and Infrastructure Services and with the incorporation of the following provisions:

   a) All sewers of greater than 10% slope shall be ductile iron pipe;

   b) High velocity manholes, in accordance with the Standard Details Section of these Standards shall be used on all sewers with a slope greater than 10%;

   c) Concrete anchors shall be installed on all sewers of greater than 10% slope at the following spacings:

      i) Not over 36 feet center to center on grades from 10% to 25%;
      ii) Not over 24 feet center to center on grades from 25% to 40%;
      iii) Not over 16 feet center to center on grades exceeding 40%.

7. Sewer extensions should be designed for projected flows even when the diameter of the receiving sewer is less than the diameter of the proposed extension.

8. Pipe diameter changes shall occur in a manhole with the invert of the larger pipe lowered sufficiently to maintain the same energy gradient. An approximate method of securing these results is to place the 0.8 depth point of both sewers at the same elevation.

9. All residential subdivision lots shall be served by public gravity sanitary sewer unless otherwise approved by the Executive Director of Utilities and Infrastructure Services. If a pump is approved, it shall be privately maintained, must pump into a gravity service connection placed on the lot, and must have a note on the construction plans and recorded plat indicating a private pump may be required to serve the lot with sanitary sewer service. In instances where private pump stations are approved, the gravity service

that received the force main shall be required to extend into private property so that the required private force main vent is located a minimum of 20 feet from public right of way.

10. Downstream receiving sewer infrastructure shall be evaluated to confirm adequate capacity by the design engineer for each project. In addition, a sewer study may be required to accompany plans submitted to the Town for consideration of impacts to downstream sewer infrastructure. Developer shall be required to upgrade insufficient infrastructure.

Installation

1. Sanitary sewer mains shall be deep enough to serve adjoining and upstream properties and allow for sufficient slope in lateral lines. All sanitary sewer mains shall have the following minimum of 4.5 feet of cover and be measured as follows:

   a) 4.5 feet from the top of pipe to finished subgrade when under a roadway;

   b) 4.5 feet from top of pipe to existing edge of pavement elevation when adjacent to a roadway which may be widened in the future;

   c) 4.5 feet from top of pipe to finished grade in all other areas.

   The above requirements may be waived at the direction of the Executive Director of Utilities and Infrastructure Services, in which case ductile iron pipe shall be installed.

2. The construction of all sanitary sewer lines which will be maintained by the Town must be performed by a contractor licensed in North Carolina.

3. Sewer mains from 14 to 20 feet deep shall require special bedding in accordance with the Standard Details Section of these Standards.

4. Sewers over 20 feet deep shall require ductile iron for the entire run between manholes and shall be 401 protectant lined.
5. Pipe trench excavation and backfilling shall be performed in accordance with Section 5.00 of these Standards.

6. Transitions of pipe material shall occur only at manholes.

7. Sewer mains shall be laid at least 10 feet laterally measured edge to edge from existing or proposed water mains unless it is determined that local conditions or barriers prevent a 10-foot lateral separation in which case:

a) The water main is laid in a separate trench, with the elevation of the bottom of the water main at least 18 inches above the top of the sewer;

b) The water main is laid in the same trench as the sewer with the water main located at one side on a bench of undisturbed earth, and with the elevation of the bottom of the water main at least 18 inches above the top of the sewer.

8. Where sanitary sewers cross NCDOT roadways or major Town roads, as determined by the engineer, pipe encasement shall be required.

9. Where sanitary sewers cross beneath water mains with a vertical separation of 18 inches or less or where water mains cross under sewer mains, the entire leg of sewer line shall be ductile iron pipe. The water line pipe shall be centered at the point of crossing and shall cross sanitary sewer lines at an approximate 90º angle.

10. Where sanitary and storm sewers cross with a vertical separation of less than 24 inches the entire leg of sanitary sewer shall be of ductile iron pipe. There shall be a minimum 5-foot horizontal separation between sanitary sewer and storm sewer.

11. For sanitary sewer and reclaimed separation, see Section 11.01.

12. There shall be a minimum 5-foot horizontal separation between parallel gravity and/or force mains.

13. Sewer line easements shall be completely cleared of all vegetation, graded smooth with minimum cross slope of 6:1, free from rocks, boulders, roots, stumps, and other debris, free from ponded water, and seeded and mulched upon the completion of construction.

14. The first new downstream manhole(s) of any sanitary sewer line extension under construction shall be plugged on the outlet side with a masonry wall or a wing nut plug (to be determined and inspected by the Development Inspector); secured with a stainless steel cable with identification plate of contractor's name; and secured with stainless steel cable to prevent the passage of groundwater, runoff and sediment into the existing sanitary sewer system. All water upstream of the plug shall be pumped out of the sanitary sewer line and all sediment and solids shall be removed and properly disposed of by the Contractor prior to removal. The plug shall not be removed until the line has been inspected by the Development Inspector to ensure that all possible points of inflow or infiltration have been secured. Failure to meet this requirement will result in a $1,000 per day fine. If the plug blows out and causes equipment or material damage or spills downstream, the Contractor shall be responsible for resulting fines and costs

of repairs. Authorization to remove the plug shall be required by Development Inspector. If the Contractor fails to obtain necessary approvals and removes the plug before the system is activated, the Contractor shall be responsible for resulting State and Town fines and damages resulting.

15. **Construction Involving Existing Sewer Mains**:

a) 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.

b) A proposed construction sequence plan, service re-connection plan, and bypass pumping plan must be submitted to the Town for any demolition of any portion of existing sewer main. The plan must be reviewed and approved by the Executive Director of Utilities & Infrastructure.

Manholes

1. All manhole cone sections shall be the eccentric type.

2. Manholes shall be spaced at a maximum distance of 425 feet apart regardless of size unless documentation is provided showing capability to perform routine maintenance on sewer at distances greater than 425' apart.

3. Manholes for sewers under 21 inches in diameter shall be a minimum of 4 feet in diameter. Manholes for sewers 21 inches in diameter or greater shall be 5 feet in diameter. Manholes requiring inside drops shall be a minimum of 5 feet in diameter. When 2 or more inside drops occur at one manhole, a minimum 6-foot diameter manhole shall be used.

4. All manholes that are over 20 feet deep shall be 5 feet in diameter.

5. Manholes shall be installed at each deflection of line and/or grade. The flow channel through manholes should be smooth and shall conform to the shape of the entering/exiting sewer line. A standard 0.20-foot drop shall be provided at each manhole. Inverts “in” and “out” shall be as designated on the approved plans. Sewers shall be designed to minimize free drops in manholes.

   Either precast or brick and mortar inverts may be used conforming to these Standards. The invert shall be smooth and uniform in shape along the entire length.

6. Inside drops shall be used when free drops exceed 12 inches. For inside drop manholes, the entire upstream leg of sewer must be ductile iron. For

inside drop manholes, see the Standard Details Section of these Standards. Outside drops shall not be permitted except when necessary to connect to existing manholes.

7. Manholes not located in roadways shall have a top elevation a minimum of 12 inches above finished grade. Manholes located along outfalls shall have a top elevation a minimum of 24 inches above finished grade or 100 year flood plain, or 12 inches above 500 year flood plain, whichever is higher. Alternatively, specify watertight covers and vents that extend at least 24 inches above the 100-year flood elevation, if approved by the Executive Director of Utilities & Infrastructure

8. Watertight manhole rings and covers shall only be allowed upon approval by the Executive Director of Utilities and Infrastructure Services. Manholes with watertight tops shall be vented in accordance with the Standard Details Section of these Standards.

9. Manholes located within flood plain areas, on outfalls, and within any areas of high groundwater shall be waterproofed by wrapping all joints with a minimum 8-inch width band of butyl joint wrap. Waterproofing shall be installed by mopping asphalt over the joint area, then wrapping butyl joint wrap around the joints, and finally mopping the wrap with another coat of asphalt. The total asphalt coat thickness shall be a minimum of 20 mils.

10. Manholes for sewers 12 inches and above shall be coated with an epoxy coating system such as Cor-Cote SC as manufactured by Sherwin-Williams, Raven 405 as manufactured by Raven Lining Systems, Sewer Kote Duramer 1030 or an approved equivalent.

11. Manholes with an exterior height of four feet or greater from finished grade shall have exterior steps.

12. Manholes on outfalls shall have frames and rotating covers as detailed in HS722 with vent holes.

13. All sanitary sewer manholes in areas of special concern shall be required to be vacuum tested in accordance with ASTMC-1244.

14. Where manholes are located in streets inside the Triassic Basin (HS356) it will be required to have suitable off-site structural material or stone to backfill around excavation of manholes up to subgrade. Also see Section 3.02J of these standards.

C. Materials

The Executive Director of Utilities and Infrastructure Services will maintain a list of approved manufacturers for all sanitary sewer collection system products. New manufacturers must submit requests for approval to the Executive Director of Utilities and Infrastructure Services. Additional information such as catalogs, lists of installations in the area or material samples may be required. A written response will be mailed to the applicant accepting or rejecting the product within 90 days of the receipt of all necessary information.

Each length of sanitary sewer pipe installed shall have plainly and permanently marked thereon the following information:

1. Pipe class or strength designation;

2. Manufacturer's name or trademark;

3. Nominal pipe size.

A.B.S. Composite (Truss) Pipe

A.B.S. composite pipe shall meet the requirements of ASTM D 2680. Pipe joints shall be chemically welded or gasket joints in accordance with ASTM D 3212. See Section 7.01-C for additional installation requirements. See the Standard Drawing Details Section of these Standards for bedding requirements.

Ductile Iron Pipe

Ductile iron pipe for gravity sewer use shall be designed and manufactured in accordance with AWWA C150 and C151 for a laying condition Type 2 and a working pressure as follows:

3 – 12 inches	350 psi
14 – 20 inches	250 psi
24 inches	200 psi
30 – 54 inches	150 psi

Pipe joints shall be of the push-on type as per AWWA C1211. Pipe lining shall be cement lined. All ductile sewer lines 12" and above shall be 401 protectant lined

Polyvinyl Chloride (PVC) Pipe

PVC pipe shall be made of PVC plastic having a cell classification of 12454-B, 12454-C or 13364-B (with minimum tensile modulus of 500,000 psi) as defined in Specification D1784. PVC pipe shall have integral wall bell and spigot joints for the conveyance of domestic sewage. Fittings shall be made of PVC plastic having a cell classification of 12454-B, 12454-C or 13343-C as defined in Specification D1784. Fittings must be manufactured by pipe supplier or approved equal, and

have bell and/or spigot configurations compatible with that of the pipe. Compounds with superior properties are also acceptable.

All pipe less than 18 inches in diameter shall have a maximum Standard Dimension Ratio (SDR) of 35. Where laying conditions so warrant, and in accordance with manufacturer's recommendations, lower SDR values (stronger pipe) may be required.

PVC pipe 18 inches in diameter and larger must be SDR-35 as defined in ASTM 679. Pipe strength shall be equal to or exceed that required for pipe less than 18" in size. Pipe shall have special bedding as per Detail HS 703.

Installation shall consist of Class I bedding material (as defined in Section 7.01 C) placed 4 inches below the pipe barrel and continuing to 4 inches above the pipe barrel, as per ASTM D2321. In addition, the installation of PVC pipe shall satisfy the requirements of Section 7.01-C below. See the Standard Details Section of these Standards for bidding requirements.

PVC Composite (Truss) Pipe

PVC thermoplastic material shall be a rigid PVC plastic conforming to ASTM D-1784 for a minimum cell class of 12454-B. The Portland Cement Perlite concrete or other inert filler material shall be as described in Section 6.3 of ASTM D-2680.

Joints shall be chemical welded or gasketed in accordance with ASTM D3212. Solvent cement for joining PVC to PVC shall comply with ASTM D-2564. Pipe test specimens shall meet all the manufacturing requirements established in ASTM D-2680.

All recommendations of the manufacturer shall be followed in shipping, handling, laying, joining and backfilling of the pipe, and the pipe shall be installed in full and complete compliance with Recommended Practice D2321. In addition, the installation of PVC composite pipe shall satisfy the requirements of Section 7.01-C below. See the Standard Details Section of these Standards for bedding requirements.

Steel Encasement for water/sewer pipes are required for the following Street Classifications to avoid traffic disruption in the future:

- Controlled Access Highway

For carrier pipes that employ cathodic protection anticorrosion systems, the carrier and casing pipes shall be effectively insulated from one another. Carrier and casing shall be cathodically protected as a unit.
See Section 5.03 Boring and Jacking for more casing pipe size requirements.

D. Additional Requirements for Flexible and Semi-Rigid Sanitary Sewer Pipe

Installation of flexible and semi-rigid sanitary sewer pipe shall satisfy the requirements of the manufacturer and/or the following, whichever is more stringent:

1. Installation shall follow the recommendations of ASTM D-2321 "Underground Installation of Flexible Thermoplastic Sewer Pipe." For flexible and semi-rigid pipes, bedding and embedment material shall be Class I. 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. Refer to the Standard Details Section of these Standards for embedment requirements.

2. The manufacturer's specifications or otherwise approved method shall be used in determining the stiffness class of the pipe to be installed so as to attain the required deflection control. The class of the pipe must be approved by the Executive Director of Utilities and Infrastructure Services prior to installation.

3. The maximum allowable deflection after installation shall be less than 5% for flexible pipe and 3% for semi-rigid pipe. The mandrel (go/no-go) deflection test must be performed on each line prior to acceptance, and no less than 30 days after installation. The Contractor shall supply the mandrel used for this performance test. The mandrel device shall be cylindrical in shape having 9 possible contact points with the pipe. The mandrel's length and diameter (ID of proving ring) shall equal the dimensions in the following table, and shall be subject to the Construction Inspector's approval. A mandrel test on truss pipe shall only be required if the Construction Inspector finds a problem during the visual inspection.

For polyethylene pipe, the following shall apply:

Nominal Diameter (inches)	Mandrel Length (inches)	Mandrel Diameter (inches)
18	12 (minimum)	16.53
21	″	19.30
24	″	22.08
27	″	24.84
30	″	27.62
33	″	30.38
36	″	33.15
42	″	38.68
48	″	44.21
54	″	49.74
60	″	55.27

For other flexible pipes the following shall apply:

Nominal Diameter (inches)	Mandrel Length (inches)	Mandrel Diameter (inches)
6	6	5.65
8	8	7.40
10	10	9.31
12	10	11.22
15	12	14.09

For semi-rigid (truss) pipes the following shall apply:

Nominal Diameter (inches)	Mandrel Length (inches)	Mandrel Diameter (inches)
8	8	7.52
10	10	9.46
12	10	11.40
15	12	14.31

4. For PVC and Polyethylene pipe, the pipe shall be produced with bell and spigot end construction. Joining will be accomplished by rubber gasket in accordance with manufacturer's recommendation, unless otherwise directed or approved by the Executive Director of Utilities and Infrastructure Services. Flexible watertight elastomeric seals in accordance with ASTM D3212-81, may also be used. Each pipe length shall be clearly marked with information including pipe size, profile number, and class number.

5. Minimum trench width shall be one pipe diameter plus 9 inches on each side of the pipe.

6. Special Bedding (6-inch minimum) and embedment materials shall be per ASTM D2321. Embedment materials shall be installed from trench wall to trench wall and from 6" below the invert to a minimum of 6 inches above the crown of the pipe, for all pipe 14-20 feet deep.

7. The bedding and embedment material shall be compacted to a minimum of 90% Standard Proctor density for Class I materials.

8. If hydraulic jack shoring is utilized for trench walls where shoring is used, it shall be kept to the area just above the top of the pipe. This will ensure the embedment materials and pipe will not be disturbed when removal is made.

9. Bedding and embedment material classifications shall be defined as follows:

   Class I - Angular, (¼ to 1½ 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.

   Class II - Coarse sands and gravels with maximum particle size of 1½ 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.

   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.

   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 are not recommended for embedment.

7.02 MOVED to NEW Section 13

7.03 MANHOLES

A. Materials

Manholes shall be precast concrete. No hoop steel base or riser sections are allowed. All manholes shall have eccentric cone sections.

Precast concrete manholes shall meet ASTM C478 as to design and manufacturer. 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. For precast concrete manholes, see the Standard Details Section of these Standards.

Manhole frames and covers (including rotating covers) shall be cast in ductile iron, conforming to ASTM A-48 Class 30, with "Sanitary Sewer" stamped on the cover and two 1-inch perforated holes in roadways and four 1-inch perforated holes in outfalls unless covers required to be watertight. Castings shall be machined to give even and continuous bearing on the full length of the frame. Castings shall be Grey Iron ASTM 48, CL 35B made in the U.S.A. Manhole frames shall be bolted to the manhole as per the Standard Details Section of these Standards. All manhole rings in roadways shall be encased in a concrete collar, 18 inches by 12 inches, of 3,000 psi concrete beneath the asphalt, with the cover flush with the top of pavement and rated for an AASHTO loading Class HS-20, as shown in the Standard Details Section of these Standards.

Watertight manhole frames and covers shall have neoprene gasket, machine bearing surfaces. Bolts shall be standard hexagonal-head, countersunk such that when fully tightened bolt head is flush with the top of the cover. Castings shall be Gray Iron ASTM 48, CL 35B, made in the U.S.A., free of porosity and blow holes. Watertight manhole frames and covers shall only be permitted in lieu of elevating the manhole tops above the 100 and/or 500-year flood plain with specific approval by the Executive Director of Utilities and Infrastructure Services. Watertight manholes shall require venting per the Standard Details section of these standards.

Manhole steps shall be furnished with the precast sections. Steps shall be of polypropylene material reinforced with a half-inch diameter grade 60 reinforcing steel rod. Manhole steps shall be designed for a vertical load of 400 pounds and a horizontal pull out load of 1,000 pounds. Steps shall be set 16" on center. Holes for the installation of manhole steps shall not project through the manhole wall. There shall be a minimum of 1-inch wall thickness from the deepest penetration of the step installation hole and the outside wall. Steps shall be at least 10" clear width

and shall project at least 4" from the wall into which it is embedded. Steps shall not be located over the influent or effluent pipes and shall be installed along a vertical manhole wall from the shelf to the top of cone.

All manholes shall have 6-inch, 3,000 psi concrete bottoms resting on a minimum of 6 inches of #57 stone. Sewer mains shall enter and exit radially through the manhole. Inverts shall be constructed with a width and height equal to half that of the effluent pipe and shall be so brushed and troweled that a minimum energy loss occurs in the manhole.

At each inlet and outlet of line 8 inches or greater, wastewater lines are to be connected to the manholes by means of compression connectors (flexible sleeves) cast into the manhole section. Flexible connectors are to be manufactured of high-quality rubber or synthetic rubber and all strap clamps or draw bolts are to be manufactured from stainless steel.

7.04 SERVICE CONNECTIONS

A. Materials

Cast iron soil pipe shall be service weight hub and spigot meeting Federal Specifications WW-401. The joints shall be rubber type elastomeric as per ASTM C425.

PVC pipe shall be schedule 40 or greater supplied in 18 foot lengths. The pipe may be joined by elastomeric gaskets.

Ductile iron pipe shall be used for sanitary sewer services with less than 3 feet of cover or in excess of 20 feet of cover.

Services for new lines shall use in-line wyes of like material unless otherwise approved by the Executive Director of Utilities and Infrastructure Services.

Service saddles for existing PVC or ABS lines shall be of the same material as the main, solvent welded and fastened with double stainless steel bands as shown on the Standard Details Section of these Standards.

Service saddles for existing cast iron soil pipe services may be "ROMAC C" sewer saddles consisting of a virgin SBR 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 SBR gasket.

B. Installation

Individually owned structures shall require individual sewer taps to public sewer. All service connections to existing or new sanitary sewer mains shall be made by a licensed Contractor in the State of North Carolina, and in accordance with these Standards.

Service taps into mains shall be made on the top quarter of the main with the wye angled with the direction of flow in the main. All services installed on new lines shall be inline wyes unless otherwise approved by the Executive Director of Utilities and Infrastructure Services.

All service lines shall require Class I bedding from 6 inches below service line to 6 inches above the service line. All service lines shall have a minimum of 8 inches separation from other utilities. Service lines greater than 20 feet or less than 3 feet in depth must be ductile iron.

Service connections to the main lines shall be perpendicular to the main line to the edge of the right of way or easement line. Services shall have a minimum slope of 1.0 feet per 100 feet. Cleanouts shall be required on all sewer services at a maximum spacing of 75 feet on 4-inch services and 100 feet on 6-inch services. A cleanout shall be placed on all service lines at the right of way line or at the edge of the easement. All cleanouts shall extend a minimum of 6 inches above finished grade or meet the optional installation requirements in accordance with the Standard Details Section of these Standards. Sewer cleanouts located in paved areas must have traffic load bearing mini-manhole.

All 6-inch service lines shall tie directly into a manhole.

All service lines which are connected into manholes shall be installed less than 2½ feet above the invert or shall be installed with a standard drop as shown on the Standard Details Section of these Standards. Service lines shall not be installed through manhole cone sections or manhole joints. The use of service saddles will only be permitted for connection to existing sewer lines.

Service connections made using a “ROMAC C” sewer saddle shall be made only when the service line is cast iron soil pipe and only when the sewer main is 8, 10, or 12-inch diameter concrete, ductile iron, or PVC sewer pipe. This service connection shall not be used when the sewer main material is truss sewer pipe.

The opening in the sewer main for the “ROMAC C” sewer saddle shall be cut with a hydraulically driven or a pneumatically driven circular tapping saw of the same nominal diameter as the sewer service line.

C. **Grease Interceptor**

All grease traps/interceptors shall be designed according to minimum standards of the North Carolina Plumbing Code and any requests of the Town. The Town prohibits joint use of a tap or interceptor between establishments. All cooking establishments shall have grease interceptors installed and maintained at the User's expense. Non-cooking establishments or other commercial, institutional and/or industrial establishments may also be required to install a grease-handling device(s) when deemed necessary by the Town.

The discharge from the following fixtures shall be connected to the grease interceptor: all sinks, dishwashers, floor drains in food preparation and storage areas, and any other fixtures through which grease may be discharged. See Detail HS725.

7.05 TESTING AND INSPECTION

All materials used must be inspected by the Construction Inspector before they shall be allowed to be installed. Materials rejected by the Construction Inspector shall be immediately removed from the job site.

The Contractor shall furnish all materials, labor, and equipment, and shall pay for the water used to perform all testing and inspection to the satisfaction of the Construction Inspector. The Contractor shall obtain a meter from the Town of Holly Springs for use.

Sanitary sewer lines shall be free and clean from obstructions and shall be visually inspected from every manhole to ensure all lines exhibit a fully circular pattern. Lines which do not exhibit a true line and grade or have structural defects shall be corrected. Sanitary sewer service connections shall be visually inspected prior to backfilling.

