CHAPTER 6 PLAN SUBMITTAL REQUIREMENTS

Construction Plans, As-Built Record Drawing Submittal Requirements, Certifications, and Encroachment Agreements

A. GENERAL REQUIREMENTS

Ensure the following are included:

1. Plans submitted on 24" x 36" sheets to include vicinity map, north arrow, legend, datums, sheet index, match lines, scales, existing conditions, note of caution for underground utilities (811 logo), applicable notes from this section and all proposed improvements.
2. Plans and calculations shall be sealed by a licensed engineer in the state of North Carolina.
3. Copies of required permits & agreements (which may include, but are not limited to: US Army Corps of Engineers 401/404 Permit, NCDEQ Sedimentation & Erosion Control permit, NCDOT 3-Party Encroachment Agreement, NCDOT Driveway Permit, City of Kannapolis Water & Sewer Extension Permit, City of Kannapolis Utility Encroachment Agreement, Temporary Construction Easement, Impacts to/Encroachments upon Adjacent Properties).
4. For projects with intermittent and/or perennial streams, provide a copy of the NC DWQ Stream Identification Form (latest version) submitted to the NC Division of Water Resources. The report must be signed and include the certification number of the qualified individual certified to make legal determination of stream origins and identify surface waters in accordance with NCGS 143-214.25A(B) and KDO 3.8 H. (3). The lowest finish floor elevations for residential structures must be a minimum of 2.0' above the downstream road crossing elevation or 2.0' above the calculated 100-yr flood elevation. Areas with the potential to flood during the 100-yr event shall have no basement finished floor elevation lower than the downstream catch basin rim elevation, plus 2.0'. Slab on grade residential structures must be a minimum of 1.0' above the highest point of the downstream catch basin or yard inlet.

B. PLAN NOTES

Site Plan Sheet Notes:

1. The City of Kannapolis Land Development Standards Manual and NCDOT Standard Specifications are used for construction of the roadways, including the NCDOT SuperPave Manual.
2. Section 1018 of the NCDOT Standard Specifications will be used for the acceptance of borrow material being used for embankments backfill or other intended uses.
3. Contractor shall provide a minimum notice of two business days for scheduling any proof rolls. Adequate time shall be provided for the inspector to perform grade checks on the subgrade and ABC. A proof roll with a City of Kannapolis inspector shall be performed prior to:
   a. Placement of ABC.
   b. Placement of curb and gutter.
   c. Placement of asphalt.
4. For NCDOT maintained streets and thoroughfares, the contractor shall contact NCDOT to confirm additional inspection requirements that may apply.
5. Aggregate Base Course shall be provided from approved sources as outlined in Section 1010 of the NCDOT Standard Specifications.
6. A Pre-Paving meeting shall be required prior to any paving. Contractor shall request a pre-paving meeting with the City Inspector a minimum of two business days in advance.
7. A NCDOT approved Job Mix Formula must be submitted to the City Inspector for approval prior to paving.
8. Asphalt mixes and depths will adhere to the typical section for roadways approved in the construction drawings. Minimum depths unless otherwise noted will be 2 ½" of I 19.0C placed in one lift and 2" of S9.5B placed in two lifts. The first lift of S9.5B will be placed immediately on the I19.0C, and the second lift will be placed prior to acceptance of the road. Drainage will be required on the roadway during the transition of the two lifts of S9.5B.
9. A Pre-Pour meeting will be required prior to any concrete pours. Contractor shall request a pre-pour meeting with the City Inspector a minimum of two business days in advance.
10. An NCDOT approved Mix Design must be submitted to the City Inspector on a NCDOT form 312U prior to placing any concrete.

