Briar Chapel Reclaimed Water System

Presentation to Chatham County
Board of Commissioners

System Capacity

The Briar Chapel Reclaimed Water System has adequate capacity for the Briar Chapel final two phases (148 lots).

- WWTP
  - 2019 average flow was 191,699 Gallons Per Day (GPD)
  - 2020 YTD average flow is 205,000 GPD
  - Plant is currently rated for 250,000 GPD

- Current irrigation capacity is 285,734 GPD

Capacity Expansion Plans

- The plant is treated under the 80/90 rule per NC Administrative Code 15A NCAC 02T.0118 which states:

  "Prior to exceeding 80 percent of the system's permitted hydraulic capacity (based on average flow during the last calendar year), the permittee shall submit an engineering evaluation of their future wastewater treatment, utilization, and disposal needs."

  "Prior to exceeding 90 percent of the system's permitted hydraulic needs(based on average flow during the last calendar year), the permittee shall obtain all permits needed of the expansion of the wastewater treatment, utilization, and disposal system and, if construction is needed, submit final plans and specifications for expansion, including a construction schedule."

- Design for the WWTP expansion is anticipated to be complete by 1/15/2021, with construction starting immediately

- Construction completion is anticipated by 12/31/2021

Odor Remediation

There have been concerns about odor from the reclaimed water system from Briar Chapel residents

- The majority of these concerns were related to the reclaimed irrigation system
    - Redundant aeration and bubbler systems have been added to the storage ponds to ensure adequate constant aeriation to prevent stagnation
    - The irrigation system was extensively flushed in the spring. The reclaimed water system is comprised of over 70 miles of irrigation lines, which means a significant amount of water and debris was flushed through the system. To avoid inconvenience to Briar Chapel residents, the initial flushing was performed away from homes and in late evening and early morning hours.
    - A chlorine feed was added to the irrigation system to add small amounts of chlorine, eliminating odor causing bacteria from the system

There have been operational adjustments at the water reclamation facility to try and minimize the odor concerns, especially since the beginning of 2020.

- Odor complaints were investigated to determine their source.
- Timers were installed on the digestor, allowing them to run later at night.
- NCDEQ's site visit on March 13, 2020 found that unusual odors were not detectable.

NCDEQ April 22, 2020 Letter

- “On March 13, 2020, Rick Trone, Scott Vinson, and Jason Robinson of the Raleigh Regional Office, Division of Water Resources (DWR) conducted a follow-up inspection of the non-conjunctive and conjunctive wastewater treatment, reclaimed water utilization system, and collection system located at the Briar Chapel Development.”

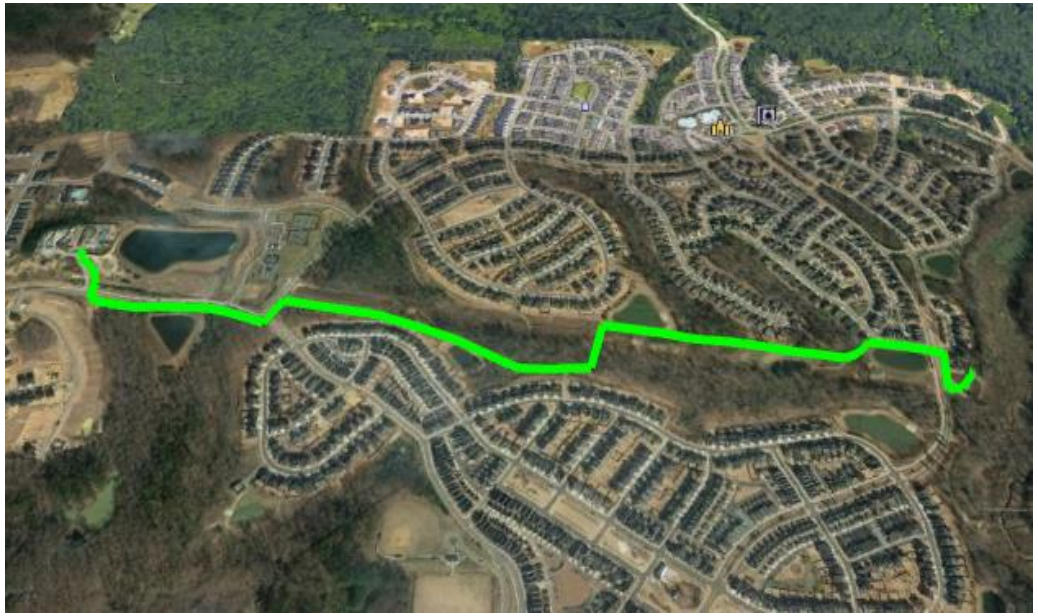
- “Because of the large number of odor complaints residents have communicated to the Raleigh Regional Office, DWR Staff drove around the portions of the community closest to the treatment facility. Particular attention was paid to the Encore Development. ***No unusual odors related to the treatment facility were noted at the time of the site visit.*** ONSWC Staff explained that a hydrogen sulfide sensor had been installed at the treatment plant headworks.”