Prior to the placement of any roadway structure, the Contractor shall clean and CCTV all newly installed sewer mains. A 3rd Party CCTV contractor shall televise the sewer main and all lateral connections installed from the upstream to the downstream manhole with no reverse setups or cutaways. This shall be done at the Developers expense. The contractor shall clean the sewer mains ahead of the video inspection with a high velocity water jet. The video inspection shall take place within two hours of the cleaning operation as witnessed by a Town of Holly Springs Development Inspector. All construction debris shall be collected in the down stream 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 the video inspection. The contractor may not perform CCTV inspections on any utilities that they have installed. The contractor shall provide a DVD or Flash Drive, submitted to the inspector for review.

See Section 7.01 C for additional testing requirements for flexible and semi-rigid pipe.

Low-pressure air testing shall be performed after all laterals or stubs are installed on the line and after the main has been backfilled to finished grade. Plugs shall be installed at each manhole to seal off the section of line to be tested. The line will be pressurized with a single hose and monitored by a separate hose connection from the plug. Air shall be slowly introduced into the sealed line until the internal air pressure reaches 4.0 psig. The air pressure shall then be allowed to stabilize for a minimum of 2 minutes to no less than 3.5 psig (plus groundwater pressure, if any). When the pressure reaches 3.5 psig, the time required for the pressure to drop 1.0 psi shall be observed and recorded. The line shall be termed "acceptable" if the pressure does not drop more than 1.0 psi in the time prescribed for the test in the following table:

STANDARD AIR TEST TABLE

Specification time (min:sec) required for pressure drop from 3½ to 2½ psig when testing one pipe diameter only

Length of Pipe (feet)	Pipe Diameter (inches)								
	4	6	8	10	12	15	18	21	24
25	0:04	0:10	0:18	0:28	0:40	1:02	1:29	2:01	2:38
50	0:09	0:20	0:35	0:55	1:19	2:04	2:58	4:03	5:17
75	0:13	0:30	0:53	1:23	1:59	3:06	4:27	6:04	7:55
100	0:18	0:40	1:10	1:50	2:38	4:08	5:56	8:05	10:34
125	0:22	0:50	1:28	2:18	3:18	5:09	7:26	9:55	11:20
150	0:26	0:59	1:46	2:45	3:58	6:11	8:30		
175	0:31	1:09	2:03	3:13	4:37	7:05			
200	0:35	1:19	2:21	3:40	5:17				12:06
225	0:40	1:29	2:38	4:08	5:40			10:25	13:36
250	0:44	1:39	2:56	4:35			8:31	11:35	15:07
275	0:48	1:49	3:14	4:43			9:21	12:44	16:38
300	0:53	1:59	3:31				10:12	13:53	18:09
350	1:02	2:19	3:47			8:16	11:54	16:12	21:10
400	1:10	2:38			6:03	9:27	13:36	18:31	24:12
450	1:19	2:50			6:48	10:38	15:19	20:50	27:13
500	1:28			5:14	7:34	11:49	17:01	23:09	30:14

If the section of line tested fails to meet these requirements, the source of leakage shall be determined and repaired. The section of line shall then be retested.

The Construction Inspector may require that an infiltration test be performed. Infiltration shall not exceed 100 GPD per inch per mile.

At the discretion of the Executive Director of Utilities and Infrastructure Services, sanitary sewer manholes in areas of special concern may be required to be vacuum tested in accordance with ASTMC-1244 as shown.

C 1244 – 05a [e1]

Table 1 Minimum Test Times for Various Manhole Diameters (30-120 in.) in Seconds										Table 1 Minimum Test Times for Various Manhole Diameters (30-120 in.) in Seconds (continued)								
Diameter, in.										Diameter, in.								
Depth (ft)										Depth (ft)								
	30	33	36	42	48	54	60	66	72		78	84	90	96	102	108	114	120
Time, in seconds										Time, in seconds								
<4	6	33	7	9	10	12	13	15	16	<4	18	19	21	23	24	25	27	29
6	9	10	11	13	15	18	20	22	25	6	26	29	31	34	36	38	41	43
8	11	12	14	17	20	23	26	29	33	8	35	38	41	45	48	51	54	57
10	14	15	18	21	25	29	33	36	41	10	44	48	52	56	60	63	67	71
12	17	18	21	25	30	35	39	43	49	12	53	57	62	67	71	76	81	85
14	20	21	25	30	35	41	46	51	57	14	62	67	72	78	83	89	94	100
16	22	24	29	34	40	46	52	58	67	16	70	76	83	89	95	101	108	114
18	25	27	32	38	45	52	59	65	73	18	79	86	93	100	107	114	121	128
20	28	30	35	42	50	53	65	72	81	20	88	95	103	111	119	126	135	142
22	31	33	39	46	55	64	72	79	89	22	97	105	114	122	131	139	148	156
24	33	36	42	51	59	64	78	87	97	24	106	114	124	133	143	152	161	170
26	36	39	46	55	64	75	85	94	105	26	114	124	134	144	155	164	175	185
28	39	42	49	59	69	81	91	101	113	28	123	133	145	155	167	177	188	199
30	42	45	53	63	74	87	98	108	121	30	132	143	155	166	178	189	202	213

7.06 REPAIRS, MODIFICATIONS, AND ABANDONMENT

A. Sewer Main Repair

The repair of damaged sanitary sewer lines shall be as follows:

1. PVC Pipe - Replace damaged section with PVC pipe. Install PVC couplings or ductile sleeves and mechanical bolt at each end (encased in concrete).

2. ABS/PVC Truss Pipe - Replace damaged section with D.I.P. Install PVC couplings or ductile sleeves and mechanical bolt at each end (encased in concrete).

B. Installation

1. All repairs to damaged sanitary sewer lines shall be backfilled with ABC stone (crusher run) to a density of 95% 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. Abandonment of Existing Sewer Mains

1. A detailed pumping and emergency plan shall be required for any sewer line draining event.
2. All sanitary sewer mains and sewer force mains, active, inactive, or abandoned shall begin to be drained. All effluent shall be pumped to a downstream manhole (when available) or other containment tank utilizing continuous piping.
3. Existing sewer mains and casings located outside of road sections shall be removed, unless otherwise directed by the Executive Director of Utilities and Infrastructure. All materials and labor shall be provided by the contractor.
4. Existing sewer mains and casings located within a road section shall be grout filled and abandoned in place.
5. In other locations, grout filling and abandonment in place may be allowed with prior approval from the Executive Director of Utilities and Infrastructure.
6. 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.

7.07 MOVED to NEW Section 13

END OF SECTION 7.00

SECTION 13.00
WASTEWATER PUMP SYSTEMS AND FORCE MAINS

SUB-INDEX

13.06 FORCE MAINS INSPECTIONS AND TESTING

A. Inspections
B. Testing

13.01 PUMP STATION GENERAL

A. GENERAL

1. All aspects of pump station design shall, at a minimum, meet the requirements of the latest version of the:

    a) North Carolina Department of Environmental Quality (NCDEQ) Minimum Design Criteria for the (Fast-Track) Permitting of Pump Stations and Force Mains (Minimum Design Criteria),

    b) Alternative Design Criteria for Minimum Separation for Sewer Systems to Wetlands,

    c) North Carolina Administrative Code Title 15A Chapter 02 Subchapter T Waste Not Discharged to Surface Waters (15A NCAC 02T),

    d) North Carolina (NC) Building Code,

    e) Occupational Safety and Health Administration (OSHA) regulations, and

    f) Town of Holly Springs (Town) Engineering Design & Construction Standards (Standards).

Town Standards identify minimum equipment and construction requirements for a wastewater pump station to be owned and operated by the Town. This section does not address every aspect of pump station design; it is the North Carolina Professional Engineer's (NCPE's) responsibility to supplement these requirements as necessary to produce a complete set of plans and specifications. Requirements in the Town Standards that are more restrictive or exceed the requirements of the Minimum Design Criteria are required by the Town.

2. Gravity sewer should always be preferred over pump station and force main construction. A request for a pump station in lieu of gravity sewer service requires approval from the Executive Director of Utilities & Infrastructure (Director).

3. The Town reserves the right to disallow pump stations that are not in alignment with the Town's Comprehensive Plan, other adopted long-range plans, or other instances where it is not efficient or desirable to have a pump station.

4. If a pump station is allowed, the following criteria must be met:

    a) The design and construction of the station will be compliant with all applicable federal, state, and local regulations.

b) The design and construction will ensure reliable, continuous, and consistent operation, during all operating conditions, such as flooding or loss of utility system power.

c) The station's design will allow for easy operation and maintenance (O&M) of the installed equipment.

d) The station will provide pumping capacity and configuration to pump all wastewater flows tributary to the station and readily accommodate future expansion, where required.

e) The station will avoid septic conditions and excessive release of odors in the pump station and collection system.

f) The station will minimize impacts on the environment and Town.

5. New development may be required to take upstream/downstream pump stations offline or upgrade pump stations per the Town's Comprehensive Plan, other adopted long-range plans, or as determined by the Director.

6. Pump Stations will not be allowed to discharge to another pump station unless the receiving pump station is identified as a regional pump station in the Town's Comprehensive Plan or other adopted long-range plans, or exception granted by the Director.

7. Private pump stations will require an exception from these Standards. A Basis of Design Report, signed and sealed by a NCPE, should be submitted for review prior to a determination by the Director. Private pump station design is not covered by these Standards, and the applicant should look for guidance from other appropriate agencies, such as NCDEQ, NC Plumbing Code, etc. Documentation of future private pump station maintenance shall be required. Prior to operation, private pump stations shall be equipped with a sign indicating owner, responsible party, and 24-hour on call phone number.

8. All wastewater pump stations shall be connected to the Town's fiber optic network. An extension of the fiber optic network may be necessary complete a connection.

B. PRE-DESIGN

1. Pre-Design Meeting

a) The developer and NCPE shall be required to meet with the Director and/or representative(s) in a "Pre-Design meeting" to discuss the preliminary design report, preliminary site plan, site layout, and other requirements for any proposed pump station, before design begins.

2. Preliminary Design Report

a) A detailed economic analysis consisting of a minimum 20-year present worth evaluation shall be submitted by the NCPE, comparing the extension of gravity sewer with construction of a pump station and force main alternative. The analysis shall include related improvements to the existing gravity collection system required to receive the station's discharge. The Town will consider economic evaluations, service area configuration, O&M costs, the Comprehensive Plan, other adopted long-range plans, and external factors before accepting pump station plan submittals in lieu of gravity sewer extensions.

b) A preliminary design report (PDR), signed and sealed by the NCPE, is required prior to, or with, the submittal of plans and specifications for pump stations. The PDR shall contain, at a minimum, the following criteria:

1) *Total dynamic head (TDH) calculations* for all pumping situations.

2) *Pump selection calculations,* based on survey information and force main diameter and length. System head curves shall be developed for Hazen-Williams "C" factors of 100 and 140, combined with pump curves for the selected pump. Calculations shall indicate flow rates for one and all pump(s) in operation. Pump selection shall be based on a "C" factor of 100, and proposed motor sizing shall be based on power required with a "C" factor of 140 and no utilization of the motor's service factor. Motors shall be non-overloading over the entire range of operation.

3) *Pump station cycle and pump run times* covering high, low, and average flows over the entire expected operating period of the pump station. Calculate minimum cycle time based on inflow rate equal to one-half of the pumping rate.

4) *Emergency Response time* (time between the high water alarm and the first system overflow, at average and peak flow).

5) *Pump station flotation/buoyancy design calculations*. Submerged soil weight on any extended bases should be limited to the soil directly above the extended base.

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) *Preliminary surge/water hammer analysis* with estimates of the maximum and minimum pressures (including negative pressures) that may occur during pump starts and stops. Depending upon the maximum and minimum estimated pressures, design flow, TDH, force main velocities, force main length, and force

main profile, the Town may require a detailed computer surge analysis be performed by the NCPE.

8) *An evaluation of the receiving sewer system*. Evaluate the receiving sewer (at the force main discharge and downstream) to determine the capacity of the collection system to accept the pumped flow. Identify upgrades required in the existing collection system to accommodate the proposed flow.

9) *Odor Control equipment sizing and chemical dosing calculations*.

10) *Grinder flow capacity and head loss calculations*.

11) *Generator calculations*. The generator must be sized adequately to start and operate all connected loads (pumps to be started sequentially and controls specified).

12) *Number of lots/parcels served, off-site drainage area, zoning, average daily flow, and peak daily flow*.

3. Preliminary Site Plan

a) A preliminary site plan shall be submitted, consisting of the following:

1) *Cover Sheet* with index of drawings and vicinity map

2) *Existing Conditions Plan*

3) *Site Plan*, at minimum, with

a). All property lines, fences, gates, generator, etc.

b). Layout of structures

c). Driveway and access dimensions

4) *Turning Template* for a WB-50 service vehicle

5) *Grading Plan* with existing and proposed contours

6) *Utility Plan* with gravity sewer, force main, water, storm drainage piping, and fiber optic connection (show pipe size/material and identify the force main discharge location)

7) *Landscape Plan* with plant lists, planting/staking details, and buffers

b) If design changes between PDR approval and Preliminary Stie Plan submittal, a revised PDR should be submitted to the Town.

C. FINAL DESIGN REQUIREMENTS

1. After preliminary design approval, a Final Design Report, detailing final pump station design and signed and sealed by the NCPE, is required. All aspects of pump station design shall be submitted for review and approval to the Town. Pump station review may be more extensive than the typical development site plan process. Materials necessary for review and requiring approval include, but are not limited to, complete plans, specifications, and Final Design Reports.

2. Wastewater flow rates for the entire natural drainage basin upstream of the anticipated pump station location must be accounted for, based upon the Town's proposed land use plan or approved developments, whichever flow is greater.

3. The Town may consider phased construction, if the peak flow rate tributary to the pump station exceeds 1,000 gallons per minute (GPM). If phased construction is allowed, the NCPE shall examine pump selection with impeller sizes sufficient to meet initial and future conditions or design the pump station to accommodate additional pump(s). As a general statement, the initial electrical service, standby power system, solids grinder, equipment hoisting system, and odor control system must be sized for ultimate station capacity (no phasing of these components allowed).

4. All stations shall be submersible pump stations consisting of wet well and other precast concrete structures, piping and valves, pump control systems, SCADA, solids grinder, odor control, jib crane/hoisting equipment, back-up power source, related appurtenances, and fiber optic connection.

5. All equipment, except for the generator, shall be designed for a sound rating of $\leq$55 decibels A (dBA), 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 <71 dBA (generators <150 kW), < 73 dBA (generators 150 kW- 250 kW), or <75 dBA (generators > 250 kW), 21-feet from the operating equipment. Sound ratings are based on generator operating at 100% load. Warning horns and sirens have no sound restrictions.

   Pump station design shall minimize sound levels leaving the site. Factors to consider include equipment layout, cumulative sound levels, and walls that reflect sound. Equipment submittals that include the sound ratings for all major equipment shall be supplied and approved by the Town, prior to ordering equipment.

   Pump stations shall not be accepted by the Town until sound testing demonstrates that the above requirements are met. All sound testing shall be performed by reputable personnel to assure accuracy. The Director reserves the right to require certified sound

engineers, certified testing equipment, corrections, and/or retesting to demonstrate that the pump station and all components are performing as designed.

6. The Final Design plans shall include, at minimum, the following information:

    a) *Cover Sheet* with index of drawings and vicinity map

    b) *Existing Conditions Plan*

    c) *Site Plan* with all property lines, fences, gates, and locations of driveway and structures

    d) *Grading plan* with existing and proposed contours on 1-foot intervals, storm water measures, and 100-year flood elevations

    e) *Utility Plan and Profile* with gravity sewer, force main, water, and storm drainage piping (show pipe size/material and identify the force main discharge location), valves, chemical feed and fiberoptic.

    f) *Landscaping Plan* with plant lists, planting/staking details, and buffers

    g) *Plan and Section drawings* of all precast concrete structures including influent manhole, grinder manhole, wet well, valve vault, and miscellaneous structures

    h) *Building Plan, Section, and Elevations*; typical wall section(s)

    i) *Mechanical drawings* showing pumps, valves, piping, odor control, ventilation, and heating/air conditioning systems

    j) *Electrical plans,* including electrical site plan, one-line diagram, panel schedules, light fixture schedule, wire and conduit sizing, generator details, SCADA inputs and details, and grounding requirements and locations

    k) *Instrumentation and Control (I&C) Plan*

D. CONSTRUCTION PHASE REQUIREMENTS

1. Equipment Submittals

    a) The NCPE (or representative) shall observe construction to allow for preparation of the Engineer's Certification, as required by the NCDEQ. The NCPE shall also review all equipment and material submittals (shop drawings) to confirm that finished construction will comply with approved plans and specifications. The NCPE shall also be responsible for forwarding submittals, as specified herein, to Town staff for review, comment, and approval, prior to the NCPE returning them to the Contractor. Review and approval by Town staff shall not relieve the NCPE from the responsibility of ensuring that all the project components meet these Standards.

b) At a minimum, Equipment Submittals shall include name of manufacturer; model supplied; fabrication and assembly drawings; detailed specifications; and data covering material, parts, devices, and accessories. Submittals shall also include system hydraulic schematics, electrical wiring diagrams, and control panel schematics. Additional information required for specific equipment is listed in the appropriate equipment section. Submittals for the following equipment shall be forwarded to the Town staff by the NCPE:

Table 1: Submittals

SECTION	SUBMITTAL NAME
13.01.C	Site Plan
13.02.B	Fencing and Gates
	Eye Wash/Shower Wash Station
13.02.C	Precast Concrete Wet Wells, Vaults, and Manholes
	Precast Concrete Building
13.02.D	Check Valves and Plug Valves
	Pressure Gauge
	Air Release Valves
	Magnetic Flow Meter
13.03.A	Pumps and Motors
13.03.B	Pump Control Panel
13.03.C	SCADA System
13.03.D	Grinder and Control Panel
13.03.E	Odor Control System
13.03.F	Jib Crane/Hoisting Equipment
13.03.G	Generator
13.03.H	Automatic Transfer Switch (ATS)

c) The table below identifies equipment manufacturers that are considered most suitable for the anticipated service in wastewater pump stations.

Table 2: Equipment/Manufacturer List

SECTION	EQUIPMENT	MANUFACTURER
13.02.B	Reduced Pressure Zone (RPZ) Backflow Prevention	Watts Hersey Wilkens
13.02.C	Access Hatch	Halliday, Bilco
	Manhole/Wet Well Coatings	Duramer 1030 (SewerCote), Cor-Cote SC (Sherwin-Williams), Raven 405 (Raven Lining Systems)
	Precast Concrete Buildings	Easi Span Building
13.02.D	Magnetic Flow Meter	Badger M-3000
	Valves	American Mueller APCO swing check valve
	Force Main Combination Air Release Valves (ARVs)	Vent-Tech (stainless steel isolation ball valve and handle with flushing hardware, model to be determined at time of review)
13.03.A	Pumps and Pump Motors	ABS USA (Sultzer) Fairbanks Morse (Pentair Water) Flygt USA (Xylem)
13.03.B	Electrical Cabinets and Enclosures	Control Interface (pump manufacturer recommended)
	Float Switches	Roto Float (Anchor Scientific, Inc), compatible (SJE Rhombus, Conery)
13.03.C	VT SCADA	CITI
13.03.D	Grinder	Muffin Monster w/ guide rails (JWC Environmental)
13.03.E	Odor Control System	Evoqua
13.03.F	Jib Crane/Hoisting Equipment	Acco Industries Yale Lift-Tech International
13.03.G	Generator System	Caterpillar, Inc. Cummins Onan Blue Star Power Systems Kohler
13.03.G	Generator Engine	Caterpillar, Inc. Cummins, Onan John Deere
13.06.B	Internal Pipe Lining	Protecto (401)

d) Equipment submittals must receive approval from the Director or representative(s) prior to purchasing equipment. Purchasing equipment in no way obliges the Town to accept equipment that does not meet the Standards.

e) Alternative equipment submittals (for manufacturers not listed in Table 2) shall include the following information, at a minimum:

1) Current catalog data sheets and technical data to support compliance with these Standards.

2) A detailed list stating differences between the named item and proposed alternate and a separate list stating all exceptions to these Standards. If no exceptions are listed, then no exceptions will be allowed.

3) Contact name, address, and phone number for five (5) installations where the proposed equipment has been used in a similar capacity for two (2) or more years. The date for placing equipment in service, at each installation, shall be provided.

f) Equipment that meets the Alternative Equipment submittal requirements, the Standards, technical specification requirements, and all other requirements of the Town, will be approved by the Director.

2. Testing Results Submittals

a) Perform 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.

b) Test results shall be submitted for review prior to continuing progress on any equipment. If shop testing is required, results shall be submitted prior to start-up, testing and final acceptance of the equipment.

c) A final, compiled summary of all equipment testing shall be provided 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.

E. POST CONSTRUCTION PHASE REQUIREMENTS

1. Warranty

a) All components must come with a warranty from the manufacturer that equipment shall be free of defects in workmanship and material, and shall operate as intended under the known conditions, for a minimum of 1-year after acceptance of the

system by the Town. The warranty shall be in printed form and made applicable to the Town (as Warrantee) at the time of acceptance for maintenance.

2. Operation and Maintenance (O&M) Manuals

   a) O&M manuals are required for all equipment and systems. **An electronic copy shall be supplied to the Town prior to startup of the subject equipment or systems.** The O&M manuals shall contain all 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) *Cover Sheet* listing the following: Pump manufacturer, source of repair parts with address and phone number, operating conditions (rated capacity and TDH of each pump), model number, serial number, impeller diameter, data plate information, and data on all other equipment included as components in the pump station

      2) *Pump Performance Design Curve* with operating conditions and manufacturer's Certified Pump Curve

      3) *Detailed dimensional drawings of the pump and pump base elbow*

      4) *Detailed dimensional drawings of the pump and pump motor*

      5) *Wiring diagram and logic diagram for each control panel*

      6) *Pump and Motor Installation and Service Manual*

      7) *Detailed information related to other components of the pump station* including, but not limited to, solids grinder, odor control, generator, ATS, jib crane/hoist, and HVAC systems

      8) *Mylar as-built* drawings showing all changes to approved construction plans made during construction

      9) *Annotated hard copy and downloadable electronic copy of application program for all field programmable equipment* (e.g. PLCs, operator interfaces, etc.)