11. Refer to detail sheets for the proper installation requirements for storm piping using NCDOT Standard Drawing 300.01.
12. The contractor shall be required to submit a video of the storm system prior to acceptance of the system. In new subdivisions, 2 videos of the storm system shall be required. The first video is required to be performed prior to the first proof roll. The second video is required after the installation of dry utilities, but prior to acceptance of the streets by the City of Kannapolis.
13. An Erosion Control Permit from the responsible compliance authority is required to be prominently displayed on-site during construction. For projects disturbing an area greater than one (1) acre, NCDEQ will have inspection and compliance authority. For all construction disturbing less than one (1) acre, the City will have inspection and compliance authority. All site activities shall be in compliance with the approved Erosion Control Permit.
14. The approved typical section includes a shoulder behind the curb and gutter on both sides of the roadway. The shoulder must be preserved during grading of adjacent properties.
15. Only street legal vehicles, legally loaded appropriately for the hauling vehicle, shall be used to transport construction materials on City streets.
16. The contractor must notify the City a minimum of two business days in advance of any work to be performed on the weekends or on City Holidays. No work requiring testing or observation by the City shall be permitted without permission from the City Inspector.
17. The City's Noise Ordinance prohibits work outside of the following hours: 7:00am to 9:00pm – weekdays, 8:00am to 9:00pm weekends. Contractor must notify the City a minimum of two business days in advance of work to be performed outside of these hours. No work outside of these hours shall be performed without permission from the City Inspector.

Utility Plan Sheet Notes:

1. All water and sanitary sewer work shall be in accordance with the City of Kannapolis Land Development Standards Manual, the NCDEQ Minimum Design Criteria for the permitting of Gravity Sewers, the NCDEQ Rules Governing Public Water Systems, and Standard Specifications for Wastewater Collection and Distribution for the Water and Sewer Authority of Cabarrus County (WSACC). Contractor shall always have a copy of these specifications on-site.
2. Per NC GS 8A 87-121 (g) all facilities shall be electronically locatable.
3. All fire hydrants shall be installed in accordance with the Kannapolis Fire Department specifications and requirements.
4. All newly installed fire hydrants shall Hydrants shall meet Kannapolis standard detail 321.
5. All newly installed fire hydrants shall be tested by the Kannapolis Fire Department, or the fire department in whose jurisdiction it is located. The Contractor shall request inspection through the City Inspector, who shall notify the Kannapolis Fire Department, upon completion of the system and its availability for testing. No vertical construction shall be allowed in the project area until the water system has been tested and approved unless otherwise allowed by the authority having jurisdiction
6. Unless otherwise noted on the construction drawings, all existing water and sewer mains are owned and operated by the City of Kannapolis. The site inspector must be contacted at least two business days prior to making any connection to the existing system.
7. Sanitary sewer laterals and water meter locations are approximate and are subject to relocation due to field conditions. Under no circumstance will cleanouts or meters be located in driveways, sidewalks or under pavement of any type.
8. Water meters shall meet City of Kannapolis standards. Contractor is responsible for installing meter boxes and purchasing meters. Contractor shall coordinate with site inspector to have water meters delivered to the City of Kannapolis.
9. The developer will be responsible for paying applicable water and sewer connection fees before Zoning Clearance Permits are issued.
10. Contractor is fully responsible for contacting all appropriate parties assuring that utilities are located prior to commencement of construction. Call North Carolina 811 (1-800-632-4949) for utility locating services as required by law prior to commencement of any work. Contractor shall verify location and depth of all utilities prior to construction.
11. Contractor shall be responsible for sewer overflows that occur due to activities initiated by them and shall be responsible for, but not limited to, the costs associated with performing remedial work of/for environmental impacts and/or the paying of fines assessed by regulatory agencies and/or third-party claims.