Sewer Spills

There have been 29 sanitary sewer overflows (SSOs) (or spills) since 2016

- Fifteen (15) of these spills were the result of the failure of a force main running from Lift Station A to the Water Reclamation Facility shown in Figure A.
- Eight (8) of the spills were related to mechanical issues with Lift Station A.
- The remaining six (6) spills were related a variety of matters such as weather, BCCA draining its pool without coordination, and other lift station mechanical failures.

Figure A



BRIAR CHAPEL
OVERALL SEWER MAP

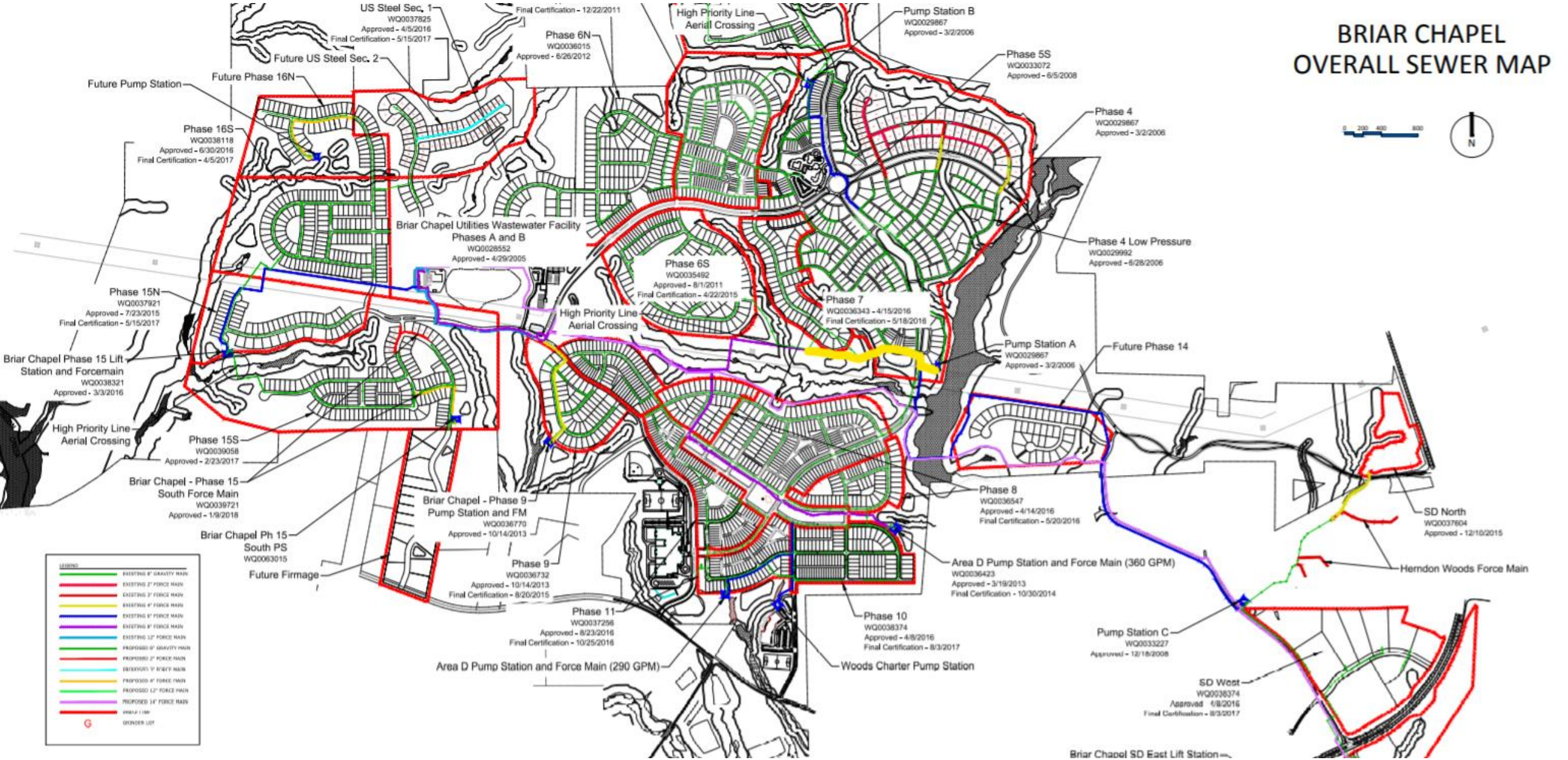


Figure B

Operational Repairs

- ONSWC has engaged an engineering firm to design and permit a force main bypass to completely bypass the old force main which has experienced these breaks. The bypass is shown in Figure B.
- The permit drawings were submitted to NCDEQ by September 30th.
- Expedited approvals will be requested in anticipation of completing the repair work before the end of the year.
- Concurrently with this bypass line construction, a natural gas powered pump will be installed, activated by a high water alarm. This will effectively double the capacity of Lift Station A, and should prevent any future overflows at the lift station.