      10) *P.E. certification*

      11) *Warranty letter*

      12) *Documentation of recorded site plus access easement and/or right-of-way (ROW) dedicated to the Town*

      13) *Copy of vendor reports for the start-up testing of their equipment*

14) *Operating instructions*

15) *Troubleshooting techniques*

16) *Maintenance schedules*

17) *Assembly and disassembly instructions*

18) *Instructions for start-up/shutdown*, *calibration, and adjustment*

b) A final, compiled O&M manual covering all equipment and systems supplied, shall be provided to the Town upon completion of the project, prior to project closeout and final acceptance. This final, compiled summary shall consist of **three printed copies and an electronic copy (Flash Drive) of the subject equipment or systems.**

c) Any spare parts listed in the O&M manuals and/or recommended by the manufacturer shall be provided to the Town. At minimum, Contractor shall furnish one (1) set of spare parts as follows:

1) One (1) spare pump with guide rail bracket attached to pump discharge flange

2) One (1) lower seal assembly

3) One (1) upper seal assembly

4) One (1) set of bearings

5) One (1) set of wear rings (unless an adjustable wear plate is provided)

6) One (1) complete set of O-rings

7) One (1) float switch with 50-feet of cable

8) One (1) chain grip device with each pump (that can be lowered to the bottom of the pump lifting chain, engage a chain link, and hoist the pump out of the wet well without re-positioning the hoist hook)

9) One (1) stainless steel chain with each pump (to guide and engage the chain grip device, provided by the pump supplier and rated for the weight of the pump/motor/manufacturer's standard safety factor)

3. Inspections

   a) All equipment must be verified for compliance with the Standards by Town staff prior to installation. Non-conforming materials or equipment shall be immediately removed from the job site.

   b) Compliance with plans, Standards, and specifications shall be verified on a regular basis throughout the duration of construction by a representative from the Town.

13.02 PUMP STATION SITE AND STRUCTURES

A. GENERAL

1. Pump station sites shall be conveyed to the Town via deed and/or recordation for Town ownership and operation. A preliminary site plan for all pump stations shall be discussed in the Pre-Design meeting.

2. The site shall be directly connected to a dedicated public ROW or have a dedicated access easement to a public ROW.

3. The Town requires solids 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 three (3) pumps of equal capacity; two (2) operational and one (1) uninstalled spare. Duplex pump stations shall be capable of handling flows exceeding the expected peak flow. The design peak flow shall be a minimum of 2.5 times the average daily flow. If the pump exceeds 1,000 GPM, or motor size exceeds 100 Horsepower (hp), the NCPE shall investigate duplex and triplex pump station requirements. Where three pumps are required, two pumps should have capacity to pump the peak sewage flows. Stations that require more than three pumps shall utilize dual wet wells, with the ability to isolate each for maintenance. Pumps and force mains shall be sized to provide a minimum force main velocity of 2.5 feet per second (ft/s) with one pump operating and a maximum velocity of 8 ft/s at firm capacity. The Town reserves the right to require a larger force main, at no cost to the Town, based upon operating (power) costs.

B. SITE WORK

1. The site shall be graded to drain away from the pump station, and to remove stormwater runoff in a non-erosive manner. Drainage swales shall be incorporated, if necessary.

2. The site shall be stabilized and consist of compacted subgrade, low maintenance vegetative ground cover, or other suitable materials in accordance with Town Standards and Details. Visual screening and landscaping shall be provided.

3. Access

   a) The site shall feature adequate turnaround for a WB-50 service vehicle. If chemical feed systems are included, additional turning radii may be required.

   b) Access shall be a minimum 16-foot wide all-weather road, on a minimum 25-foot wide easement (or ROW) with grades ≤10%. Shoulders and side ditches should be included.

   c) Access shall be standard concrete curb tie and apron through the ROW and transition to an asphalt-concrete section, with an 8-inch stone base and 3-inch surface course, in accordance with Section 3 of the Town Standards and Details.

   d) Alternatively, after 40-feet of asphalt section, the access may transition to 12-inch of crushed stone over minimum 98% compacted subgrade.

4. Fencing, Gates, and Landscaping

   a) Fencing shall be provided around the entire perimeter. The site shall be secured by an 8-foot high black UV resistant vinyl coated chain link fence with 3-wire vinyl coated barb arms, set at an outward facing 45-degree angle and located at the top of each post (the 8-foot height does not include the barb arms). Each wire is to be 3 strand barb wire Class III galvanized or aluminized. The outer barbed wire shall hold a load of 250-pounds (lbs.). All fence posts shall be black vinyl coated over the galvanized steel. The pump station address must be labeled in 6-inch lettering and clearly posted on the fence.

   b) Manual swing gates for pump stations shall permit 180-degree opening and be minimum 16-feet wide (minimum two 8-foot-wide swing gates). All gate posts and corner posts shall be minimum 4-inch diameter. Fence gates shall be black vinyl coated with privacy slats rated for a minimum life span of 12-years.

   c) Fence shall be screened with an opaque buffer, in accordance with the Town's Unified Development Ordinance (UDO). If site conditions do not allow an opaque buffer, privacy slats across the entire surface area of the fence, including gates, may be allowed, at the discretion of the Director.

   d) Buffers shall be provided along both sides of the access road and surrounding the gravel vehicular area. Buffers shall extend 50-feet from the gravel vehicular area, 25-feet along the sides of the access easement. Opaque buffers shall be planted as defined in Town's UDO.

   e) The Town shall reserve the right to establish other appearance requirements.

   f) Developer shall maintain the buffers for 2-years from the date of final (end of year) acceptance of the pump station.

5. The site shall feature locks and security features, as dictated by the Town, along with all necessary OSHA signage. Additionally, signage shall be provided on the gate which provides the name of the station, address, and emergency number of 919-557-9111 (blue lettering on a utility sign).

6. An LED light equivalent to a high-pressure sodium vapor light with a minimum 600-watt capacity is required. The light shall be mounted on a utility pole that retracts or pivots for bulb maintenance from the ground level. The light shall be at a height of 30-feet and controlled by means of a photocell and a Hand-Off/Reset-Auto (HOA) switch located on the light pole (with the photocell wired through the Auto position of the switch). 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.

7. A minimum 2-inch public water service shall be provided [minimum 50 GPM with a residual pressure of 30 pounds per square inch (psi)]. A Town water meter and an above-ground Reduced Pressure Backflow Preventer (RPZ) in a heated hot box shall be required. Any, and all, water connections shall be made downstream of the RPZ. A freeze proof yard hydrant ($\geq$50 GPM) shall be provided to allow the wet well and grinder manhole to be washed down periodically. A freeze proof eyewash and shower wash station with tepid water system (including water heater) shall be provided adjacent to the chemical storage facility.

8. A grounding electrode system shall be provided for all 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 of, at minimum, 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) Wastewater pump stations, all related structures, and controls shall be protected from physical damage by the 100-year and 500-year local and FEMA flood plains and shall be elevated to 2-feet above the most restrictive elevation. Flood elevations shall be supported by a flood study on the tributary basin based on future land uses in accordance with the Town's Comprehensive Plan. Pump stations shall remain fully functional, operational, accessible, and free from physical damage during a 100-year flood. All structures not meeting the elevation requirement shall be sealed watertight with a vent elevated a minimum of 2-feet above the 100-year flood elevation.

c) 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.

d) Access covers for wet well and vaults shall be square lockable hatch, aluminum diamond pattern plate with stainless steel hinges and hardware capable of withstanding 300 pounds per square foot (psf), on an aluminum frame cast in place in the cover slab. All access covers shall be centered over equipment to accommodate service and removal. Access covers shall be double leaf or single leaf (as required) aluminum diamond pattern floor hatch capable of withstanding 300 psf without permanent damage. Each leaf shall open 90 degrees and be attached to the frame by stainless steel hinges and hardware. The door shall have a lock in the open position and vinyl grip handle to release lock for closing.

e) Fall protection grating shall be installed at all access hatches. 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 psf. The grate openings shall be 4-inch x 6-inch force to allow both visual inspection and limited accessibility for maintenance purposes when the grate is closed. The leafs will pivot on aluminum hinge devices with 316 stainless steel hardware that permit them to rotate upward 90 degrees and automatically lock in place. Aluminum pull rods 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 stainless steel that automatically engages to secure the leaf in 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 ensuring the grate is in position when the next operator opens the hatch cover. The grate shall have an OSHA safety yellowish finish to increase visual awareness of the safety hazard.

f) All structures shall be designed to withstand hydrostatic forces, including uplift, and shall be equipped with anti-floatation.

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. 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. Well point is required when setting wet well structure and must be utilized to accept a minimum 8-inch pipe to accommodate a portable sump pump. Avoid conflicts, particularly with electrical equipment. Upon completion it shall be capped and left in place for future use.

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 floatation protection, if needed. All concrete shall have a minimum 28-day compressive strength of 4000 psi. Design must be per manufacturer specifications and engineered design requirements.

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 precast sections for the wet well and valve vault shall be further waterproofed on the outside of the wet well by sealing the exterior of the joints with ConSeal CS 212 polyolefin-backed exterior joint wrap – 6-inch minimum width – with compatible primer.

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 ductile iron (DI) with flanged joint pipe fittings. A bronze or aluminum insect screen shall be included at the exposed end of the vent pipe.

f) Wet wells and wet well piping shall be coated with a monolithic epoxy coating system per Table 2 and installed in accordance with manufacturer specifications, 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. 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 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) Each wet well that is 6-feet in depth or deeper, shall be equipped with a removable extension ladder and ladder cover protection to enable access. The Town shall designate the location during the review process.

i) All bolted connections, including pipe flanges, inside the wet well shall be made using stainless steel bolts, nuts, and washers.

3. Valve/Meter Vaults

a) The valve/meter vault shall consist of a custom-built section, or a precast concrete rectangular structure at least 6-feet square. Maintain 18-inches or 24-inches clearance from the sidewalls to the nearest edge of pipe or valve. 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 valve 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 drainpipe between the valve vault and the wet well shall be made of PVC and have a PVC back water valve at the wet well end. Stainless steel 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 requirements of Section 7 of these Standards. The exterior of all manholes within the 100-year flood elevation and in wetland areas shall be coated per Table 2 to prevent weepage or attack by acidic soils. Individual joints shall be wrapped with Conwrap, Conseal, or approved equal and approved by the Town prior to backfilling.

5. Buildings

   a) Pump motors ≥10-hp shall have a precast concrete building to house the control and electrical panels. Buildings shall have climate control systems to provide air conditioning (for dehumidification) and heating. Pump stations with ultimate pump motor sizes <10-hp may utilize an aluminum backplate, under a weather hood and mounted on galvanized posts, to mount all control and electrical panels.

D. PIPING AND VALVES

1. Piping: Discharge piping shall be minimum Class 53 DI flanged pipe as manufactured under AWWA specification C151. Discharge piping shall be flanged ductile pipe (Class 53 minimum) sized to produce a minimum head loss while maintaining a minimum velocity. All exposed piping shall be painted/coated and have adequately sized and located thrust 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 wet well. All hardware used shall be 316 stainless-steel.

3. Force Main: The force main within the pump station site shall be constructed of ductile iron pipe (DIP) and fittings with interior coating. The site shall also include an emergency bypass with a flanged connection for a portable, diesel driven pump. The bypass connection shall be the same size as the force main and shall include a gate valve to isolate the flange connection from the force main. The NCPE shall submit calculations confirming that the anticipated operating and surge pressures will be within the pressure ratings of the proposed DI force main and fittings.

4. 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.

5. Check valve: An external weighted lever check valve shall be provided for the discharge pipe of each pump, in conformance with AWWA C508 standards. Check valves shall be cast iron/DI bodied, double bronze side plug construction with resilient seated disc assembly and replaceable rubber disc. The valve shall be capable of being 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. For valve sizes $\leq$12-inches, provide a minimum of 200 psi working pressure rating and 400 psi hydrostatic pressure rating; for valves >12-inches, provide minimum 150 psi working pressure rating with 300 psi hydrostatic pressure rating.

6. Plug Valve: A plug valve shall be provided on the discharge pipe from the valve vault (beginning of the force main). Plug valves shall be 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 in a valve vault separate from and adjacent to the wet well. A restrained flanged coupling adapter 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 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.

7. Pressure gauge: $^{+}/_{-}$ 2% accuracy pressure gauges with a 3-inch or larger liquid filled dial, stainless steel case, and graduated to 150% of the force main static pressure shall be provided on each discharge pipe. A pressure gauge shall be installed on the pump side of the check valve and on the static side of the check valve. Isolation seals and the cut-off ball valve shall be provided between the gauge and force main. The gauges shall be easily visible and legible from the valve vault hatch opening. The gauges shall also be capable of delivering an electronic remote signal compatible with SCADA.

8. Air Release Valve (ARV): There shall be an ARV installed in a manhole on the force main, outside of the valve vault, prior to the main leaving the pump station site.

9. Magnetic Flow Meter: The NCPE may propose a meter with a smaller diameter than the force main to improve the velocity profile, if the projected flows allow. The magnetic (mag) flow meter shall be installed in a precast concrete manhole with sump pump, as indicated on the plans. A restrained flanged coupling adapter is to be provided to facilitate the mag meter removal/replacement. The amplifier should be remotely mounted in the building (or electrical rack). There shall be valved bypass piping (3 valves required) around the mag meter manhole, to allow the meter to be serviced or replaced without interrupting the pump station's operation. Submit shop drawings that

include information on the construction of the flow tube and liner, junction box, and amplifier.

10. Anchor Bolts

    a) Anchor bolts and nuts shall be furnished for each item per the manufacturer's specification in accordance with Table 2. Anchor bolts and associated hardware shall be 316 stainless steel.

    b) Anti-seize compound will be applied to the threads of all stainless-steel bolts before assembly.

E. ELECTRICAL – GENERAL

1. All electrical systems shall meet all applicable electrical standards and code requirements, including, but not limited to: ANSI, ASTM, NEMA, IEEE, 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 3 phase power, 480-VAC with ATS to automatically start on-site emergency generators. The electrical power entrance shall be through a meter base, followed by a NEMA 3R heavy duty, single throw, and circuit breaker. This shall be followed by a heavy-duty ATS. There shall be a NEMA 3R heavy-duty single throw fusible safety switch between the main power and the ATS.

3. Electrical equipment inside the wet well shall meet the requirements for Class I, Division I, and Group C/D service.

4. All 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 latest editions of the NEC and NFPA 820 requirements for electrical service to Class I Division I.

6. The use of rigid conduits is required. Generally, PVC shall be used below ground and aluminum shall be used above ground. All conduits from the wet well shall extend to disconnect switches or junction boxes, with the conduits terminated 24-inches below the switch/box, providing an air gap above the classified space. All cables shall be supported with liquid tight cord connectors with strain relief grips.

7. Pump station electrical and control equipment shall be in a building as described above, or under a weather hood for small pump stations <10-hp. An aluminum weather hood 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 shall be

structural steel members assembled to provide individual, direct support to the control equipment panel, transfer switch, safety switches, meter base and the weather hood. The steel frame shall be painted with a two component, high build epoxy polyamide paint system designed for severe service. All weather hoods shall be provided with a light and GFI protected 120V outlet. Weather hoods shall be installed to eliminate runoff to the front side.

8. All electrical equipment, including non-submersible motors, electrical panels, control panels, backup generators, etc., shall be located a minimum of 2-feet above the 100-year flood elevation. All electrical enclosures shall have hinged doors/covers. The control panel shall include a concrete pad, minimum 8-feet X 4-feet X 6-inch thick.

9. A non-fused electrical disconnect is to be supplied and installed mid-way from the wet well and the pump control panel. This disconnect 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 disconnect and not the pump control panel.

   Exposed outlet boxes for the outdoor and indoor wet process areas used for lighting fixtures, switches, and receptacles shall be aluminum with rubber neoprene gasketed covers of similar metal. Junction and pull boxes shall be NEMA 4X stainless steel 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% 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.

F. PUMP STATION DEMOLITION AND ABANDONMENT

1. Furnish all labor, materials, equipment, and incidentals required for demolition and/or removal and disposal of existing pump stations and related facilities to be demolished and/or removed.

2. This section also includes complete or partial removal and disposal of specified existing structures, foundations, slabs, piping, mechanical, electrical, existing (to be abandoned) buried piping, and miscellaneous appurtenances encountered during construction operation.

3. These specifications call attention to certain activities necessary to maintain and facilitate operation during and immediately following construction and do not purport to cover all of the activities necessary. The Contractor shall exercise due concern for operation of existing sanitary sewer and shall diligently direct all his activities toward maintaining continuous operation of the existing sewer mains and minimizing operation inconvenience.

4. Demolition Includes:

    a. Demolition as necessary above and below finished grade of all specified pump stations, manholes and related facilities which are to be demolished and/or removed, including but not limited to miscellaneous metal, piping, concrete slabs on grade, concrete slabs below grade, and concrete walls and foundations, as shown on the Construction Drawings.
    b. Temporary modification of structures, equipment, appurtenances, and utilities as necessary to allow for operation of the facilities during construction.
    c. Careful removal and handling of salvageable existing equipment as specified and delivery of this equipment to the Town.
    d. Off-site disposal of excess and unacceptable materials.

5. Site Restoration:

    a. Backfill and compaction of excavations and other holes resulting from demolition operations or existing prior to any work, as indicated.
    b. Restoration of vegetative cover.
    c. Repairs to fencing, driveways, or other existing facilities removed or damaged during construction.

6. Submittals:

    a. Submit proposed methods and operations of demolition and/or removal of the existing pump stations and related facilities to the Town prior to the start of work. Include in the schedule the coordination of shutoff, capping, and continuation of utility service as required.

    b. Provide a detailed sequence of demolition and removal work, flow bypass, and temporary pumping operations to ensure the uninterrupted progress of the Owner's.

    c. Before commencing demolition work, all modifications necessary to protect facilities designated to remain shall be completed.

13.03 PUMP STATION EQUIPMENT

A. PUMPS

1. General

   a) Submersible pumps and major accessories shall be supplied by a single manufacturer per Table 2.

   b) Each pump unit shall be complete with a closed-coupled, submersible electric motor, and other appurtenances required for proper operation.

   c) The equipment shall be suitable for the service conditions and shall be capable of meeting all operating requirements of the pump system.

   d) Each pumping unit including motor and all integral controls shall be rated and labeled for use in a Class I. Division I. Group C/D area as defined by the NEC.

   e) Each item 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.

2. Submittals

   a) Complete fabrication and assembly drawings, together with detailed specifications and data covering materials, parts, devices, and accessories, shall be submitted in accordance with the submittals section. The data and specifications for each unit shall include, but are not limited to, the following:

      1) Pumps

         a). Name of manufacturer

         b). Type and model

         c). Rotating speed

         d). Size of discharge elbow outlet or nozzle

         e). Net weight (mass) of the pump and motor only

         f). Complete performance curves showing capacity versus head, brake horsepower (bhp) (kW), NPSH required, and efficiency

         g). Data on shop painting

      2) Motors

a). Name of manufacturer

b). Type and Model

c). Type of bearings and method of lubrication

d). Rated size of motor, hp (kW), and service factor
e). Insulation class and temperature rise

f). Full load rotative speed

g). Net weight

h). Efficiency at full load and rated pump condition

i). Full load current

j). Locked rotor current

b) O&M 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 list and predicted life of parts subject to wear

7) Outlined, cross-section, and assembly drawings; engineering data; and wiring diagrams

8) Test data and performance curves

3. Pumps

a) Pumps shall be submersible, non-clog 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 and sufficiently rigid to support the pumping unit under all operating conditions.

c) 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.

4. Pump Motors

a) Motor shall be provided by the pump manufacturer; air-filled, totally submersible; and appropriately sized 3 phase power, 60-Hertz (Hz) motors with a maximum speed of 1800 revolutions per minute (RPM). The motors shall meet the 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 selected impeller. The motor shall meet the requirements of NEMA MG1 Part 30 and 31 for operation on pulse width modulation (PWM) type Variable Frequency Drives (VFD).

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 200 degrees Fahrenheit (F). Thermostat shall reset automatically when motor cools to safe operating temperature. The common pump motor shaft shall be of 416 stainless steel.

c) The motor shall be protected by a mechanical seal system. 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 American Wire Gauge (AWG) (min) Hypalon jacketed type silver plated copper (SPC) cable a minimum of 50-feet in length.

e) 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 Celsius (C). Each motor shall be NEMA Design B

for continuous duty at 40 degrees C 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, complete with all sensors, control power transformer, intrinsically safe control modules, and relays.

g) The motor bearings shall be antifriction, permanently lubricated type. The bearing shall be fixed to carry the pump thrust and the upper bearing free to move axially. The bearings shall have a calculated ABMA 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-amperes (amps) at 120V AC.

i) Each motor shall be capable of continuous operating 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 wet well, with 10-feet of slack that shall be coiled on a cable hook at the top of the wet well. Each cable shall be supported by AISI Series 300 corrosion-resistant PVC Style woven Kellem Grips to prevent damage to the cable insulation. Mounting of cable supports in the wet well 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 speed controller shall be derated to compensate for harmonic heating effects and reduced self-cooling capability at low-speed operation so 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, 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 or if the projected flow ≥.5 MGD.

o) Station pumps 15-30-hp shall have a 30-hp rated reduced voltage soft starter (RVSS). Stations with pumps > 30-hp shall utilize variable frequency drives with appropriately sized RVSS.

5. Appurtenances

a) The lift out systems shall consist of a straight elbow that bolts on 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, 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 have one or more integral support legs or pads suitable for bolting to the floor of the wet well. The face of the discharged elbow inlet flange shall be perpendicular to the floor and shall contact 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 wet well and replaced without the need for operating personnel to enter the wet well.

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 guiderail 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 guiderail 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 10-foot intervals starting at the top. A suitable chain hook shall be provided at the top of the wet well. The pump shall be equipped with an open lifting hoop suitable for attachment of standard chain fittings, or for hooking from the wet well surface. The hoop shall be ductile cast iron ASTM A536 (60-40-18) and shall

be rated to lift a minimum of four times the pump weight. A 6-foot length (minimum) stainless steel chain shall be attached to the bail with a stainless steel shackle. Pump lift chains are required to be stainless steel and must extend a minimum of 5-feet above normal wet well operating level.

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.

6. 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. At least 1 quart of the finished 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 field 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. Submittals: Complete fabrication and assembly drawings, together with detailed specifications and data covering materials, parts, devices, and accessories shall be submitted in accordance with the submittal section. The data and specifications for the Control panel shall include, but not be limited to, the following:

a) Name of acceptable manufacturer per Table 2

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, cable lengths, and pump controls
g) Published descriptive data on each item and all accessories, indicating all specific characteristics and options

2. 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.

3. Hinged Inner Door: An inner door shall be furnished. Overload reset push buttons, circuit breakers, switches pilot lights, and hour meters shall be the only components accessible with door closed. The door shall be hinged and may be opened when service is required.

4. 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 size wiring requirements. All live parts shall be fully shielded.

5. 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 root mean square (RMS) symmetrical amps.

6. 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.

7. 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 kilovolt amperes (kVA) rating to provide 120-VAC power for all items required in the control and alarm circuits. Transformers shall be protected in their secondary by properly sized supplement circuit breaker(s).

8. Magnetic Contactors and Overload Relays: A magnetic contactor shall be furnished for each motor. A separate panel mounted, 3 leg (3 phase) overload relay or motor protector shall be supplied for each motor. Each leg of the overloaded relay shall be equipped with a properly sized overload heater. Electronic overloads are not

acceptable. Contractor and overload relay shall be properly sized for the required horsepower, voltage, and phase.

