

# TOWN OF PITTSBORO STANDARD SPECIFICATIONS

## SECTION 1

### ENGINEERING PLAN REVIEW AND PROJECT APPROVAL

01. **GENERAL:** This section contains requirements for the submittal of engineering plans to obtain approval for construction and acceptance of the project by the Town of Pittsboro.
02. **PLAN SUBMITTAL:** Plans for proposed projects shall be prepared by a professional engineer registered in the State of North Carolina and submitted to the Town of Pittsboro Planning Department for review and approval as follows.
  - A. Owners shall provide the Town of Pittsboro with seven (7) copies of preliminary plans for proposed projects titled or stamped to indicate "PRELIMINARY".
  - B. The Town staff will review the preliminary plans and return comments for modification and resubmittal. In either case, the response from the Town of Pittsboro will be in writing.
  - C. Once the plans are approved by the Town staff, additional plan submittals are required for Town Planning Board and Board of Commissioners. The Town Planning Director will notify the Owner of such submittals.
  - D. Once plans are approved by the Town Board of Commissioners, the Owner will then furnish six (6) final sets of corrected and final plans titled or stamped "Approved for Construction".
  - E. Once the above conditions are satisfied, the Town will either apply their own "Approved for Construction" stamp or use the existing stamp to sign and date. Two (2) sets of signed plans will be returned to the Owner or Owner's representative.
  - F. The only official "Approved for Construction" plans will be those signed and dated by the Town of Pittsboro.
  - G. Construction of projects shall not be started prior to receiving a Town approved set of plans and holding a pre-construction meeting. A pre-construction meeting shall be scheduled and organized by the Owner. At-least one-week (7 calendar days) notice is required for appropriate Town inspections staff to attend.
  - H. A Town approved set of project plans and permits shall be maintained on the construction site for the duration of construction and shall be available for review upon request.
  - I. Changes to Approved Plans shall be subject to review by the Town of Pittsboro and shall not be incorporated into the project until approved by the Town of Pittsboro.
  - J. Minor changes in construction shall be noted daily on project plans and accurately shown on the required "As Built/Record Drawings".

03. **PLAN REVIEW:** Preliminary Plans shall be presented on D-size 24" by 36" sheets and shall include at a minimum:
- A. Title Sheet with all pertinent project and design information including but not limited to Project Name, Location, Owner, Primary Engineering Firm Name and Logo, Design Engineer's Professional Seal, Developer, Sheet Index, Revision Block that is kept up to date
  - B. Vicinity Map and Project Layout (may be included on Title Sheet if space permits)
  - C. Horizontal and Vertical Scale, Accurate North Arrow, Accurate Legend of line types and symbols
  - D. Design drawings shall clearly show all property limits, all public rights of way, dedicated easements, and adjacent property owners
  - E. Plan and profile of all public and private utilities: sanitary sewers, storm sewers and water mains. Provide a separate plan sheet for each utility
  - F. Grading, Stormwater Management Plans, Sedimentation and Erosion Control Plans
  - G. Landscape Plans and planting schedules per Town of Pittsboro Zone Ordinance, Articles XVIII, and Appendix I
  - H. FEMA 100-year Special Flood Hazard Area where present
  - I. All streets (including cross-sections), right of ways, buildings and outdoor structures
  - J. Detailed, scaled drawings of all mechanical equipment accurately showing spatial relation of all interconnecting piping, valves, and appurtenances
  - K. Detailed electrical wiring diagrams for all powered equipment
  - L. Proposed structures and features shown on drawings shall have distinct labels and unique identifiers. For example, all pipes shall be clearly labeled as to service, material and size and all structures such as catch basins, manholes and fire hydrants shall possess a unique identifier (e.g., MH#22A, CB#01, FHA#35).
  - M. Detail sheets showing all features included in the design. Details shall be consistent with the Town of Pittsboro specifications and shall be the Town of Pittsboro standard details unless approved by the Town standard details which do not apply to the project shall not be included.
  - N. Specification statements included in plans shall reference the Town of Pittsboro Standard Specifications and requirements.
  - O. Sewer outfall access requirements shall be identified
04. **SUPPLEMENTAL MATERIALS:** The following supplemental materials shall be submitted along with plans for review by the Town of Pittsboro:
- A. Complete storm drainage calculations provided in a separate booklet as required by the Stormwater Management Administrative Manual, adopted February 2015.