12. Water & Sewer mains shall have a minimum cover of 36”.
13. Bedding for PVC sewer mains and laterals should be WSACC class B bedding.
14. Unless otherwise noted, waterlines shall be PVC C900 for 6” - 12” diameter and PVC SDR 13.5 for 2” - 4” diameter per WSACC standards.
15. Unless otherwise noted, sewer mains shall be PVC SDR 35 per WSACC standards.
16. Laterals shall have a No-Hub cap and stainless-steel No-Hub band at the clean out.
17. Water mains shall be laid at least 10 feet laterally from existing or proposed sewers, unless local conditions or barriers prevent a 10-foot lateral separation, in which case:
    a. The watermain shall be laid in a separate trench, with the elevation of the water main at least 18 inches above the top of the sewer; or
    b. 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.
    c. Deviations to minimum horizontal separation must be approved by the City of Kannapolis and NCDEQ.
18. A water main that crosses a sewer or other non-potable waterline shall be laid a minimum vertical distance of 18 inches from the outside of the water main and the outside of the sewer, either above or below the sewer but, if practicable, the water main shall be located above the sewer. One full length of water pipe shall be located so that both joints will be as far from the sewer as possible. Deviations to minimum vertical separation must be approved by the City of Kannapolis and NCDEQ.
19. Ductile iron pipe shall be required for both water and sanitary sewer if the following clearances are not met:
    a. Waterline crossing under sanitary sewer (for any clearance).
    b. 18” vertical clearance for waterline installed above sewer line.
    c. 10’ horizontal separation for waterline parallel to sewer line (or 18” vertical separation in separate ditches).
    d. For waterline, 18” clearance with storm drains.
    e. For waterline, 12” clearance with gas mains, telephone ducts and underground cables.
    f. For sanitary sewer, 18” clearance with storm drains.
    g. Regardless of pipe material, a minimum 12” separation shall be required for water and sewer between other piping.
20. Initial connection to the existing water main shall be in accordance with the City of Kannapolis detail for a temporary bypass connection for filling new water mains. The temporary jumper connection shall be removed, and the waterline connected to the existing system only after satisfactory leakage and disinfection test results are provided to and accepted by the City of Kannapolis. No other connections will be allowed to the system until the proposed system has been accepted.
21. The contractor must notify the City a minimum of two business days in advance of any work to be performed on the weekends or on City Holidays. No work requiring testing or observation by the City shall be permitted without permission from the City Inspector.
22. The City’s Noise Ordinance prohibits work outside of the following hours: 7:00am to 9:00pm – weekdays, 8:00am to 9:00pm weekends. Contractor must notify the City a minimum of two business days in advance of work to be performed outside of these hours. No work outside of these hours shall be performed without permission from the City Inspector.

C. AS-BUILT RECORD DRAWING SUBMITTAL REQUIREMENTS

Prior to final acceptance of the improvements, the project engineer shall submit As-built record drawings of the site into Accela, containing:

- A signed and sealed copy of the as-built record drawings (PDF Format)
- An AutoCad (.dwg) file, and
- An ArcGIS (.shp) file

All deviations from the approved plans shall be reflected in both plan and profile sheets and clearly shown with red ink to distinguish from the design plans.

As-Built Record Drawings shall be tied to NAD 83 horizontal datum and to the NAVD 88 vertical datum. The project engineer shall provide all certifications that are required by the state for water and sewer improvements and that are required by the City for stormwater, water quality, and embankments.

As-Built Record Drawings shall include the following:

1. **Signature and Seal of NC Licensed Professional Engineer:** see 21 NCAC 56 .1103 (c) (7) for required statement by a licensed engineer sealing the As-Built record drawings if the original design engineer is unable to seal the As-Built Record Drawings.
2. **Site Impervious Area:** verify and label the total impervious area of the site.
3. **Sanitary Sewer**
   a. Elevations: rim, invert in (including inside drop), and invert out.
   b. Manhole size, material, and total vertical depth.
   c. Summary table on cover sheet showing linear footage, material, diameter and slope of pipe installed.
   d. Changes need to be reflected in both plan and profile sheets.
   e. Permanent easements shown and clearly labeled as public or private, including map book and page of recorded easement (if applicable).
   f. Lateral cleanouts shown in plan view.
   g. Profile & cross section of all sewer easement outfalls.
   h. Vertical Separation between sewer and all other utilities.
   i. Certification by Engineer that sewer system was constructed in accordance with permit, if applicable. (Form available on NCDEQ Website)
4. **Water**
   a. Valve, fitting, meter, and fire hydrant and backflow locations.
   b. Summary table on cover sheet showing linear footage, material and diameter of pipe installed.
   c. Verify minimum cover over pipe in profile view.
   d. Show restrained joint pipe (if applicable).
   e. Show distances between appurtenances in plan view.
   f. Vertical separation between water and all other utilities.
   g. Certification by Engineer that water system was constructed in accordance with permit, if applicable. (Form available on NCDEQ website.)
5. **Storm Drainage Conveyance Systems**
   a. Invert elevations (invert in and out).
   b. Rim elevations (junction boxes, gutter lines).
   c. Invert elevations on culverts (box and pipe).
   d. Flared end sections elevation.
   e. Rip rap energy dissipation apron dimensions
   f. Linear footage of piping, with slope, material and diameter of pipe installed clearly labeled.
   g. Topographic survey of ditches.
   h. Profile and cross section of all storm drainage easement outfalls.
   i. All dimensions shall be shown in plan and profile views.
   j. Vertical separation between Storm and all other utilities.
   k. Updated pipe schedule.
   l. Revised calculations of as-built storm drainage conveyance systems with a statement from the Engineer of either in compliance or not in compliance with the approved design.
   m. Sealed Storm Drainage Conveyance System Certification. (Form Available in LDSM Appendix A)
6. **Stormwater Control Measures (SCM's)**
   a. Method used to seal joints in pipes and wall openings.
   b. Type and thickness of sand (sand filters).
   c. Biomix material composition, thickness, and infiltration rate (Bioretention).
   d. Channel liner materials.
   e. Riser dimensions and elevations.
   f. Anti-floatation block dimensions.
   g. Stage storage chart for storage basins, forebays, detention areas, chambers, etc.
   h. Revised calculations of as-built SCM conditions, sealed by the engineer confirming design complies with design guidelines for each SCM and that the system provides the required detention storage and reduced runoff discharge rates.

i. As-built topo verifying:
    i. Location and storage capacity of SCM.
    ii. Basin side slopes (interior and exterior), top of embankment widths.
    iii. Riser/spillway elevations and widths.
    iv. Location of drainage features.
    v. Location/outline of underground filter systems.
    vi. Pipe inverts, pipe size, and pipe materials.
    vii. Underdrain inverts, cleanout inverts, underdrain pipe size and materials.
    viii. Thickness of energy dissipation aprons and filters.
    ix. Orifice/weir inverts and dimensions.
    x. Bottom drain gate size/type and critical elevations (invert and top of valve stem).
j. Planted material certifications.
k. Sealed SCM certification. (Form Available in LDSM Appendix A)
l. Minimum of three pictures, which should include the outlet structure and full shots of the pond from opposite directions. Additional pictures should be provided if required to capture the full pond.

7. **Streets**

(The below information should be provided in the .dwg and .shp file only.)

a. Road profile
b. Radius points
c. Curb elevations
d. Centerline alignment
e. Sidewalk alignment
f. Location of crosswalks and ADA ramps

D. CERTIFICATIONS

In addition to water, sewer, stormwater conveyance system, and stormwater control measure certification as outlined in the sections above, certifications are also required for publicly maintained retaining walls, privately maintained retaining walls that encroach into public easements or right of way, bridges, and embankments. Certification forms for these items can be found in Appendix A.

E. ENCROACHMENTS

1. Encroachments of any utilities, structures, or landscaping, including, but not limited to, driveways, pools, fences, trees, wells, reservoirs, or other obstructions, which would interfere with free, easy, and clear access to utilities on any easement, are prohibited. However, certain utilities, structures, filling, or grading may be permitted upon approval of a Utility Encroachment Application or an express Encroachment Agreement. The City of Kannapolis may require additional information depending on the type of encroachment.
2. To apply for a utility encroachment within a City easement or right of way, complete the **Utility Encroachment Application** found in Appendix A. The form should be completed in full and submitted to the engineering department for review.
3. To apply for all other encroachments within City easement or right of way, contact the Director of Engineering. The following information shall be provided when requesting an encroachment:
    a. A description of the proposed encroachment(s)
    b. A map of the proposed encroachment(s) with:
        i. Site plan/map showing location of easements or right of way with the proposed encroachment(s) clearly shown and labeled
        ii. Reference to the plat or deed book and page number that contains the property and/or easement.
4. The Director of Engineering may impose additional and reasonable conditions upon the granting of any encroachment.
5. The party responsible for any unpermitted or unauthorized encroachment shall, at their own expense, remove the encroachment immediately upon written notice from the City.