9. Elapsed Time Meters: Six-digit, non-resettable elapsed time meters shall be mounted in the control panel enclosure inner door to record the run time for each pump.

10. 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.

11. Phase & Voltage: 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.

12. Lighting and Surge Suppressors: Suitable lighting 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.

13. 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, overloaded relays maybe reset without entering high voltage compartment.

14. Switches: Heavy-duty industrial grade oil tight 22-millimeter (mm) switches shall be provided for each pump for "Hand/off/Automatic" operation selection. All switch components shall be made of see-through polycarbonate for simplified inspection of contracts. Cams and strokers shall be Teflon impregnated for abrasion free service without lubrication. The switches required shall be as follows:

Table 3: Switches

Switch Function (Name Plate)	Voltage
HOA	120-VAC

15. 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 22-mm and made of lexan. The pilot lights required shall be as follows:

Table 4: Pilot Lights

Pilot Light Function (Name Plate)	Voltage	Lens Color

PUMP 1	120-VAC	GREEN
PUMP 2	120-VAC	GREEN

16. Seal Fail Alarm Circuit with Test Push Button: 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.

17. Seal Failure Circuit Test Push Button (Illuminated): Heavy-duty industrial grade oil-tight push buttons shall be provided. All push button components 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 22-mm and made of Lexan. The push buttons required shall be as follows:

Table 5: Seal Failure Circuit Test Push Button

Pilot Button Function (Name Plate)	Voltage	Lens Color
PUMP 1 SEAL FAIL	120-VAC	AMBER
PUMP 2 SEAL FAIL	120-VAC	AMBER

18. Pump Alternator Circuit (For Duplex Pump): 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 contracts 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.

19. 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 manufacturer 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.

20. 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 wet well. Terminals shall be furnished in the control panel of externally mounted alarm devices. A red flashing light shall be provided as a visual alarm of the high water in the wet well. A continuous sounding horn shall also be provided as an audible alarm of the high water in the wet well. Provide a pushbutton to silence audible alarm.

21. 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. Floats shall have sufficient chain length to reach from the splice box panel to the bottom of the wet well. Float switches shall be securely attached to a weighted stainless steel chain, in the location indicated in the drawings. Level switches shall be weighted to hold desired position in the wet well. 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. All pressure transducers shall have a separate 115-VAC power source. No junction boxes or cable splices of any kind will be allowed in the wet well.

22. 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, the control power to the pump motor contact shall be disconnected, thus stopping the pump motor. The pump shall automatically restart when the pump motor temperature returns to an acceptable level.

23. 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 is sized per table 250-95 of the NEC. In all cases, the enclosure must be adequately grounded per article 250 of the NEC, except for fiberglass enclosures where a grounding bus shall be provided.

24. 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 US recognized.

25. 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 NEC. Major groups of wires shall be contained in plastic wiring trough equal to Panduit type E.

26. 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.

27. Control Panel: The control panel shall include the following elements:

a) Separate Manual Disconnect for each pump and grinder 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 auto dialer.

c) Hand-Off-Auto selector switch for each pump.

d) Automatic Electric Alternator with the 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-Model-LLP-10.

i) Backup float system with 3 floats as backup to the MPE Level Control.

j) SCADA shall be provided to allow simulation of wet well on MPE Control.

k) > 40-hp shall be 'soft start'.

l) Horn signaling.

m) Control signaling.

n) Seal failure light for each pump and contact closure for automatic dialer.

o) High temperature light for each pump and contact closure for automatic dialer.

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.

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 and installed 4-feet above final grade to ensure water does not damage the internal wiring.

v) Automatic Dialer/SCADA.

w) AC Voltmeter.

C. SCADA

The Contractor shall furnish a complete SCADA system that in conformance with Table 2.

1. SCADA shall provide a remote silence for high level alarm conditions.

D. GRINDERS

1. General

a) A wastewater grinder shall be provided at each pump station for the intended purpose of grinding solids in the flow influent 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 in conformance with Table 2.

c) The wastewater grinder shall be placed in a separate manhole, or other influent structure prior to the wet well but still within the pump station site. The minimum diameter of the manhole shall be 5-feet. The grinder shall be removable without entering the structure by means of a stainless steel guide rail and stainless steel lifting chain with 4X6 lifting eyes at 10-foot intervals, starting at the top assembly. Another means of solids removal, such as a bar rack, must be provided 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 SCADA 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 important performance data.

2. Submittals

Submittals shall include electrical diagrams, complete 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) and painting instructions.

3. Quality Assurance

a) All equipment shall meet the requirements of applicable standards, including but not limited to: ASTM, AISI, NEMA, NEC, UL, and other State and Local codes.

b) Grinder Control Panel

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 weather hood. The control panel shall include all power and circuits to provide the functional requirements.

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 the 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 power failure occurs while the grinder is running, the grinder shall resume running when the 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 full load amperage (FLA) rating and service factor. Grinder control panel shall be positioned either under the weather hood 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 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 laminated plastic identification nameplates, with white letters on the black background, shall be provided for each switch, indicator light, gauge, etc. on the control panel and system.

8) The controller shall be properly rated 3 phase power, 60-Hz.

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 grinder “fail” and grinder “run” status. Grinder overload, motor overload, oil over temperature, 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 SCADA 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 FLA.

14) Control panel shall incorporate a manual momentary or spring return reversing switch for the grinder control.

15) 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

16) The motor controller shall have sufficient space within its enclosure for the storage of the 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. ODOR CONTROL

1. Odor control measures shall be evaluated for all possible sources of odor related to wastewater pump systems. Source locations to be analyzed shall include, but not limited to, the wet well at the pump station, the force main discharge location, and force main ARVs. Odor control measures to be analyzed shall include, but not limited to, oxidizing agent added to the wastewater, odor masking agents added to the air, activated carbon treatment, biofilter treatment, and wet scrubber treatment. Odor Control measures shall be provided in accordance with Table 2.

2. The chemical feed system, with variable dose controller, shall be capable of reducing the hydrogen sulfide concentration estimated to occur (with no treatment) in the pump station force main discharge at the receiving gravity sewer down to or below 0.1 mg/L using the chemical designated by the Town in the Pre-Design meeting.

3. Solutions that include chemical feed must consider the feasibility of chemical delivery to the site, provide appropriate chemical storage facilities; including double walled containment, and must incorporate chemical feed systems as listed in Table 2. A containment system may also be required, in case of tank or piping failure.

4. The Town reserves the right to require mechanical ventilation and treatment of exhaust from the wet well to address anticipated or existing proximity odors.

5. Odor Control facilities not located on the pump station site (ARVs and discharge points for instance) shall be constructed in underground vaults or if necessary to be above

ground, shall be housed in a structure. Requirements for odor control facilities not located on the pump station site are in the Force Main section of these Standards.

F. JIB CRANE/HOISTING EQUIPMENT

1. A pedestal-mounted jib crane with an electric chain hoist and motorized trolley of 360-degree swing shall be provided. Electric hoist and trolley shall be furnished with any optional equipment and accessories as required for permanent operation in an exterior location. Jib crane shall be provided with a "doghouse" shelter at the mast end of the crane beam, to provide shelter for and protection of the parked motorized trolley and hoist from precipitation and extended exposure to sunlight. The minimum capacity of the hoisting system shall be equal to the combined weight of the pump, motor, chains, and cables, times a factor of 1.25. Jib crane must be tall enough to lift pumps so that there is a 4-feet minimum clearance from the bottom of the pump to the concrete slab. The motor and handheld control pendant shall have NEMA 4 ratings. Jib crane must be capable of accessing and lifting both pumps and must be certified to be in accordance with OSHA. Crane shall be equipped with chain buckets.

G. GENERATORS

1. General

   a) Backup power shall be provided by an automatically starting on-site generator controlled by an ATS. 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 in accordance with Table 2.

   c) Engine-generator unit, controls, and transfer switch shall be new; a standard product of a single manufacturer; and a packaged type of unit, full 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. 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 site. The kW rating needed shall be calculated by a NCPE by the generator manufacturer.

   e) The voltage, amps, phase, etc., shall be coordinated with the design of the electrical equipment. Generators will be 3 phase, 60-Hz, 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 SCADA system.

g) Each unit 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 generator enclosure shall be furnished with an access platform with safety railing, metal grating, and stairs, to provide safe and convenient access to all parts of the generator and controls that require operator maintenance or inspection. The access platform shall be designed and located so that all generator maintenance can be performed without the need for ladders. The access platform shall be located within five vertical feet of the top of the uppermost maintenance access door/panel in the sidewalls of the generator enclosure.

i) The engine-generator set supplier shall be an authorized dealer of the engine-generator set manufacture 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 complete shop drawings for assembly and installation, together with detailed specifications covering materials, drive unit, parts, devices, and accessories forming a part of the equipment. The data for each unit shall include, but shall not be limited to, the following:

1) Manufacturer, model, and type: engine, alternator, enclosure, battery charger and battery, silencer, switchgear, transformer, etc.

2) Listing of standard and operational accessories.

3) Engine output horsepower and efficiency curves at specified conditions.

4) Engine mechanical data including heat rejection, exhaust gas emission data (maximum values at loads of ¼, ½, ¾, 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).

5) 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.

6) Ratings at specified conditions: engine (net horsepower), engine (maximum performance horsepower bare engine), generator kW at specified power factor, volts, amps.

7) Overall dimensions (length, width, height) and net weight.

8) Concrete pad recommendation (including size, length, and spacing of all necessary supports and anchor bolts) and layout/stub-up locations for electrical conduits.

9) Wiring diagrams and schematics for the entire system, including the engine control panel, generator breaker, ATS, auxiliary transformer, and remote alarm indicators.

10) Calculations or test results showing compliance with specified motor starting and voltage dip requirements.

11) Line circuit breaker rating.

12) Control panel layout, identifying location of all instrumentation being supplied.

13) Operation instructions.

14) 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.

15) Battery sizing calculations.

16) Battery charger sizing calculations.

17) Maximum output short circuit kVA available.

18) A certificate of compliance, when required.

19) Manufacturers and dealer's written warranty.

3. Quality Control

a) All equipment and materials shall be designed and constructed in accordance with the latest applicable requirements of these Standards, specifications and codes of

ANSI, ASTM, NEMA, IEEE, 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 powered. Diesel fueled generators shall be 4 stroke, liquid cooled, American made, with a minimum of 130-hp, or equal. Any alternative to this requirement shall be approved by the Director.

      2) Engine shall operate at $\leq$1800 RPM.

      3) The engine will be equipped with an electronic governor to maintain 4% drop 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 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.

      6) Governor shall be mechanical flyweight type with a speed regulation of 5% 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-volts.

   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 240-volt 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.

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 250-gallons to provide fuel for a minimum run time of 72 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 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) Alternators shall be revolving, 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 shafted 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-1-24092, 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 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 and shall close when exhaust flow stops. 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 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% 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 to 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) 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 control, high water temperature cutout, and all accessories required for proper operation. The radiator shall be sized to provide sufficient capacity for cooling of the engine and all accessories at an ambient temperature of 125 degrees F, considering 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 ethylene glycol type with rust inhibitor.

3) The engine generator unit shall have a 240-volt 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 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.

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 weatherproofed 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 prewired, 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 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 hatch. The panel door will have a voltage shunt switch. The panel itself shall be mounted on a separate support stand and 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 I&C (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 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 120-volt, 20-amp duplex receptacles and two 120-volt, 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 240-volt single phase power to the coolant heater and anti-condensation heater for

each engine generator unit. The amp load shall be calculated by a NCPE or the generator manufacturer.

H. 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 these Standards.

   c) The unit shall be rated based on all classes of loads, i.e., resistive, tungsten, ballast, and inductive load.

   d) Switches rated $\leq$400-amps shall be UL listed for 100% tungsten lamp load.

   e) As a precondition for approval, all transfer switches complete with accessories shall be listed by Underwriters Laboratories, under Standard UL 1008 (ATS) and approved for use on emergency systems.

   f) 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.

   g) 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.

   h) Transfer switches shall comply with the applicable standards of UL, ANSI, NFPA, IEEE, NEMA, IEC and all applicable federal, state, and local standards.

   i) The transfer switches shall be supplied with a microprocessor-based control panel as detailed further in these Standards.

   j) 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 3 phase under-voltage sensing of the normal source.

   b) When the voltage of any phase of the normal source is reduced to 80% of the 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 the normal 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 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 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-minutes, 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 ATS 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 to be designated a separately derived system by the NEC, a 4^{th} 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:

Table 6: 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

Table 7: 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

Table 8: 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 ATS 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 the 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-amps 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 ATS will not be acceptable.

13.04 PUMP STATION TESTING AND TRAINING

A. TESTING

1. General

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. The Contractor shall reimburse the Town for all water used at inside Town 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 after proper coordination with the Town.

c) Before the operational tests are conducted, the required copies of the O&M 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's recommendations and these Standards. 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 NCPE and representatives 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.

h) Installation Verification shall consist of a visit to the site by a manufacturer's representative to inspect, check, adjust, 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 is discussed under the individual equipment items. Results of the on-site testing shall be presented to the Town prior to final acceptance.

j) All functions and systems, 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 Town.

l) Results of all factory testing, installation certifications, and on-site operational testing shall be provided to the Town in the final construction documents.

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 (HIS). 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 HIS, copies of the test log originals, test reading to curve conversion equations, and certified performance curves. The curves shall include head, bhp (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 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 ATS) 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 4 continuous hours, 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. ATS Testing

    a) Each ATS shall receive field verification.

    b) Each ATS 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 automatically properly transfers the power feed to the standby generator.

6. Control System Testing

    a) All electrical, I&C, and telemetry systems shall receive on-site testing to ensure complete operation. 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) Wet wells and other structures 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.

B. OPERATOR TRAINING

1. Suppliers of major equipment packages shall provide training to the Town 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 O&M are the minimum required. Complicated systems can require more than the minimum requirements.

Table 9: Operator Training

Equipment System	Operation Training (hours)	Maintenance Training (hours)
Pumps and Pump Control Systems	1	2
Grinder System	1	2
Engine Generator and ATS	1	2
Odor Control Systems	1	2
SCADA	1	1

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 gauges 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. 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. The reserve copy shall be delivered to the Town. The instructions specified here are in addition to the required O&M manuals.

13.05 WASTEWATER FORCE MAINS

A. GENERAL

1. All aspects of force mains design shall, at a minimum, meet the requirements of the latest version of the:

   a) NCDEQ Minimum Design Criteria for the (Fast-Track) Permitting of Pump Stations and Force Mains (Minimum Design Criteria),

   b) Alternative Design Criteria for Minimum Separation for Sewer Systems to Wetlands,

   c) 15A NCAC 02T,

   d) NC Building Code,

   e) OSHA regulations, and

   f) Town Standards.

      Town Standards identify minimum equipment and construction requirements for force mains to be owned and operated by the Town. This section does not address every aspect of force main design; it is the NCPE's responsibility to supplement these requirements as necessary to produce a complete set of plans and specifications. Requirements in the Town Standards that are more restrictive or exceed the requirements of the Minimum Design Criteria are required by the Town.

2. All aspects of the design of force mains and associated facilities shall be submitted for review and approval.

3. 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.

4. Private force mains will require an exception from these Standards. A Basis of Design Report, signed and sealed by a NCPE, should be submitted for review prior to a determination by the Director. Private force main design is not covered by these Standards, and the applicant should look for guidance from other appropriate agencies, such as NCDEQ, NC Plumbing Code, etc. Documentation of future force main maintenance shall be required.

B. DESIGN

1. All force mains shall be located within dedicated ROW of Town roads, outside of the ROW on NCDOT roads, or within dedicated utility easements. When wastewater force

mains are constructed adjacent to gravity sewer mains or for construction of parallel wastewater force mains, the horizontal clearance shall be a minimum 10-feet from pipe edge to pipe edge. Clearances for pipelines greater than 10-feet depth shall be designed by the NCPE and approved by the Town. Easement widths outlined below shall be widened by at least the clearance between the pipelines when constructing a shared utility corridor. Within road ROW, a utility easement, or Town owned property, there shall be no permanent structures, equipment, retaining walls, embankments, impoundments, or other elements that would inhibit utility maintenance operations, unless approved by the Director.

2. All force mains shall be installed outside of buffers whenever practical. Sewer main shall be installed outside of all flood plains, unless No Practical Alternative is available and prior approval is obtained from the Director.

3. The minimum wastewater force main size shall be 4-inches in diameter, unless otherwise allowed by the Director.

4. Dedicated easements for force mains and appurtenances shall be recorded as "Town of Holly Springs Public Utility Easement". Town force main easements shall contain only Town utilities unless otherwise approved by an encroachment agreement.

Table 10: Standard Easement Width for Sewer Force Mains

Pipe Depth*	Permanent Easement Width	Town Owned ROW
<8-feet	20-feet	Allowed
8-15-feet	30-feet	Requires Director approval
15-20-feet	40-feet	Not Allowed
>20-feet	As Specified by the Director	Not Allowed

*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.

5. 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. ARVs located in isolated areas may be approved without odor control systems, at the discretion of the Director. The suggested odor control technology shall be designed by the NCPE to achieve 95% or greater hydrogen sulfide removal. All systems, including those utilizing active 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.

   Odor control systems shall be provided with sufficient easement area to accommodate long term maintenance. The maintenance easement for odor control systems shall be

sized on site specific conditions and provide sufficient area for operations, such as refilling media/chemicals, replacing equipment, etc.

6. Sewer force mains shall not discharge directly into existing gravity sewer lines. Sewer force mains shall typically discharge into a receiving manhole that has been epoxy coated. The receiving manhole shall be provided in the typical eccentric tapered design at minimum 4-foot diameter, and a diameter capable of receiving flow without exceeding 50% surcharge conditions in the existing gravity sewer. The invert elevation of the force main shall be one-tenth of a foot higher than the gravity sewer discharge invert elevation. Force mains shall be as close as possible to 180-degrees from the outlet pipe. Provide a smooth channel from force main to gravity sewer main. Force main installations greater than 10-feet will require approval by the Director.

7. Drop connections into force main receiver manholes are discouraged and require approval by the Director.

8. Force main design shall facilitate cleaning and inspection. The use of 90-degree bends is prohibited.

9. Force mains shall be constructed with a pigging/bypass connection located within 50-feet of the pump station valve vault.

10. Force main minimum design velocity shall $\geq$2.5 ft/s throughout the length of the force main. As a design preference, force main systems operating at higher flows shall reach velocities of 3-5 ft/s to resuspend any settled solids.

11. Force mains shall be designed and sized to effectively convey the ultimate peak flows from the pump station to the discharge point.

12. The force main shall be routed to minimize the number of combination ARVs, to the extent possible. Combination ARVs rated for use with raw wastewater shall be installed at high points or runs exceeding 3000-feet, on all force mains. 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 $\geq$10 vertical feet.

13. Restraint:

    a) General: All pipes, valves, and fittings within the pump station site shall be restrained. Pipe joints outside of the pump station 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 DIP, as published by the Ductile Iron Pipe Research Association). In all cases, there must be a pipe restraint plan prepared by the NCPE, showing the method of restraint to be used and the length of pipe to be restrained. All restraint systems shall be factory produced by the manufacturer.

b) Pipe joints: The standard joint restraint method shall use manufacturer provided restrained joint (RJ) pipe. Pipe diameter ≤12-inches may utilize mechanical joint (MJ) 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 enough pipe joints on both sides of the valve to accommodate dead end restraint.

14. A plug valve shall be installed at least every 3000-feet of force main length, or as determined by the Director.

15. All ARVs, plug valves >12-inches, or other appurtenances that have moving or operating parts and require maintenance and routine access shall have a manhole placed over the operating portion of the device.

16. Separation Requirements:

a) Separation between Sewer Force Main and Storm Water Pipes:

Sewer force mains shall have a minimum vertical separation of 18-inches between storm pipes and minimum horizontal separation of 10-feet. Where sanitary and storm sewers cross with a vertical separation of less than 18-inches, the entire leg of sanitary sewer shall be made of standard DIP 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. Where sanitary and storm sewers cross with a vertical separation of less than 18-inches, approval from the Director is required.

b) Separation between Sanitary Sewer and Sewer Force Main:

There shall be a minimum 10-foot horizontal separation between parallel gravity and/or force mains.

c) Separation between Sewer Force Main and Water Main:

There shall be a minimum 10-foot lateral separation (pipe edge to pipe edge) between parallel water and sewer force mains. If local conditions or barriers prevent a 10-foot lateral separation:

1) The water main shall be laid in a separate trench, with the elevation of the bottom of the water main at least 18-inches above the top of the sewer; or

2) The water main shall be laid in the same trench as the sewer, with the water main located at one side on a bench of undisturbed earth and with the elevation of the bottom of the water main at least 18-inches above the top of the sewer.

d) Crossings (Water Main over Sewer Force Main):

At a minimum, 18-inches of clearance shall be maintained measured from pipe edge to pipe edge between the water main and the sewer force main. The water main shall be installed above the sewer force main.

If 18-inches of clearance is not maintained, the NCPE must submit justification to demonstrate that it is impracticable to maintain the separation distances required, taking into consideration feasibility, cost, and the factors set forth in 15A NCAC 18C. The proposed deviation may be approved, on a case-by-case basis, by the permitting authority.

e) Crossing (Water Main under Sewer Force Main):

Allowed only as approved by the Director when not possible to cross the water main above the sewer force main. See Crossings above for direction.

f) Sanitary Sewer Force main and Stream Crossings:

The top of the sewer force main shall be at least 3-feet below the stream bed. If 3-feet of cover cannot be achieved, prior approval from the Director must be obtained and concrete encasement and DIP shall be required.

Sewer force mains shall not be installed under any part of water impoundments or area to 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-feet 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 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 or Class II 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 stream, lake, or impoundment (except as noted below).

4) 100-feet from private wells.

Where the required minimum separations cannot be obtained, an exception may be considered by the Director, in accordance with 15A NCAC 02T.

17. 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.

C. MATERIALS

1. Pipe Materials

a) Outside of a pump station site, PVC C900 DR 18 pipe shall be required for all sewer force mains. In some cases, DIP is preferred and shall conform to the Standards.

b) PVC pipe shall meet the requirements of AWWA C900 and be green in color. Pipe shall be Class 150, SDR 18, integral bell with strength equal to the pipe wall, DI outside diameter, 18-foot length, with a solid elastomeric ring.

c) PVC pipe for force mains with a diameter of 4-inches shall be SDR-21 or Schedule 40 in accordance with ASTM D1785.

d) DIP shall be designed and manufactured in accordance with AWWA C150 and C151 and provided in normal 20-foot lengths. All DIP shall be marked in conformance with ASTM A-746.-The minimum requirements for DIP 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.

Table 11: Pressure Class, Maximum Depth and Laying Condition for DI Wastewater Force Mains

Pipe Diameter	AWWA C150, 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

*Unless otherwise recommended by the manufacturer

Note: For cases not specified, a DIP and bedding design certified by a NCPE shall be required in compliance with AWWA C150 and the Ductile Iron Pipe Research Association.