- B. For sanitary sewer designs: Engineer's calculations booklet demonstrating the design procedures in accordance with NCDEQ Administrative Code, Section 15A NCAC 2T .0200 (Waste Not Discharged to Surface Waters) and companion documents "Gravity Sewer Minimum Design Criteria" and "Minimum Design Criteria for Pump Stations and Force Mains".
- C. For sewer pump stations: Before the Town of Pittsboro will approve construction of a pump station, the Engineer or Record shall submit a detailed comparison of construction costs for the most feasible gravity sewer route to serve the project versus the cost for a properly sized and designed pump station. The Engineer shall submit an annual operating budget for the proposed pump station including costs for routine maintenance and electric generator, water for wash downs, fuel for backup generators, electricity costs for running pumps and area lights, mowing, etc.

At the point of discharge into downstream portions of the gravity collection system, the Owner shall perform a hydraulic evaluation to show that the receiving system has ample capacity to accept the discharge from the proposed pump station and force main.

05. **MINIMUM STANDARDS (PUBLIC WATER)**: Designs for potable water system infrastructure shall meet the requirements of the NCDEQ Rules Governing Public Water Systems (15A NCAC 18C .0100 through .2100) along with any superseding requirements of the Town of Pittsboro. *See Section 3, Public Water Distribution Construction for complete public water minimum standards and specifications.*

Design of water mains, booster pumps and water storage facilities shall consider build-out capacity and incorporate the long-term planning requirements of the Town of Pittsboro.

IMPORTANT NOTICE: PRIOR TO PROJECT PLAN DEVELOPMENT, A REVIEW OF WATER SYSTEM MODELING MAY BE REQUIRED. The Town of Pittsboro may provide upon request in Water Cad format. It is recommended to consult with Town staff concerning your proposed project before you develop preliminary plans. In certain cases, computer modeling of the distribution system may be required to confirm that adequate pressure and flow exists for domestic water supply and fire flow. In such cases, modeling output shall be submitted to the Town of Pittsboro Engineering Department for review. The model will be subjected to rigorous review by the Town and shall thoroughly meet with the Town's full approval before project plans are developed. In addition, all required fire flow models shall be submitted to the Chatham County Fire Marshall for review and approval.

06. **MINIMUM STANDARDS (SEWER)**: Designs for sanitary sewer infrastructure shall meet the requirements of the NCDEQ Administrative Code, Section 15A NCAC 2T .0200 (Waste Not Discharged to Surface Waters) along with any superseding requirements of the Town of Pittsboro. *See Section 4, Sewer System Construction for complete sewer minimum standards and specifications.*

Design of sanitary sewers, force mains and sewer lift stations shall consider build-out capacity and incorporate the long-term planning requirements of the Town of Pittsboro.

The Engineer's calculations booklet (as required above) shall demonstrate that all design requirements have been considered.

07. **MINIMUM STANDARDS (RECLAIMED WATER):** Designs for reclaimed water infrastructure shall meet the requirements of the NCDEQ Administrative Code, Section 15A NCAC 2U .0200 (RECLAIMED WATER) along with any superseding requirements of the Town of Pittsboro. *See Section 6, General Provisions Reclaimed Water Distribution System for complete reclaimed water distribution system minimum standards and specifications.*

Design of sanitary sewers, force mains and sewer lift stations shall consider build-out capacity and incorporate the long-term planning requirements of the Town of Pittsboro.

The Engineer's calculations booklet (as required above) shall demonstrate that all design requirements have been considered.

08. **REQUIRED PERMITS:** Owners shall not begin construction without first receiving all required permits and authorizations to construct in accordance with the laws of the State of North Carolina or ordinances of the Town of Pittsboro. These requirements may include, but are not limited to:

- A. NCDEQ Division of Water Quality Authorization to Construct (sanitary sewer)
- B. NCDEQ Public Water Supply Section Authorization to Construct (potable water)
- C. Chatham County "Land Disturbance Permit"
- D. NCDOT Encroachment Agreements
- E. Town of Pittsboro Stormwater Management Permit
- F. Town of Pittsboro Riparian Buffer Encroachment Authorization

Proof of meeting all such requirements shall be the responsibility of the Owner, and the permits and certifications shall be maintained on site at all times during construction and be available for review upon request.