The following table lists approved manufactures of DIP, DIP fittings, and RJDIP that are allowable for installation within the Town's system.

Table 12: Approved Manufacturers for DIP

Product Category	Approved Manufacturer	Model/Series	Pressure/ Load Rating	Reference Standard	Requirements
DIP ≥4-inch Diameter, Protecto 401 Lined	US Pipe	Tyton Joint	250-350 psi	AWWA C150 and C151 and DIPRA Standards	40-mils of Protecto 401 Lining (lining must be less than 1 year old); McWane pipe stamped "McWane by Atlantic States or Clow" only
	American (ACIPCO)	Fastite Joint			
	McWane	Tyton Joint			
DI Fittings ≥4-inch Diameter, Protecto 401 Lined	Sigma	Mech. Joint	250-350 psi	AWWA110/ C111 And AWWA C153	Shall always meet or exceed pipe pressure rating
	Tyler Union				
	SIP Industries				
	Star				
	American				
Ductile Iron Restrained Joint (RJDIP) Pipe ≥4-inch Diameter, Protecto 401 lined	US Pipe	TR Flex	250-300 psi	AWWA C150 and C151	Boltless restraint unless otherwise specified
	American (ACIPCO)	Flex Ring			
	McWane	TR Flex (pipes 24-inches and smaller)			

e) All DI force mains and fittings for sewer construction shall receive an interior ceramic epoxy coating, consisting of an amine cured novalac epoxy, as manufactured by Protecto 401. The interior coating shall be applied at a nominal dry film interior thickness per the manufacturer's specifications. All DIP bells and spigots shall be lined with Protecto 401 joint compound and 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.

Alternate liner manufacturers shall have a minimum of 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.

f) Pipe fittings shall be made of DI per AWWA C110 or C153. All fittings ≤24-inches in diameter shall be designed for a minimum internal pressure of 350-psi, unless otherwise approved by the Town. Fittings shall be MJ or proprietary manufacturer provided restrained joint. Gaskets shall be in accordance with AWWA C111. All fittings shall be interior coated with Protecto 401. 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- 12-inches in diameter.

All proprietary pipe restraint systems shall be approved by the Town and provided in compliance with all standards for coatings, linings, pressure classes, etc. as required for PVC C900 or DIP. All restrained joint pipe shall be installed based on laying conditions, pressure class, etc. as required for typical DIP.

Pipe and fitting manufacturer(s) must have a supplier within 200-miles of the Town.

2. Manhole Materials:

a) All sewer force main manholes shall be installed according to Town Standards.

b) Combination ARV Manholes: Manholes for combination ARV installation shall be provided in flat top configuration to accommodate the length of wastewater combination ARV. In cases where the combination ARV 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 ARV shall be 5-feet. Minimum 6-feet 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 ROW shall be provided flush with finish grade. ARVs shall be 2-inch sewage dual ARV with plastic body, per the manufacturer specifications. Refer to Table 2.

c) Manhole Epoxy Coating: Sewer force main receiver manholes, downstream manholes within 1200-feet of receiving manhole, sewer force main combination ARV manholes, and other concrete structures subject to high levels of hydrogen sulfide gas shall be provided with an approved monolithic epoxy coating system per the manufacturer's recommendations, and all blemishes shall be touched up prior to acceptance. Refer to Table 2. Coatings shall conform to the USACE specification C-200.

1) Surface Preparation: Concrete manholes must be well cured prior to application of the protective epoxy coating. A minimum of 28-days cure time for standard Portland cement is required. 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 National Association of Corrosion Engineers (NACE) International standards.

2) Installation: A minimum thickness as determined by the manufacturer shall be applied to new manholes and 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 per manufacturer's recommendations 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, but no later than the recoat window for the specified products. Additional surface preparations procedures will be required if this recoat window is exceeded.

D. INSTALLATION

1. General

   DIP 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 5 of these Standards.

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.

Force mains shall be installed with a minimum cover of 4.5-feet measured from the top of the pipe and shall be measured as follows:

a) 4.5-feet from the top of pipe to finished subgrade when under a roadway;

b) 4.5-feet from top of pipe to existing edge of pavement elevation when adjacent to a roadway and installed in existing ROW or future ROW;

c) 4.5-feet from top of pipe to finished grade in all other areas.

Pipe shall be laid on true lines as directed by the NCPE. 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 ARV. 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 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 equipment submittals and shop drawings showing the complete assembly to scale.

Force mains shall not be installed within roundabouts or alleys.

All PVC fore mains shall have tracer wire, tracer wire clips, and detector tape marked "Sewage Force Main." Refer to Section 5 of these Standards for detailed requirements for Utility Locator Installation and Devices.

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.

E. 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 cast iron body, bronze mounted full opening swing check valves in conformance with AWWA C508. Valves shall have renewable bronze or stainless steel seat ring and resilient faced clapper. Provide valve with outside weight and lever unless noted otherwise. Provide valve body constructed with a solid bronze or stainless steel shaft extending through bronze brushed bearings and "O" ring seals or adjustable graphite/composition packing.

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-inches, 150-psi for valves ≥14-inches. 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-inches shall have round port design that provides a minimum 80% port area. The valve plug shall be DI ASTM A536 Grade 65-45-12 ≤20-inches in diameter, with Ethylene Propylene Diene Monomer (EPDM), Buna N, or Neoprene resilient seating surface to mate with the body seat. Valves ≥24-inches 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 >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 a worm gear actuator. All plug valves shall be buried and provided with a 2-inch operator nut and a valve box. Plug valves greater than 12-inches shall be installed such that the actuator and gearing is accessible in a manhole. 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.

   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 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 locking valve box covers and/or manhole lids with the word "Sewer" cast into them.

6. Combination ARV: 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. The combination ARV 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. Combination ARVs shall be sized by the NCPE and approved by the Town.

    a) Combination ARVs shall be of the single housing style with Type 304 or 316 stainless steel body. 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 ARVs sized from 3-inches to 8-inches shall be provided with studded inlet connectors or flanged connections. The combination ARV shall be provided with cylindrical shaped floats and antishock orifice made of high-density polyethylene. Combination ARVs with spherical floats shall not be accepted.

    c) Installation of Combination ARV Assembly:

        1) All combination ARVs shall be connected to the main by an MJ tee with a branch diameter equal to at least half of the main diameter.

        2) The 2-inch combination ARV 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 ARVs ≥3-inches shall be connected by flange or studs. If needed due to 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 ARVs ≥4-inches shall be isolated with a plug valve. In all cases, the isolation valve shall be sized equal to the combination ARV.

4) The ARV shall be installed in a 4-foot diameter manhole per the standard detail.

7. Pigging Station: Force mains shall be constructed with a pigging/bypass connection located within 50-feet of the pump station valve vault. This pigging leg shall consist entirely of Protecto 401 coated DIP 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-feet apart.

8. Bypass Connection Assembly: An additional bypass connection assembly may be required. The size, criticality and proximity to a downstream manhole are factors used to determine the need for this connection. The bypass assembly shall include a 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 pump contractor. The protruding pipe shall be protected by concrete bollards spaced 6-feet apart.

13.06 FORCE MAIN INSPECTIONS AND TESTING

A. INSPECTIONS

1. All materials and equipment used in the construction of the force main must be verified for compliance with the Standards prior to installation. Non-conforming materials or equipment shall be immediately removed from the job site.

2. Compliance with plans and Standards will be verified on a regular basis.

B. TESTING

1. General

a) The Contractor shall furnish all materials, labor, and equipment to perform all testing.

b) All water or wastewater used during testing of the force main must be returned to the Town's sanitary sewer system after proper coordination with the Town.

c) All on-site testing and/or installation verification shall be performed in the presence of Town staff.

2. Force main Testing

a) The force main shall be tested in accordance with the water main standards set forth in Section 6.

b) The following tests must be run on coupons from factory lined DIP:

1) ASTM B-117 Salt Spray (scribed panel) – Results to equal 0.0 undercutting after two years

2) ASTM G-95 Cathodic Disbondment 1.5-volts @ 77 F. Results to equal no more than 0.5-mm undercutting after 30 days

3) Immersion testing rated using ASTM D-714-87

a). 20% Sulfuric Acid – no effect after two years

b). 140 F 25% Sodium Hydroxide – no effect after two years

c). 160 F Distilled Water – no effect after two years

d). 120 F Tap Water (scribed panel) – 0.0 undercutting after two years with no effect

4) An abrasion resistance of no more than 3 mils (0.075-mm) loss after one million cycles using European Standard EN 598: 1994, Section 7.8 Abrasion Resistance.

GUIDELINES FOR PUMP STATION FINAL FIELD INSPECTION AND OPERATIONAL TEST

Project:_____

The following items shall be provided by the Developer to the Town *before* the Final Field Inspection and Operational Test begins:

	Three (3) copies O&M Manuals signed and sealed by the design engineer, including:
	Cover Sheet
	Pump manufacturer
	Source of repair parts (phone and address)
	Rated capacity (GPM) of pumps
	Total dynamic head (TDH) of pumps
	Model number of pumps
	Serial number of each pump
	Impeller diameter each pump
	Data plate information from each motor
	Data on all other pump station equipment
	Pump Performance Design Curves
	CERTIFIED pump performance curves (including pump cut-off lines) with operating conditions
	As-built detailed, dimensioned drawings of pump and pump base elbow
	As-built detailed, dimensioned drawings of pump motor
	As-built control panel wiring diagram
	Pump and motor Installation and Service Manual
	Detailed information on:
	Control panel
	Alarm dialer
	Generator
	Mylar As-built one (l) copy
	PE certification
	Warranty Letter
	Recorded Easement or Right-of-Way documentation for access
	Documentation of site dedication
	Pump Station Maintenance Agreement
	Crane Certification will be required to document compliance with OSHA Standards
	Ownership of power with Duke Energy transferred to Town of Holly Springs
	Ensure the pump station address is the permanent address.

Date of Inspection:_____ **Inspector:**_____

Attendees:_____

Final Field Inspection and Operational Test-Required Inspections:

The following items should be field inspected for compliance with approved plans and Town Standards. All employees shall conform to the Town of Holly Springs Safety Policies and Procedures in the course of making the following inspections. Attention is directed especially to the Town's existing policies pertaining to electrical systems and confined space entry. Owner shall ensure that the NCPE, subconsultant design professionals, equipment representatives, and laborers are present for the field inspection.

Site: Section 13.02

	Positive drainage away from station
	16-foot access road with good drainage and cross drainage
	Adequate gravel area for vehicular turn-around installed
	8-foot chain link fence with 3 strands barb wire (galvanized or aluminum)
	Signage "Town of Holly Springs _____ [station to be named by the Town] Pump Station, [address here], Emergency 919-557-9111" (white on blue lettering)
	Ground cover outside fence
	Vehicular accessibility to pumps
	Concrete pad inside fence area
	16-feet minimum width manual swing gates with 180-degree opening (non-obstructed)
	600-watt sodium vapor light with photocell (30' mounting height) with switch on pole
	Opaque buffers installed
	Power to pump station converted to Town of Holly Springs account with Duke Energy
	Water service converted to Town of Holly Springs account

Valve Vault: Section 13.02

	Valve Vault
	Check valve as designed
	Gate valve as designed
	Pressure gauge
	Vault drains back to wet well with Back Flap

Wet Well: Section 13.02

	Cleaned of all debris and filled with water
	6' minimum diameter
	Interior joints grouted
	Koppers super service black coating (2 coats)
	All bolts stainless steel
	Independent hatch for raising basket
	Access hatch and steps (check location)
	D.I. vent with bronze insect screen
	Class 50 DIP suction discharge and piping
	Well Point

Final Field Inspection and Operational Test-Required Inspections:

Pumps: Section 13.03

	Two pumps - field check the plates on pumps to insure conformance with design plans and O&M manuals (Manufacturer, GPM, TDH, Model Number, Serial Number, Impeller Size)
	Pump start-up (both pumps) on regular power feed
	Pump start-up (both pumps) on back-up power feed (generator)
	Verify automatic switch to back-up power source during power failure
	Verify automatic cycling between two pumps

Pump Motor Controls: Section 13.03

	Aluminum weather hood 7’ height with 4’ overhang with severe service paint
	NEMA 3R enclosure with locking hasp
	Hinged inner door with overload reset buttons, circuit breakers, switches, 2nd pilot lights as the only accessible components when closed
	Line terminal block
	Circuit breaker for each pump motor 10,000 RMS for 200-240-VAC, 5,000 RMS for 440-480 VAC
	Transformer primary circuit breaker (when required)
	Control power transformer (when required)
	Magnetic contactor and overload relay for each motor
	Six-digit, non-resettable elapsed time meters
	Condensation strip heater with thermostat in control panel enclosure
	Phase and voltage monitor
	Lighting arrestor
	Thru-door overload reset push buttons
	Two “hands-off-automatic” switches
	Two green pilot lights
	Two seal failure circuit test push buttons
	Pump alternator circuit
	Control relays
	High wet well level alarm device (flashing red light)
	Aluminum float switches
	High temperature shutdown circuit
	Groundings

Final Field Inspection and Operational Test-Required Inspections:

Alarm Dialer/SCADA: Section 13.03

	Lockable NEMA 4 enclosure
	120 VAC electrical supply
	Backup battery
	Surge protectors on power and telephone lines
	Dialer programmed with emergency phone numbers
	Approved model in accordance with plans
	Telephone line installed
	SCADA installed

Odor Control: Section 13.03

	Chemical feed facility for odor control
	2500-gallon liquid chemical storage tank
	Evoqua Bioxide® chemical feed system complete with a VersaDose® LT(VDLT) control system
	Containment system in case of chemical spill
	Freeze proof eyewash and shower wash station with a tepid water system and water heater
	Mechanical ventilation (if required)

Jib Crane/Hoisting Equipment: Section 13.03

	Pedestal mounted jib crane
	Electric hoist and trolley
	Doghouse shelter
	Provide lifting rings every 6-feet on lifting chain
	Chain bucket

Electrical: Section 13.02

	Generator-field check plate on generator to ensure conformance with design plans and O&M Manual
	3 Phase 240 VAC or 480 VAC
	Meter Base
	NEMA 3R single throw safety switch
	NEMA 3R double throw safety switch
	Building: electrical inspector has approved
	Automatic maintenance operation on timer (minimum weekly)

Final Field Inspection and Operational Test-Required Inspections:

Force Main: Section 13.05

	Force main including air release valves – Verify all valves are open
	Force main hydrostatic testing
	Air Release Valve manholes are epoxy coated

Development Construction Manager **Date**

Development Inspection Supervisor **Date**

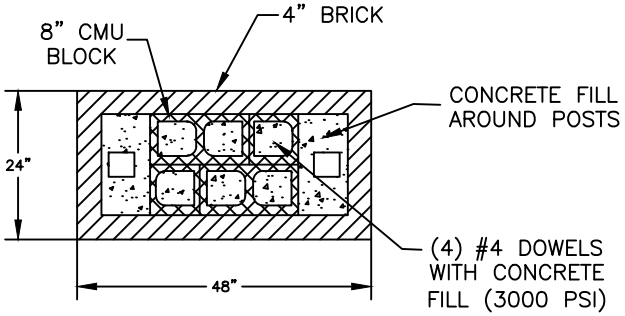
Development Inspector **Date**

Executive Director of Utilities & Infrastructure **Date**

Deputy Director of Utilities **Date**

Owner's Representative **Date**

END OF SECTION 13.00



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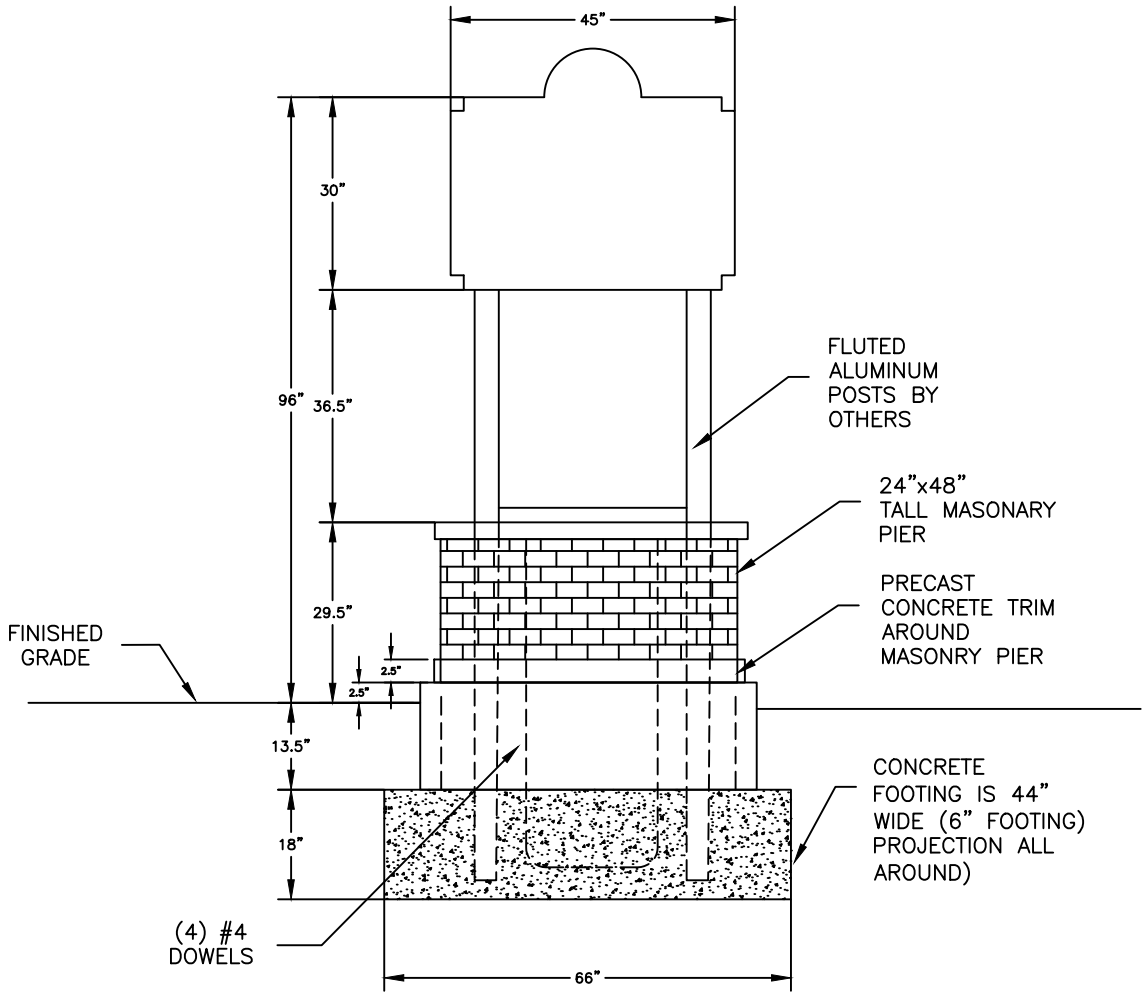


SIGN ELEVATION

NOTES:

1. DESIGN CRITERIA:
   - WIND VELOCITY = 100 MPH
   - BASIC PRESUMPTIVE SOIL LATERAL BEARING PRESSURE = 200 PSF
   - SIGN WEIGHT = 15 PSF
2. BASIC PRESUMPTIVE SOIL LATERAL WAS INCREASED BY
3. THE FOLLOWING FACTORS TO DETERMINE DEPTH OF EMBEDMENT:
   - SHORT TERM WIND LOADING INCREASE = 1.33
   - ½" ALLOWABLE MOVEMENT @ BASE = 2.00
   - DESIGN SOIL LATERAL BEARING PRESSURE = (1.33)(2.00)(200 PSF) = 533 PSF
3. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI
4. FOUNDATION CONCRETE SHALL BE PLACED AGAINST UNDISTURBED SOIL

DRAWING NOT TO SCALE

SECONDARY GATEWAY SIGN FOUNDATION

TOWN OF HOLLY SPRINGS

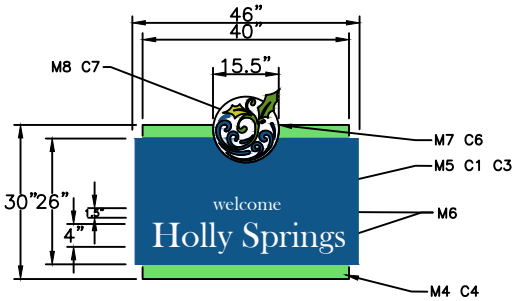
STANDARD DETAIL NUMBER: HS373

DATE	REVISIONS
10/18/25	

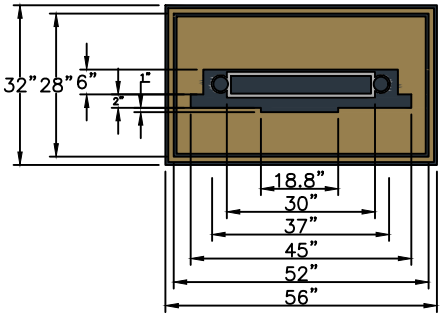
HOLLY SPRINGS North Carolina

NOTES:

1. "WELCOME" font to be Futura Bk BT
2. "HOLLY SPRINGS" font to be Garamond MT Regular
3. Sign face to face oncoming traffic

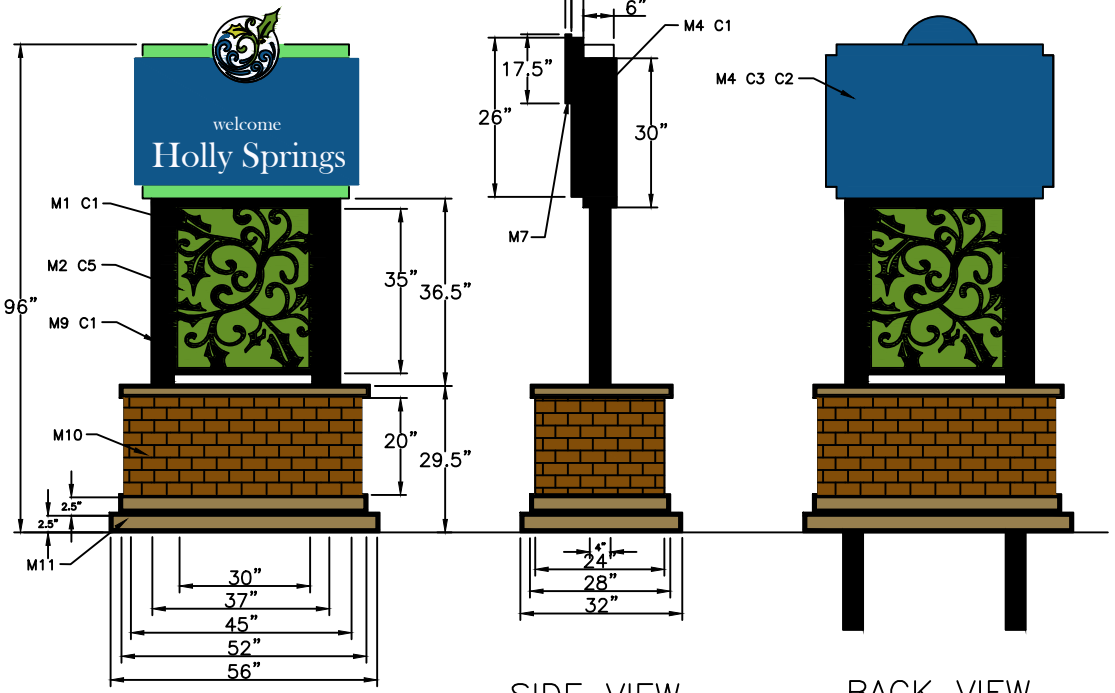


TOP VIEW



M1 .1875" Thick Aluminum
M2 .177" Clear Polycarbonate
M3 Fabricated Aluminum Cabinet: 4" deep (suspended between posts)
M4 Fabricated Aluminum 6" deep background panel
M5 Fabricated Aluminum 2" deep cabinet cut through copy
M6 .188" White Acrylic
M7 25mm (1") pvc
M8 .375" thick acylic; flush mount
M9 4" diameter fluted post
M10 Brick - Willamsburg #60
M11 Precast - Wheat

C1 Paint - Black; semi-gloss
C2 Paint - Anti Graffiti Clear Coat; back of cabinet only
C3 Paint - Blue PMS 7469C; semi-gloss
C4 Paint - Green PMS 585C; semi-gloss
C5 Paint - Translucent Green PMS 7490C; subsurface
C6 Paint - White; semi-gloss
C7 Paint - custom airbrush logo



FRONT VIEW

SIDE VIEW

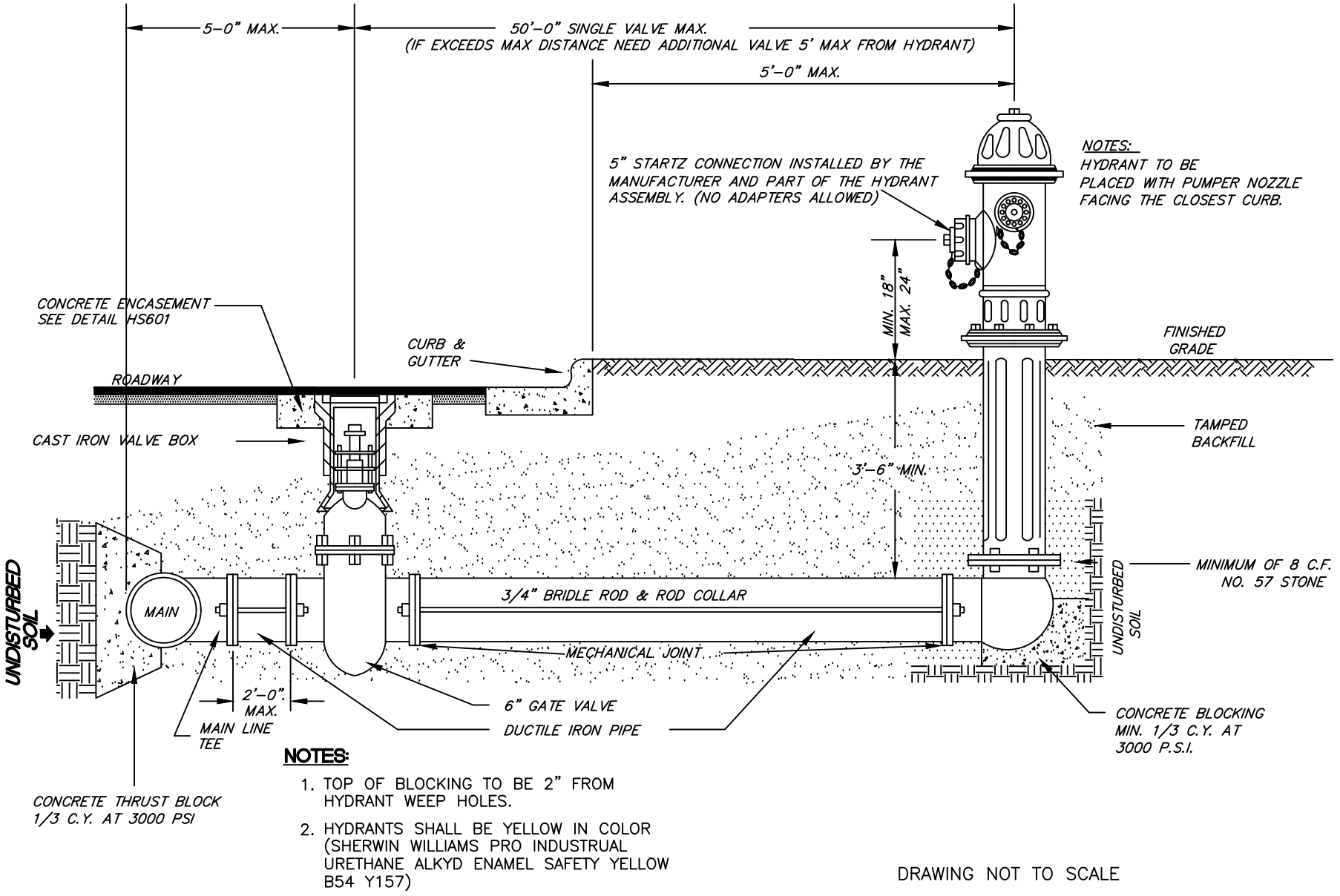
BACK VIEW

Ilumination: Pure White LED illumination (green panels and text on sign panel) 100v - 277v Variable
12V Ip68 - Waterproof - Power Supplies

DRAWING NOT TO SCALE

SECONDARY GATEWAY SIGN	STANDARD DETAIL NUMBER: HS374	
TOWN OF HOLLY SPRINGS	DATE	REVISIONS
	10/17/25	
	12/4/25	
	12/10/25	

HOLLY SPRINGS North Carolina



NOTES:

1. TOP OF BLOCKING TO BE 2" FROM HYDRANT WEEP HOLES.
2. HYDRANTS SHALL BE YELLOW IN COLOR (SHERWIN WILLIAMS PRO INDUSTRUAL URETHANE ALKYD ENAMEL SAFETY YELLOW B54 Y157)

DRAWING NOT TO SCALE

STANDARD HYDRANT INSTALLATION

TOWN OF HOLLY SPRINGS

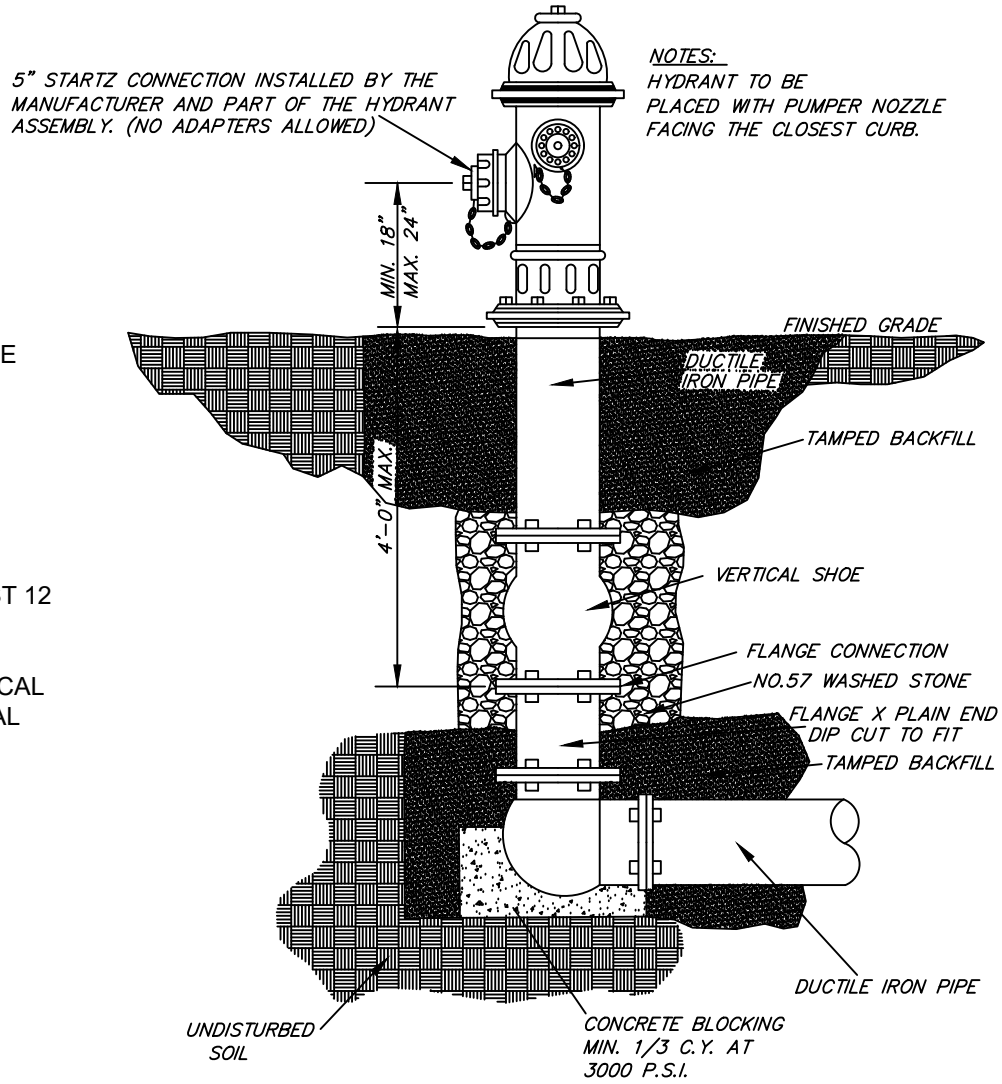
STANDARD DETAIL NUMBER: **HS622**

DATE	REVISIONS	1 of 2
4/10/26		
11/9/21		

Holly Springs
Discover The Source.

NOTES:

1. THE MAXIMUM DEPTH OF BURY FOR VERTICAL SHOE INSTALLATIONS SHALL NOT EXCEED 4 FEET MEASURED FROM THE BREAKAWAY FLANGE TO THE BOTTOM OF THE VERTICAL HYUDRANT SHOE.
2. 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 CONNECTIONS.
3. IN ALL CASES WHERE THE VERTICAL SHOE IS UTILIZED, TYPICAL WASHED STONE BEDDING EXTENDING AT LEAST 12 INCHES ON ALL SIDES OF THE CENTRAL AXIS AND EXTENDING FROM THE TOP OF THE VERTICAL SHOE DOWNWARD TO AT LEAST 12 INCHES BELOW THE VERTICAL SHOE SHALL BE PROVIDED SURROUNDING THE VERTICAL HYDRANT SHOE ASSEMBLY TO ASSURE POSITIVE DRAINAGE.
4. THE ENTIRE ASSEMBLY SHALL BE RESTRAINED AND SUPPORT BLOCKING SHALL BE PROVIDED UNDER THE VERTICAL BEND ASSEMBLY.
5. HYDRANTS SHALL BE YELLOW IN COLOR (SHERWIN WILLIAMS PRO INDUSTRIAL URETHANE ALKYD ENAMEL SAFETY YELLOW B54 Y157)



DRAWING NOT TO SCALE

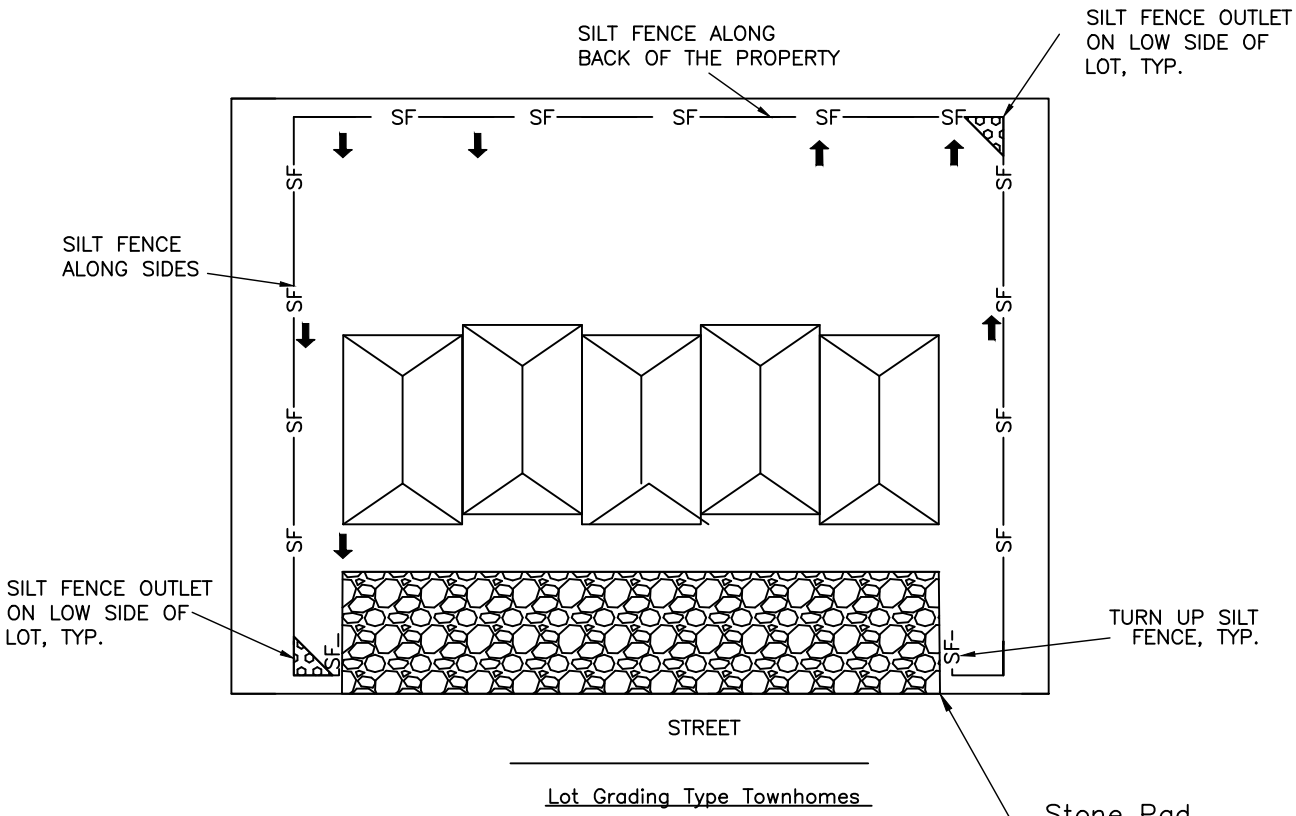
DEEP FIRE HYDRANT INSTALLATION

TOWN OF HOLLY SPRINGS

STANDARD DETAIL NUMBER: **HS622**

DATE	REVISIONS	2 of 2
4/10/26		
11/9/21		

Holly Springs
Discover The Source.



Lot Grading Type Townhomes

Stone Pad
Install 6" of 2"–3" Coarse Aggregate
20' Minimum Width, 12' Minimum Length

Note:
1. Stone Pad must be installed at all access points from the street or alley.
2. Install geotextile fabric below the stone pad.
3. Refer to standard detail HS401 for temporary silt fence installation
4. Refer to standard detail HS413 for silt fence outlet installation.

Maintenance Notes
1. Stone pad must be maintained to prevent tracking of sediment onto the street.
2. Periodically top dress stone or replace when overloaded with sediment.
3. Any material or sediment that is tracked onto the road must be removed immediately.
4. Inspect silt fence and silt fence outlets weekly and make any needed repairs.

DRAWING NOT TO SCALE

Townhome Lot Erosion and Sedimentation Control Detail

TOWN OF HOLLY SPRINGS ENGINEERING DEPARTMENT

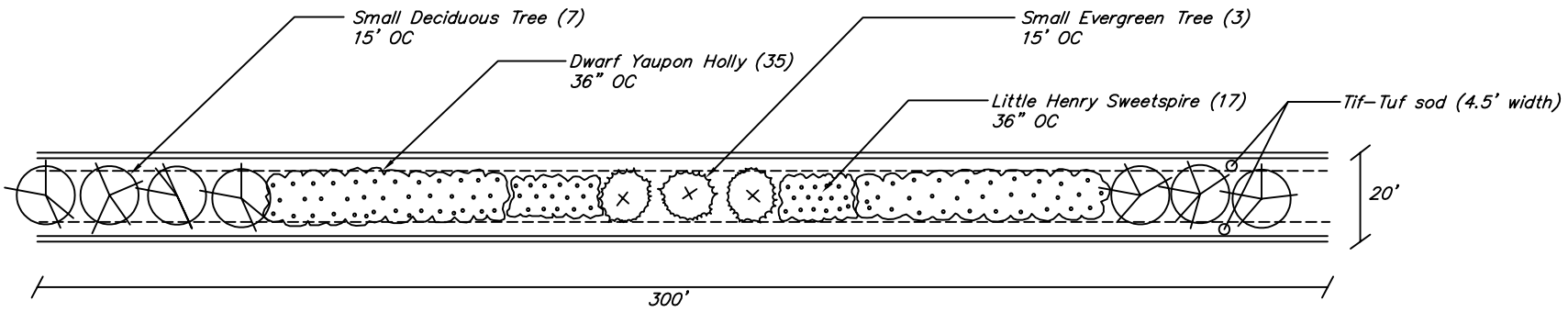
STANDARD DETAIL NUMBER: **HS0000**

DATE	REVISIONS
04/25/23	

Holly Springs
Discover The Source.

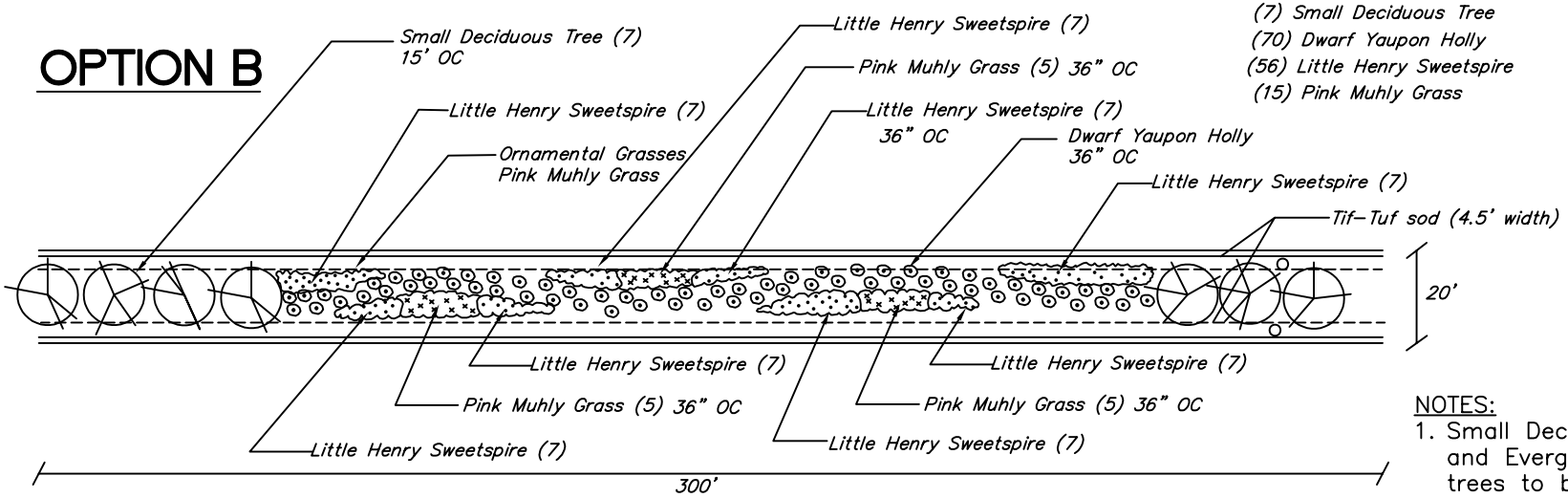
OPTION A

(7) Small Deciduous Tree
(3) Small Evergreen Tree
(70) Dwarf Yaupon Holly
(34) Little Henry Sweetspire



OPTION B

(7) Small Deciduous Tree
(70) Dwarf Yaupon Holly
(56) Little Henry Sweetspire
(15) Pink Muhly Grass



NOTES:
1. Small Deciduous and Evergreen trees to be coordinated with Development Services.

DRAWING NOT TO SCALE

MEDIAN LANDSCAPING

TOWN OF HOLLY SPRINGS

STANDARD DETAIL NUMBER: **HS823**

DATE	REVISIONS
4/5/19	
9/30/25	

HOLLY SPRINGS
Discover the Source

Engineering Construction and Design Standards
Supplement # 15 Log - June 2026

Section	Sub-Section	Item	Description
13.00	13.02	Wastewater pump systems and force mains	Updated the Table of Contents to include a new Section F: Pump Station Demolition and Abandonment.
13.00	13.01	Pump Station General	Added Number 8. All wastewater pump stations shall be connected to the Town's fiber optic network. An extension of the fiber optic network may be necessary complete a connection.
			Added fiber optic connection to Number 6 under Preliminary Site plan
			Added fiber optic connection to number 4 under C Final Design Requirements
			Added Fiberoptic to number 6 e. Under Final Design Requirements
13.00	13.01	Table 2: Equipment/Manufacturer List	13.02 D removed ValMatie under Valves. Removed Val-Matie replaced with Vent-Tech under Force Main Combination Air release Valve (ARVs)
			13.03 C Removed Inframark replaced with CITI. The town is in the process of changing Supervisory, Control, and Data Acquisition (SCADA) Vendor from Inframark to CITI
			13.03 G Removed Power Generation, Division Detroit Diesel Corp. Replaced Blue Star Power Systems Added a new row Generator Engine with Manufacturer column adding Caterpillar, Inc., Cummins, Onan, and John Deere.
13.00	13.02	Pump Station Site and Structures	4 A General: Changed 3.5 to 2.5 feet per second to reinstate this standard to align better with State Guidelines
			Section F: Pump Station Demolition and Abandonment has been added. This section outlines the standards and procedures for demolishing, removing, abandoning, and disposing of existing pump stations and their associated infrastructure.
			Added the clarification 'within the Pump Station Site, and outside of the Pump Station' to Item 13, Restraint, letter (a), to more clearly define where the restraint requirements apply.