Project construction shall not be approved by the Town of Pittsboro until the Town has either provided or have been provided with copies of all applicable permit applications, permits, certifications and authorizations to construct.

Certain projects may require meeting environmental regulations such as Sections 401 and 404 Water Quality Certifications for water impacts and FEMA Regulatory Floodplain authorization. The Owner shall be responsible for all design considerations and permits necessary to meet the requirements of such environmental regulations. The Town of

Pittsboro will not be held responsible for permit conditions not met by the Owner and will not assume operation of any projects for which all required permitting concerns are not properly met.

If the Owner proceeds with construction prior to obtaining all required permits and authorizations, the Owner shall be fully liable for any and all resulting actions taken, including possible prosecution by the State or the Town of Pittsboro.

09. **CONSTRUCTION SUBMITTALS:** Project construction shall not be approved until the Town of Pittsboro has been provided with construction submittals and the construction submittals have been approved by the Town of Pittsboro. Provide the Town of Pittsboro with two (2) copies of manufacturers material submittal data, cut sheets and shop drawings for review and approval. Submittals shall include at a minimum: (1) the manufacturer's name, (2) type of material, (3) ASTM, ANSI, AWWA, UL, NEMA or other quality standard listings and (4) pressure class, if applicable.

Shop drawings shall be provided to the Town Inspector for all piping, valves, mechanical and electrical equipment, wiring diagrams, castings, manholes and vaults, access hatches, water service appurtenances, etc. If the materials do not meet the quality standards or requirements specified in the Town's Standard Specifications, the submittals will be rejected and other materials submitted as specified. Approval of all products and materials must be obtained prior to commencing construction.

10. **PROJECT CLOSE-OUT AND FINAL ACCEPTANCE:** Prior to the Town of Pittsboro accepting a public project as complete, all testing as outlined in the construction specifications and all mechanical equipment start up procedures shall be completed and approved by the Town of Pittsboro. All required materials shall be submitted to the Town of Pittsboro as follows:

- A. Proof of Testing: Owner shall submit all documents providing proof of testing for items including but not limited to geotechnical reports relating to road/street construction, concrete, water models, bacteriological testing of water mains, and videotaping and air testing of sanitary sewers.
- B. Record Drawings: Owner shall submit surveyed "as-built" drawings of the project including any changes made to the Approved Plans maintained at the construction site. *See the Town of Pittsboro Check List and requirements for As-Built/Record Drawings submittals.*

Final surveyed as-built drawings submitted to the Town shall be prepared and sealed by a Professional Engineer or Professional Land Surveyor registered in the State of North Carolina. The Owner will not be released from responsibility for the project and the Town of Pittsboro will not assume operation of the facilities until approved record drawings are submitted and the additional requirements of final acceptance are met. *See Section 7, the Town of Pittsboro Public Infrastructure Acceptance Procedures.*

- C. Operations and Maintenance Manuals: If applicable, two (2) copies of Operations and Maintenance (O&M) Manuals for all mechanical and electrical equipment shall be furnished to the Town. This does not include the copy normally shipped with the equipment. O&M Manuals shall be updated to include any changes or revisions made to the "Construction Submittals". Startup of mechanical equipment or Lift Stations will not take place until all O&M Manuals have been received by the Town.
  
- D. Engineer's Certifications: At completion of construction the Owner shall furnish the Town with a copy of all required Engineer's Certifications and associated documentation, including but not limited to the following:
  - I. Engineer's Certification documenting proper construction of the sanitary sewer components
  
  - ii. Engineer's calculations booklet demonstrating the design procedures in accordance with NCDEQ Administrative Code, Section 15A NCAC 2T .0200 (Waste Not Discharged to Surface Waters) and companion documents "Gravity Sewer Minimum Design Criteria" and "Minimum Design Criteria for Pump Stations and Force Mains"
  
  - iii. Engineer's Certification documenting proper construction of the public water supply distribution components
  
  - iv. Other Engineer's Certifications as may be required in the provisions of other permits such as Stormwater management, riparian buffers and 401/404 Water Quality certifications.
  
- E. Final Right of Way inspections may be scheduled upon completion of all publicly-owned improvements. Town staff shall be notified no less than seven (7) calendar days for this inspection. Once all punch-list items are complete, the owner shall request final acceptance by the Town of Pittsboro. See Section 7 "Public Infrastructure Acceptance Process".