13.00	13.05	Wastewater Force Mains	Revised Item 16(a) by reducing the required vertical separation from 24 inches to 18 inches. Added a note requiring Director approval when sanitary and storm sewers cross with less than 18 inches of separation. This update restores a standard consistent with State guidelines.
6.00	6.12	Water Distribution	Updated the Table of Contents to add a new section titled ‘Repair and Abandonment’ Added the following subsections: A. Water Service Line Repair, B. Abandonment of Existing Water Main, C. Abandonment of Existing Water Services, D. Fire Hydrant Assembly Abandonment, E. Blowoff Assembly Abandonment, and F. Combination Air Valve Abandonment.
6.00	6.02	Fire Hydrants (Public and Private)	Added Vertical Shoe Hydrant Installation requirements for hydrants deeper than 5 ft, including flanged vertical shoes (max 4 ft bury) and full restraint of shoe and supply piping.
6.00	6.03	Valves and Appurtenances	Added requirements in Section A for dead-end mains, including valve/thrust collar/blow-off assembly, proper termination in ROW/easement, and potential connection to nearby dead-ends to improve flow and quality.
6.00	6.04	Water Service Taps	Under Section A Materials (Meters for 3/4" Services): Removed "and installed" and added "Coordinate installations with the Town"
			Under Section A, Materials (Meters for Services 1 inch and greater): Removed the phrase ‘and installed by the Town of Holly Springs Public Works Department after approval by the Executive Director of Utilities and Infrastructure Services.’ Added ‘Coordinate installation with the Town.’ The previous reference to Public Works was outdated following the Town’s reorganization, as Public Works no longer installs meters; coordination will likely occur with Finance and Development Services.
6.00	6.12	Repair and Abandonment	Updated section name to align with added content and to establish abandonment standards.
			Added Section A on Water Service Line Repairs and created sub-sections.
			Added Section B outlining requirements for abandoning existing water mains, including rules for removal, grouting in place, disconnection, restraint, and valve/box removal with proper backfill and pavement repair
			Added Section C detailing requirements for abandoning existing water services, including removing service stubs, plugging/capping the Corp stop, marking the tap, and removing remaining service line to the ROW.
			Added Section D detailing hydrant abandonment procedures including valve closure, valve-box removal, hydrant removal and return, main capping/thrust-blocking, and proper backfill and restoration.
			Added Section E describing blowoff abandonment: close valve, remove assembly, and backfill with flowable fill and asphalt.

			Added Section F covering abandonment of combination air valves in both paved and unpaved areas, including valve closure, manhole removal, proper backfill, and surface restoration.
7.00	7.06	Sanitary Sewer	Updated Table of Contents to add ‘Repairs, Modifications, and Abandonments,’ and include Sections A–C for sewer main repairs, installation, and abandonment.
7.00	7.01	Gravity Sewer Mains	Added Item 15: Construction Involving Existing Sewer Mains.
			Added 15A requiring the sewer main to stay active and a contractor plan for protecting it during construction.
			Added 15B requiring contractors to submit demolition-related construction, reconnection, and bypass pumping plans for approval.
7.00	7.01	Gravity Sewer Mains	Added language under Section Manholes, Item 7, allowing the use of watertight covers and vents that extend a minimum of 24 inches above the 100-year flood elevation, pending approval from the Executive Director of Utilities & Infrastructure.
7.00	7.06	Repairs, Modifications, and Abandonment	Retitled section to ‘Repairs, Modifications, and Abandonment.
			Added Section A: Sewer Main Repair.
			Added Section B with new Item 2 requiring 6 in. washed-stone bedding compacted to 95% Proctor before installing replacement pipe.
			Added Section C: Abandonment of Existing Sewer Mains.
			Under Section C. Number 1. A detailed pumping and emergency plan shall be required for any sewer line draining event.
			Under Section C Number 2. All sanitary sewer mains and sewer force mains, active, inactive, or abandoned shall begin to be drained. All effluent shall be pumped to a downstream manhole (when available) or other containment tank utilizing continuous piping.
			Under Section C Number 3. Existing sewer mains and casings located outside of road sections shall be removed, unless otherwise directed by the Executive Director of Utilities and Infrastructure. All materials and labor shall be provided by the contractor.
			Under Section C. Number 4.Existing sewer mains and casings located within a road section shall be grout filled and abandoned in place.
			Under Section C. Number 5. In other locations, grout filling and abandonment in place may be allowed with prior approval from the Executive Director of Utilities and Infrastructure.

			Under Section C Number 6. 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.

Revised DETAILS	Name
HS373	Secondary Gateway Sign Foundation
HS374	Secondary Gateway Sign
HS622_1	Pump Station Layout < 10 HP
HS622_2	Typical Pump Station Site layout
HS823	Median Landscaping
HS1003	Townhome Lot Erosion and Sedimentation Control Detail

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 13.

Consent Agenda
Title: Holly Springs Rd. (Central) - Design Change Order #5
Strategic Priority Area: Community Safety
Vibrant Community
Growth Management & Economic Vitality
Staff Resource: Tim Athy, Utilities and Infrastructure

Action(s):

- Award and authorize the Town Manager to sign and execute the Kimley-Horn and Associates, Inc. (Kimley-Horn) design contract Change Order #5 in the amount of $24,000.
- Authorize the Town Manager to execute any change orders for the design contract within the approved design project budget.

Explanation:

- The Holly Springs Rd. (Central) transportation project is a capacity, mobility, and safety improvement project between Flint Point Ln. and Main St. Improvements include installing a four-lane median divided roadway with pedestrian safety improvements.
- This change order includes: (1) staking Duke Energy utility easements for vegetation clearing; and (2) individual, recordable parcel plats for right-of-way and easement condemnations.
    - Once Duke has cleared their easements, they can begin the overhead power line relocation.
    - It is vital for Duke Energy to begin their relocations this summer to keep the project on schedule.
    - Preparation of individual parcel plats will streamline the recordation process for property, rights-of-way, and easements subject to condemnation.
- At the June 2, 2026, Mayor and Town Council Business meeting, Council approved the Condemnation Resolution related to property acquisitions for the Holly Springs Rd. (Central) project.
- The $14+ million Locally Administered Projects Program (LAPP) grant awarded to the Town is funded with federal dollars, which by law, requires the Town to acquire property according to the Uniform Act of 1970.

Background:

- At the 2022 Mayor and Town Council Retreat, council provided guidance for staff to resume project efforts and endorsed a funding strategy for the planning, design, and construction of the "Central" portion of Holly Springs Rd. improvements.

- Current scheduling anticipates construction bidding for the project to occur in late 2026.

Funding Source(s):

- Community Investment Plan - Transportation Bond Funds / LAPP Grant funds

Attachment(s):

1. HSR(central) Kimley-Horn_CO#5

CHANGE ORDER INSTRUCTIONS

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling Contract changes that affect the Contract Sum or Price or the Contract Time or Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect the Contract Sum or Price or the Contract Time or Times.

Changes that affect the Contract Sum or Price or the Contract Time or Times should be promptly covered by a Change Order. The practice of accumulating change order items to reduce the administrative burden may lead to unnecessary disputes.

If milestones have been listed, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Sum or Price or the Contract Time or Times, a Field Order may be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer or Architect initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer or Architect has completed and signed the form, all copies should be sent to Contractor for approval. After approval and signature by Contractor, all copies should be sent to Owner for approval. Engineer or Architect should distribute executed copies after approval by Owner.

If a change only applies to the Contract Sum or Price or to the Contract Time or Times, cross out the part of the tabulation that does not apply.

CHANGE ORDER

CHANGE ORDER NO.: ___5____ DATE: June 1, 2026

Project: Holly Springs Road Widening Central, # U-6094

Contractor:_____

Engineer/Architect: Kimley-Horn and Associates, Inc.

CONTRACTOR is directed to make the following changes in the Contract Documents.

Description:

Revise Scope of Work to add Task 17 – Duke Easement Staking with wooden stakes; Create separate Duke easement plats for the parcels to be condemned.

Attachments: Change Order 5 Proposal from Bass Nixon Kennedy

CHANGE IN CONTRACT SUM OR PRICE:	CHANGE IN CONTRACT TIME OR TIMES:
Original Contract Price $491,800,00	Original Contract Times Substantial Completion:_____**N/A**_____ Ready for final payment: _____ days or dates
Net change from previous Change Orders No. 1 to 4: $501,784.00	Net change from previous Change Orders No. ____ to No. _____: _____ days
Contract Sum or Price prior to this Change Order $993,584.00	Contract Times with all approved Change Orders Substantial Completion:_____ Ready for final payment:_____ days or dates
Net Increase (~~decrease~~) of this Change Order $24,000.00	Net Increase (decrease) of this Change Order _____ days
Contract Sum or Price with all approved Change Orders $1,017,584.00	Contract Times with all approved Change Orders Substantial Completion:_____ Ready for final payment:_____ days or dates

RECOMMENDED:	**APPROVED:**	**ACCEPTED:**
By: _____	By: _____	By: _____
Director of Utilities & Infrastructure (Authorized Signature)	Town Manager (Authorized Signature)	Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____

The adjustment in Contract Sum or Price and/or Contract Time or Times stated in this Change Order shall comprise the total price and/or time adjustment due or owed the CONTRACTOR for the work or changes defined in this Change Order. By executing the Change Order, the CONTRACTOR acknowledges and agrees that the stipulated price and/or time adjustments include the costs and delays for all work contained in the Change Order, including costs and delays associated with the interruption of schedules, extended overheads, delay, and cumulative impacts or ripple effect on all other non-affected work under this Contract. Signing of the Change Order constitutes full and mutual accord and satisfaction for the adjustment in Contract Sum or Price or Contract Time or Times as a result of increases or decreases in costs and time of performance caused directly and indirectly from the change, subject to the current scope of the entire work as set forth in the Contract Documents. Acceptance of the waiver constitutes an agreement between OWNER and CONTRACTOR that the Change Order represents an equitable adjustment to the Contract, and that CONTRACTOR waives all rights to file a claim on this Change Order after it is properly executed.

IN WITNESS WHEREOF, the undersigned have caused the execution hereof:

CONTRACTOR: _____

ATTEST:

By: _____

Name: _____

_____

Secretary

Title: _____

Address: _____

[Corporate Seal]

Date: _____

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

By: _____ Date: _____

Title: _____

OWNER: TOWN OF HOLLY SPRINGS

Approval as to form and legal sufficiency:

By: _____

By: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

AMENDMENT NUMBER 05 TO THE AGREEMENT BETWEEN CLIENT AND KIMLEY-HORN AND ASSOCIATES, INC.

This is Amendment number 05 dated May 27, 2026 to the agreement between the Town of Holly Springs ("Client") and Kimley-Horn and Associates, Inc. ("Consultant") dated January 11, 2023 (“the Agreement") concerning U-6094 Holly Springs Road Widening- Central (the "Project").

The Consultant has entered into the Agreement with Client for the furnishing of professional services, and the parties now desire to amend the Agreement.

The Agreement is amended to include services to be performed by Consultant for compensation as set forth below in accordance with the terms of the Agreement, which are incorporated by reference.

Task 17 – Duke Easement Staking

Client has requested Consultant provide staking for the proposed Duke Energy Easement using wood stakes. BNK will provide this additional staking as requested by the Client as described in Attachment A.

For the services set forth above, Client shall pay Consultant the following compensation:

Kimley-Horn will perform the services in Task 17 for the total lump sum fee below. Individual task amounts are informational only. All permitting, application, and similar project fees will be paid directly by the Client.

Task 17 Duke Easement Staking	$24,000
Lump Sum Additional Budget this Amendment	$24,000

CLIENT:	CONSULTANT:
TOWN OF HOLLY SPRINGS	KIMLEY-HORN AND ASSOCIATES, INC.
By: _____	By: 
Title: _____	Title: Vice President
Date: _____	Date: May 27, 2026

BASS | NIXON | KENNEDY
CONSULTING ENGINEERS

6310 Chapel Hill Road, Ste 250
Raleigh, NC 27607
919.851.4422 | **bnkinc.com**

May 27, 2026

Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
Attn.: Chad Beck, P.E.

REF: U-6094 Holly Springs Road - Duke Easement Staking
Holly Springs, Wake County, NC

Dear Chad:
Bass, Nixon & Kennedy, Inc., (BNK) appreciates the opportunity to submit this proposal to offer Surveying Services in respect to the above reference subject.

SCOPE OF WORK

A. STAKE PROPOSED DUKE EASEMENTS (SEE ATTACHED BLUE & RED CLOUDED EXTENTS)

1. Stake proposed Duke easements with wood stakes

Lump Sum Fee "A" ……..…… $8,000.00

B. SEPARATE DUKE EASEMENT PLATS (16 PLATS, SEE ATTACHED PARCEL LIST)

1. Prepare individual standalone plats

Lump Sum Fee "B" ……..…… $16,000.00

Should additional services be required Bass, Nixon & Kennedy, Inc., will bill at the actual cost. Recordation Fees, Plat Review Fees, Deliveries, Electronic Transmissions, Concrete Monuments, etc., are not included in the above Fee Proposal. A 2026 Schedule of Rates is attached for your use.

We expect to start Services within 1-2 weeks after receipt of your acceptance of this Proposal and notification to our office unless a different time is indicated and agreed upon.

The contract is subject to the Appendix 1 - Terms and Conditions.

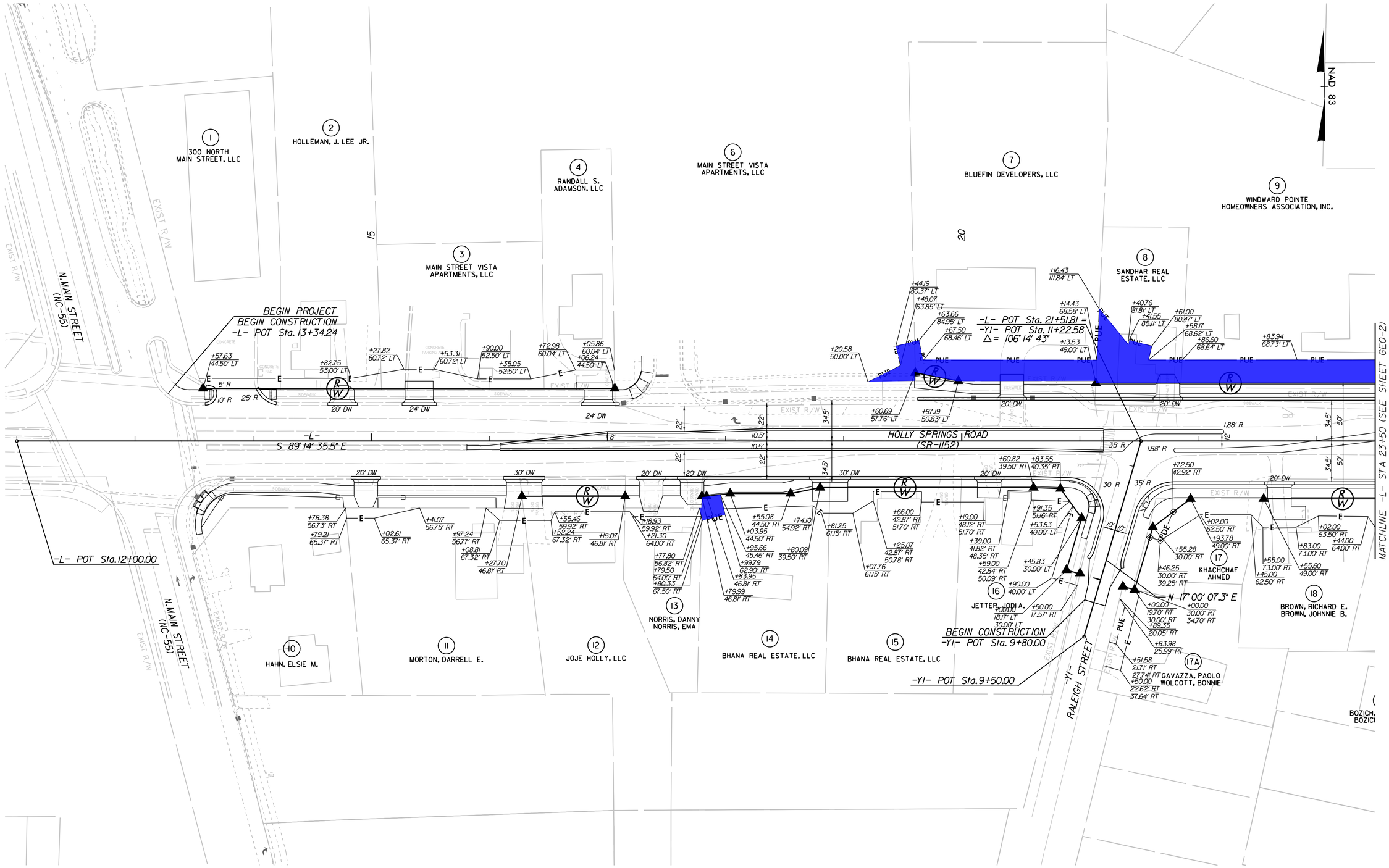
This proposal and schedule is valid through August 27, 2026. We reserve the right to renegotiate the fee if the project is not completed within 18 months of the contract signing date. If these terms are satisfactory, please sign this proposal and return for our files.

Very truly yours,
Bass, Nixon & Kennedy, Inc.

Dan Gregory, PLS
Senior Principal Surveyor, VP

Accepted this the __ day of _____2026.

BY:_____



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3/30/2026

REV. No.:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

PREPARED IN THE OFFICE OF:
Kimley»Horn
300 S. MAIN STREET, SUITE 212, HOLLY SPRINGS, NC, 27540
PHONE: (919) 682-3583
PE NO. F-0102

GEOMETRY SHEETS

20 0 40

PROJECT:
U-6094 HOLLY SPRINGS ROAD WIDENING

JOB NUMBER:	SHEET NUMBER:
012329059	GEO-1

NAD 83

-L-
PI Sta 32+02.37
Δ = 1° 43' 57.8" (LT)
D = 0° 34' 22.6"
L = 302.42'
T = 151.22'
R = 10,000.00'

-Y2-
PI Sta 11+03.42
Δ = 13° 28' 46.8" (LT)
D = 22° 55' 05.9"
L = 58.82'
T = 29.54'
R = 250.00'

-Y2- POT Sta. 14+29.14

END CONSTRUCTION
-Y2- POT Sta. 13+50.00

-L- PC Sta. 30+51.15

-L- POC Sta. 30+76.29 =
-Y3- POT Sta. 12+11.79
Δ = 88° 19' 30"

-L- PT Sta. 33+53.57

-Y2- CAYMAN AVENUE
N 0° 43' 17.7" E

-Y3- JOHNSON STREET

SCHOOL DAYS LANE

SCHOOL DRIVE

9 WINDWARD POINTE HOMEOWNERS ASSOCIATION, INC.

19 ROUSE, CHRISTOPHER B.
ROUSE, JULIEANNE C.

20 WAKE COUNTY BOARD OF EDUCATION

HOLLY SPRINGS ROAD (SR-1152)
-L-
S 89° 14' 35.5" E

-L-
N 89° 01' 26.7" E

MATCHLINE -L- STA 23+50 (SEE SHEET GEO-1)

MATCHLINE -L- STA 35+00 (SEE SHEET GEO-3)

-Y2- COLLINS STREET

-L- POT Sta. 24+58.52 =
-Y2- POT Sta. 12+33.76
Δ = 89° 57' 53"

-Y2- PT Sta. 11+32.69

-Y2- PC Sta. 10+73.87

N 14° 12' 04.5" E

BEGIN CONSTRUCTION
-Y2- POT Sta. 10+17.63

-Y2- POT Sta. 10+00.00

21 MORTON, SARAH W.

21A

21B VINCENT, ERIKA

22 ATWATER, AMON J.
ATWATER, GERALDINE J.

22A WHITE, CASEY LYNN
GRANACK, WILLIAM

23 ATWATER, AMON J.
ATWATER, GERALDINE J.

24 ATWATER, AMON J.
ATWATER, GERALDINE J.

25 MANDHATA, ANKITA
PRADHAN, SUCHANDAN

25A MASSON, JILLIAN R.
MASSON, ROBERT W.

BEGIN CONSTRUCTION
-Y3- POT Sta. 10+66.00

-Y3- POT Sta. 10+00.00

26 APA HOLLY SPRINGS PROPERTIES, LLC

27 LEO DEVELOPMENT LLC

28 JONES, RICHARD L.
JONES, TERRY J.

N 03° 43' 7" W

REV. No.:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

PREPARED IN THE OFFICE OF:
Kimley»Horn
300 S. MAIN STREET, SUITE 212, HOLLY SPRINGS, NC, 27540
PHONE: (919) 682-3583
PE NO. F-0102

GEOMETRY SHEETS

20 0 40

PROJECT:
U-6094 HOLLY SPRINGS ROAD WIDENING

JOB NUMBER: 012329059
SHEET NUMBER: GEO-2

3/30/2026

K:\DUR_Roadway\012329059 - U-6094\Roadway\Pro\GEO Sheets\012329059_GEO_2.dgn

NAD 83

-Y4- POT Sta. 21+00.00

-L- PI Sta. 35+91.84

-L- PI Sta. 38+49.97

-L- POT Sta. 43+45.58 =
-Y4- POC Sta.19+49.16
△ = 90° 05' 23"

-Y4- PT Sta. 19+69.42

-L- POT Sta. 43+45.59 =
-Y4- POC Sta.19+47.59
△ = 89° 28' 55"

35

40

45

(29) RHAMKATTE PARTNERS, LLC

(30) RHAMKATTE PARTNERS, LLC

(31) RHAMKATTE PARTNERS, LLC

(32) JONES, RICHARD L.
JONES, TERRY J.

(33) TIMBER SPRINGS ASSOCIATION LIMITED PARTNERSHIP

(34) EVANS HOLLY SPRINGS, LLC

(35) FIRST NATIONAL BANK OF PENNSYLVANIA

-L- N 89° 01' 26.7" E

N 87° 51' 21.5" E

HOLLY SPRINGS ROAD (SR-1152)

-L- N 88° 48' 21.6" E

-Y4- N 0° 14' 44.3" E

BASS LAKE ROAD (SR-1393)

-Y4-

MATCHLINE -L- STA 35+00 (SEE SHEET GEO-2)

MATCHLINE -L- STA 45+00 (SEE SHEET GEO-4)

MATCHLINE -Y4- STA 17+50 (SEE SHEET GEO-6)

EXIST R/W

PUE

+91.20 62.50' LT
+49.97 62.50' LT
+53.37 62.50' LT
+03.40 62.50' LT
+48.13 62.50' LT
+10.36 52.15' LT
+22.07 44.14' LT
+09.55 61.50' LT 67.00' LT
+34.00 61.00' RT
+46.00 74.00' RT
+91.77 49.00' RT
+51.00 66.50' RT
+07.16 52.79' RT
+35.00 64.00' RT
+29.80 50.25' RT
+25.00 66.50' RT
+49.44 64.00' RT
+70.73 49.83' RT 54.80' RT
+88.00 49.84' RT 54.86' RT 58.65' RT
+83.00 64.00' RT 91.00' RT
+95.00 108.00' RT
+41.00 108.00' RT
+53.00 91.00' RT
+87.48 71.00' RT
+68.97 91.00' RT
+10.00 71.00' RT
+17.00 80.00' RT
+70.84 61.00' RT
+56.00 78.50' RT
+14.29 61.00' RT 67.19' RT
+91.91 67.12' RT 82.19' RT
+67.07 72.63' RT
+71.17 61.00' RT
+88.25 83.50' RT
+52.00 52.00' LT
+51.32 44.11' LT
+50.67 44.05' LT
+32.30 50.35' RT 62.00' RT
+25.00 70.50' RT
+16.84 62.00' RT
+52.00 62.00' RT
+48.00 64.00' RT
+59.24 49.22' RT
+20.91 45.90' RT
+00.00 67.00' RT
+50.00 62.00' RT

15' R 20' R 30' R 20' R 35' R 45' R 30' R 30' R 50' R 50' R 15' R 7.5' R

35.3' 46.5' 56' 62'

-Y4-

PI Sta 16+69.03
△ = 42° 00' 53.8" (RT)
D = 6° 39' 44.3"
L = 630.64'
T = 330.25'
R = 860.00'

REV. No.:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

PREPARED IN THE OFFICE OF:
Kimley»Horn
300 S. MAIN STREET, SUITE 212, HOLLY SPRINGS, NC, 27540
PHONE: (919) 682-3583
PE NO. F-0102

GEOMETRY SHEETS

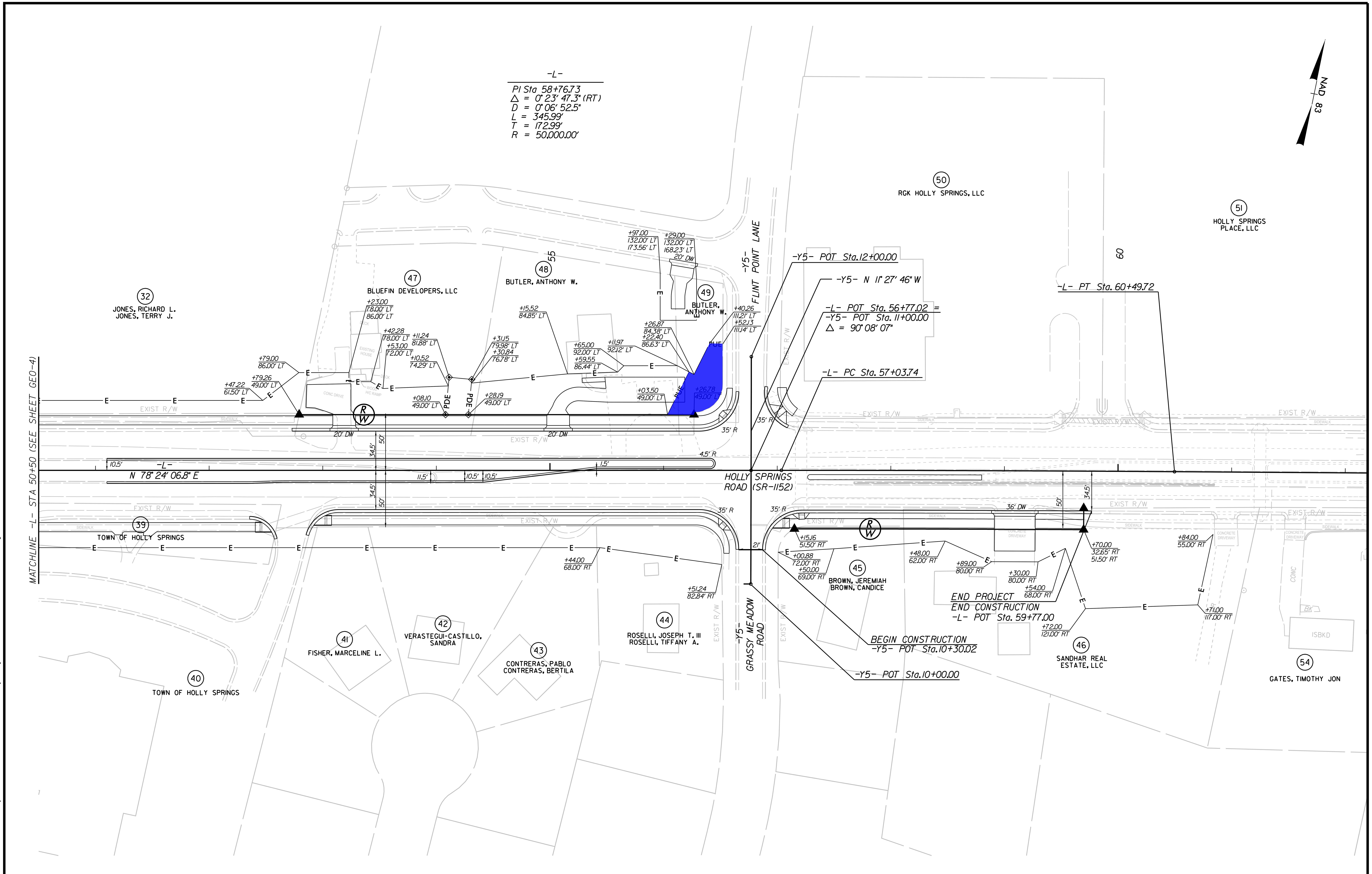
20 0 40

PROJECT:
U-6094 HOLLY SPRINGS ROAD WIDENING

JOB NUMBER: 012329059
SHEET NUMBER: GEO-3

K:\DUR_Roadway\012329059 - U-6094\Roadway\Pro\GEO Sheets\012329059_GEO_3.dgn

5/26/2026


-L-
PI Sta 58+76.73
Δ = 0°23' 47.3" (RT)
D = 0°06' 52.5"
L = 345.99'
T = 172.99'
R = 50,000.00'
NAD 83
50
RGK HOLLY SPRINGS, LLC
51
HOLLY SPRINGS PLACE, LLC
32
JONES, RICHARD L.
JONES, TERRY J.
47
BLUEFIN DEVELOPERS, LLC
48
BUTLER, ANTHONY W.
49
BUTLER, ANTHONY W.
-Y5- FLINT POINT LANE
-Y5- POT Sta.12+00.00
-Y5- N 11° 27' 46" W
-L- POT Sta. 56+77.02 =
-Y5- POT Sta. 11+00.00
Δ = 90° 08' 07"
-L- PC Sta. 57+03.74
-L- PT Sta. 60+49.72
MATCHLINE -L- STA 50+50 (SEE SHEET GEO-4)
EXIST R/W
N 78° 24' 06.8" E
HOLLY SPRINGS ROAD (SR-1152)
39
TOWN OF HOLLY SPRINGS
40
TOWN OF HOLLY SPRINGS
41
FISHER, MARCELINE L.
42
VERASTEGUI-CASTILLO, SANDRA
43
CONTRERAS, PABLO
CONTRERAS, BERTILA
44
ROSELLI, JOSEPH T. III
ROSELLI, TIFFANY A.
-Y5- GRASSY MEADOW ROAD
45
BROWN, JEREMIAH
BROWN, CANDICE
BEGIN CONSTRUCTION
-Y5- POT Sta. 10+30.02
-Y5- POT Sta. 10+00.00
END PROJECT
END CONSTRUCTION
-L- POT Sta. 59+77.00
46
SANDHAR REAL ESTATE, LLC
54
GATES, TIMOTHY JON

REV. No.:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

PREPARED IN THE OFFICE OF:
Kimley»Horn
300 S. MAIN STREET, SUITE 212, HOLLY SPRINGS, NC 27540
PHONE: (919) 682-3583
PE NO. F-0102

GEOMETRY SHEETS

20 0 40

PROJECT:
U-6094 HOLLY SPRINGS ROAD WIDENING

JOB NUMBER: 012329059
SHEET NUMBER: GEO-5

Attachment A

Holly Springs Road Widening- Central — Property Report

Status Filter: **Pre-Condemnation** | 16 properties

Generated: May 22, 2026 at 1:55 PM

Town Project #
18-001

Est. Construction Start
09/21/2026

Acquisition % Complete
0 / 16 properties (0%)

Statutory Authority
(1) Opening, widening, extending, or improving roads, streets, alleys, and sidewalks. The authority contained in this subsection is in addition to the authority to acquire rights-of-way for streets, sidewalks and highways under Article 9 of Chapter 136. The provisions of this subdivision (1) shall not apply to counties.

#	Street Address	Owner(s)	Town Appraised Val	Appraiser Val	Amount Settled
1	0 Collins St	Amon J Atwater, Geraldine J Atwater	—	—	—
2	0 Holly Springs Rd	Anthony W Butler	—	—	—
3	0 Holly Springs Rd	Amon J Atwater, Geraldine J Atwater	—	—	—
4	100 Timber Springs Ct	Springs Assoc Lmtd Prtnshp Timber	—	$29,500.00	—
5	10332 Holly Springs Rd	Anthony W Butler	—	$52,125.00	—
6	104 Bass Lake Rd	Holly Springs Llc Evans	—	$174,350.00	—
7	109 Holly Springs Road	Lee Holleman Jr.	$2,365.00	—	—
8	124 Holly Springs Rd	JOJE HOLLY, LLC	—	$37,125.00	—
9	152 Holly Springs Rd	Jodi Ann Jetter	—	$57,475.00	—
10	216 Holly Springs Rd	Sarah Wright Heirs Morton	—	$66,675.00	—
11	300 Cayman Ave	Christopher Blair Rouse, Julieanne G. Rouse	—	$63,635.00	—
12	324 N. Main Street	Main Street Vista Apartments, LLC	—	—	—
13	412 Holly Springs Rd	Amon J Atwater, Geraldine J Atwater	—	$121,925.00	—
14	500 Holly Springs Rd	Holly Springs Properties Llc Apa	—	$32,925.00	—
15	716 Holly Springs Rd	Venkatesh Bollisetty, Raghu Varma Dantuluri, Ravi Varma Dantuluri, Sampath Kumar Tadikonda, Krishna R. Vegiraju	—	$20,875.00	—
16	717 Holly Springs Rd	Richard Lane Jones, Terry Jackson Jones	—	$13,775.00	—
		Grand Total — 16 properties	**$2,365.00**	**$670,385.00**	**—**

Holly Springs Road Widening- Central | Status: Pre-Condemnation

Printed: 05/22/2026 1:55 PM

SCOPE "B" PARCEL LIST
TO BE SEPARATE PLATS

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 14.

Public Hearings
Title: Consideration of a Moratorium on Data Centers
Strategic Priority Area: Growth Management & Economic Vitality
Staff Resource: Sean Ryan, Development Services

Action(s):

- Conduct Public Hearing.
- Consider adoption of Ordinance 26-19 to approve a 12-month moratorium on the acceptance, processing, and approval of development applications for data centers, cryptocurrency mining, data processing, and other uses associated with data centers as specific uses within the Town of Holly Springs corporate limits and its extraterritorial jurisdiction.

Explanation:

- The purpose of the proposed moratorium is to allow the Town sufficient time to study, develop, and consider appropriate amendments to the Unified Development Ordinance (UDO) and related policies addressing the unique land use, infrastructure, environmental, and operational characteristics of data center development.
- These considerations may include, but are not limited to, impacts on water consumption, energy demand, backup power generation, noise, land use compatibility, and transportation infrastructure.

Background:

- NCGS §160D-107 allows local governments to adopt temporary moratoria on any development approval required by law, except for the purpose of developing and adopting new or amended plans or development regulations governing residential uses.
- The duration of any moratorium shall be reasonable in light of the specific conditions that warrant imposition of the moratorium and may not exceed the period of time necessary to correct, modify, or resolve such conditions.
- Should the Town determine that the issues and conditions giving rise to the moratorium have been resolved before the established termination date, the Town Council may repeal or lift the moratorium prior to its expiration.
- Any development regulation establishing a development moratorium must include, at the time of adoption, each of the following:
    - A statement of the problems or conditions necessitating the moratorium and what courses of action, alternative to a moratorium, were considered by the local government and why those alternative courses of action were not deemed adequate.

    - A statement of the development approvals subject to the moratorium and how a moratorium on those approvals will address the problems or conditions leading to imposition of the moratorium.
    - A date for termination of the moratorium and a statement setting forth why that duration is reasonably necessary to address the problems or conditions leading to imposition of the moratorium.
    - A statement of the actions, and the schedule for those actions, proposed to be taken by the local government during the duration of the moratorium to address the problems or conditions leading to imposition of the moratorium.
- A public hearing of a proposed development moratorium with a duration of 61 days or longer must be advertised not less than 10 days nor more than 25 days before the date scheduled for the hearing. The notice of public hearing was published on June 5, 2026 and June 12, 2026.

Funding Source(s):

N/A

Attachment(s):

1. 26-19 DataCenterMoritorium_ORD

Ordinance No. **26-19**
Date Submitted: June 16, 2026
Date Adopted: June 16, 2026

AN ORDINANCE INSTITUTING A TEMPORARY MORATORIUM ON THE PERMITTING OF DATA CENTERS, DATA PROCESSING FACILITIES, CRYPTOCURRENCY MINING OPERATIONS AND ANY USE ASSOCIATED WITH DATA PROCESSING FACILITIES WITHIN THE TOWN OF HOLLY SPRINGS, NORTH CAROLINA PURSUANT TO NORTH CAROLINA GENERAL STATUTE §160D-107

WHEREAS, pursuant to N.C. Gen. Stat. §160D-107, Local Governments may adopt an ordinance authorizing a temporary moratorium on any development approval required by law; and

WHEREAS, the Town of Holly Springs Unified Development Ordinance (UDO) definition for "Data Center" is inadequate for the modern meaning of a Data Center and contemplates data centers being for a particular business, as opposed to independent, stand-alone data centers that serve multiple business or industrial uses where it is likely that power and water utility provisioning require expansion; and

WHEREAS, the Town of Holly Springs Town Council at its June 16, 2026 regular meeting held a public hearing regarding this moratorium in accordance with NCGS §160D-601; and

WHEREAS, the Town of Holly Springs Town Council believe such a moratorium will protect the public interest and welfare of the residents of the Town of Holly Springs until such regulations regarding the aforementioned uses are adopted

NOW THEREFORE, BE IT ORDAINED by the Holly Springs Town Council of the Town of Holly Springs, North Carolina:

Part 1: A temporary moratorium is hereby imposed commencing on June 17, 2026 and expiring no later than June 16, 2027, or upon approval of Unified Development Ordinance amendments regarding data centers, data processing facilities, cryptocurrency mining operations, and uses associated with data processing facilities in the Town of Holly Springs Unified Development Ordinance. This moratorium specifically includes corporate limits and extraterritorial jurisdiction. For the purposes of this moratorium, a data center, data processing facility, or cryptocurrency mining operation is a building, a dedicated space within a building, or group of buildings housing computer systems and associated components, such as telecommunication and data processing systems, to be used for remote storage, processing, or distribution of large amounts of data, often times where existing utilities are inadequate to support the use associated with the data center. Examples of such data include, but are not limited to, computationally intensive applications such as cryptocurrency mining, artificial intelligence (A.I.) computing, weather modeling, genome sequencing, application hosting, cloud storage, video and technical streaming services, etc. This moratorium shall not apply to on-site data processing equipment or server rooms that are clearly incidental and subordinate to a permitted principal use and are intended solely to support the

on-site operations of such principal use, provided that such equipment or server rooms comply with all applicable provisions of the Town of Holly Springs UDO.

Part 2: In compliance with the requirements of N.C. Gen. Stat. §160D-107, the Town of Holly Springs makes the following statements:

1) Modern Data centers, data processing facilities, cryptocurrency mining operations, and any other uses associated with data processing facilities require considerable amounts of electricity and water usage, which can result in greenhouse gas emissions, as well as additional pollution, e-waste, noise, and other local impacts to residents and communities living near the facilities. The Town of Holly Springs finds it necessary to review and modify zoning standards and mitigation methods to address these intensive land use types that may cause detrimental harm to the natural environment and the quality of life of Town residents. The Town seeks time to develop such standards.

   The Town has looked at alternative solutions to a moratorium, including a recently adopted amendment the UDO to modify the process for seeking approvals of Data Centers to a Conditional Zoning District, however no additional alternative solutions exist to provide the Town of Holly Springs the time necessary to review and modify zoning standards and mitigation methods. The Town has determined that the definition of Data Center in the UDO does not consider modern data centers for business operations, data processing facilities, or computationally intensive applications such as cryptocurrency mining, artificial intelligence (A.I.) computing, weather modeling, genome sequencing, application hosting, cloud storage, video and technical streaming services, etc. and other uses associated with data processing facility. To simply allow this intensive land use to be permitted without regard to location, height, size, density, population, industry, residence or other purposes would be counter to the stated goals of Vision Holly Springs Town of Holly Springs Comprehensive Plan.

2) The moratorium shall apply to the acceptance, processing, and/or approval of UDO Permit/Applications for data centers, cryptocurrency mining, data processing, and other uses associated with data centers as specific uses within the Town of Holly Springs corporate limits and its extraterritorial jurisdiction and will provide the Town of Holly Springs the opportunity to develop the land use regulations required to mitigate the negative impacts associated with land uses described as data centers, data processing facilities, cryptocurrency mining, and any other uses associated with data processing facilities such as utility substations, utility mains, and other Town and private utilities, the locating of which requires a more planned approach for the Town's future needs notwithstanding the single use of a Data Center.

3) The moratorium shall begin on June 17, 2026, and shall last until June 16, 2027, or upon a UDO amendment addressing the land uses of data centers, data processing facilities, cryptocurrency mining, and other uses associated with data processing facilities, whichever comes first. This twelve (12) month moratorium is necessary to allow The Town of Holly Springs the time to study these uses and their impacts, to consider zoning standards and mitigation methods, utility access and provisioning, and to prepare an amendment to the UDO to address data centers, data processing facilities, cryptocurrency mining, and other uses associated with data processing facilities prior to the expiration of the moratorium.

4) The Town of Holly Springs will study the impacts of data centers, data processing facilities, cryptocurrency mining, and any other uses associated with data processing facilities on communities and will also investigate how other communities in North Carolina and across the

United States have addressed these impacts through zoning regulations. The Town of Holly Springs will develop the land use regulations required to mitigate the negative impacts associated with land uses described as data centers, data processing facilities, cryptocurrency mining, and any other uses associated with data processing facilities. Subsequently, UDO amendments will be proposed which will then follow the legislative process for adoption. The research, policy development, and legislative processes necessitate an adequate moratorium time limit of twelve (12) months.

Part 3: **REPEAL OF CONFLICTING ORDINANCES**
All ordinances or parts of the Town Code of Ordinances of the Town of Holly Springs conflicting or inconsistent with the provisions of this Ordinance are hereby repealed.

Part 4: **SEVERABILITY**
If any section, part of a section, paragraph, sentence, clause, phrase, or word of this Ordinance is for any reason held or declared to be unconstitutional, inoperative or void, such holdings shall not affect the remaining portion of this Ordinance and it shall be construed to have been the legislative intent to pass the Ordinance without such unconstitutional, invalid or inoperative part therein, and the remainder of this Ordinance after the exclusion of such part or parts shall be deemed to be held valid as if such part or parts had not been included therein, or if this Ordinance or any of the provisions thereof shall be held inapplicable to any person, group of persons, property, kind of property, circumstances, or set of circumstances, such holdings shall not affect the applicability thereof to any other person, property or circumstances.

Part 5: **INCLUSION IN CODE**
It is the intention of the Town Council entered as hereby ordained, that the provisions of this Ordinance shall become and be made part of the Town Code of Ordinances of the Town of Holly Springs, North Carolina; that the Section(s) of this Ordinance may be renumbered or relettered to accomplish such intention, and that the word “Ordinance” may be changed to “Section, or “Article” or other word.

Part 6: **EFFECTIVE DATE**
The provisions of this ordinance shall become effective June 17, 2026 in accordance with the laws of the State of North Carolina.

Adopted this, the 16th day of June 2026.

Town of Holly Springs by

_____
Michael D. Kondratick, Mayor

ATTEST:

_____
Linda McKinney, Town Clerk

Holly Springs Town Council

Town Council Meeting Agenda Cover Sheet

Agenda Item#: 15.

New Business
Title: Bridge Naming Endorsement in Honor of Deputy Mark R. Tucker
Strategic Priority Area: Vibrant Community
Staff Resource: Linda McKinney, Town Clerk

Action(s):
Adopt Resolution 26-20 endorsing the naming of the Holly Springs Road bridge over 540 in honor of Deputy Mark R. Tucker.

Explanation:

- Staff were approached by the Wake County Fraternal Order of Police, Lodge 41, who wish to have the bridge on Holly Springs Road over NC540 named in honor of Deputy Mark R. Tucker.
- Holly Springs Road is an NCDOT road and requires a unanimous resolution from the municipality in which the bridge is located in order to consider the request.
- Mr. Frank Malinski presented the request to Council at the May 19, 2026, meeting.
- Council instructed the Town Clerk to put this item on the June 16, 2026, agenda for consideration.

Background:

- Mark R. Tucker served as a Deputy in the Wake County Sheriff's Department for 24 years.
- He was killed in the line of duty on February 12, 2004, approximately 1.4 miles from where the bridge stands.
- The naming of this bridge to honor Deputy Tucker has received broad support from members of law enforcement, politicians, religious leaders, and his former colleagues.

Funding Source(s):
N/A

Attachment(s):
1. Resolution 26-20 Endorsing Bridge Naming in Honor of Deputy Mark Tucker

Resolution No. 26-20
Date Adopted: June 16, 2026
Effective Date: June 16, 2026

RESOLUTION ENDORSING BRIDGE NAMING
IN HONOR OF DEPUTY MARK R. TUCKER

WHEREAS, The Town Council of Holly Springs by way of the Wake County Fraternal Order of Police Lodge 41 has requested the North Carolina Department of Transportation (NCDOT) to name the Holly Springs Road bridge over NC540 in honor of Deputy Mark R. Tucker; and

WHEREAS, Deputy Mark R. Tucker was killed in the line of duty on February 12, 2004 by an armed assailant; and

WHEREAS, Deputy Mark R. Tucker began his law enforcement career with the Wake County Sheriff's Office on the 23rd day of February 1976; and

WHEREAS, Deputy Mark R. Tucker served honorably as the Untied States Marshal for the Eastern District of North Carolina from 1999 to 2002; and

WHEREAS, Deputy Mark R. Tucker served as the President of the Wake County Fraternal Order of Police Lodge 41 for 12 years from 1989 to 2002; and

WHEREAS, NCDOT requires a Resolution of support from the Town of Holly Springs Council to consider the bridge naming request for the Holly Springs Road bridge.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF HOLLY SPRINGS, NORTH CAROLINA that the Town Council of Holly Springs endorses the naming of the Holly Springs Road bridge over NC 540 in honor of Deputy Mark R. Tucker.

Adopted by the Holly Springs Town Council on this, the 16th day of June, 2026.

Town of Holly Springs by

_____
Michael D. Kondratick, Mayor

ATTEST:

_____
Linda McKinney, Town Clerk