

PLAN SUBMITTAL REQUIREMENTS

This list should be considered as a guideline for technical and engineering requirements for plan submittals and should not be considered as a comprehensive list for all the requirements of a submittal.

Construction Plan Requirements:

- Design according to, and submit, the “Public Infrastructure Plan Review Checklist” as provided by the City Engineer and/or the City of Kannapolis website.
- Stream Buffers shall be clearly delineated or provide letter from a Qualified Individual stating that there are no streams on the site.

Roadways:

- Per NCDOT and UDO Standards.
- Design according to, and include, the “Plan Submittal Roadway Notes” as shown on the City of Kannapolis website.
- Minimum road grade to be 1%.
- Existing curb and gutter and pavement to be replaced or repaired as required to tie to sound material.
- Tack coat to be applied to all existing asphalt surfaces prior to placing new asphalt.
- Show locations of curb cut for curb ramps and provide the NCDOT curb ramp detail.
- Provide a driveway plan sheet showing each lot and designating driveway locations and service locations.
- Provide driveway details and driveway profiles.

Water & Sewer:

All Water and Sewer Extensions to the City of Kannapolis systems shall be permitted through the North Carolina Department of Environmental and Natural Resources (NCDENR) and shall be in accordance with The Standard Specifications for Wastewater Collection and Water Distribution for the Water and Sewer Authority of Cabarrus County (WSACC) and The City of Kannapolis Water & Sewer Standards and Policies.

- NCDENR & City forms to be completed after initial City Review.
- Permitted through NCDENR (City to review prior to NCDENR Submittal).
- An electronic CAD file copy of the drawings is required for WSACC flow acceptance.
- Design per WSACC Standards: applicable WSACC details to be included on plans. Details can be obtained at www.wsacc.org
- Water Meters, Fire Hydrants, and Backflow devices per City Standards. Details in CAD and PDF files are provided on the City of Kannapolis website.
- Design according to, and include, the “Plan Submittal Utility Notes” as shown under the Water and Sewer Standards on the City of Kannapolis website.
- All Fire Hydrants shall be connected to public mains owned and operated by the City of Kannapolis.
- All Irrigation Lines shall be metered separately.

Stormwater Systems:

- Per NCDOT Standards.
- Public maintained structures shall meet NCDOT construction standards and be traffic rated. All culverts shall be RCP (minimum class III and use class rated for cover/loads).
- Catch basins should be based on NCDOT standard details. Provide details for all types of catch basins to be used. Ensure that culverts will fit in the proposed catch basin.
- Junction Boxes should be based on NCDOT standard details. If an alternate design is requested, structural calculations and construction details must be provided to review the request.
- Provide inlet and outlet control calculations for storm drainage systems. Hydraulic grade should be no higher than 6" below grate on pipe networks. HW/D should be a maximum of 1.2 for open systems.
- O-ring culverts may be required for pressurized systems.
- Culverts to be designed for 25 year storm event for cross-drainage.
- Provide gutter spread calculations. Gutter spread to flood no more than ½ the lane width. Ensure that the values used in the calculations match the typical road section slopes and street slope. Gutter Spread flows should be based on a minimum intensity of 4" per hour. The design should also consider where the bypass runoff, during the 10 year storm event, will overflow the downstream curb.
- Show that water is not being backed up on upstream properties or diverted onto lower properties.

Stormwater Calculations:

Provide a report documenting pre and post development conditions, offsite impacts, and the method of treatment.

Ensure that the following items are included:

- Pre and post development drainage basin map.
- Documentation for curve number or C values used for runoff calculations.
- Documentation for time of concentration values used for runoff calculations.
- Detention is based on the 1 year and 10 year storm events.
- Use rainfall runoff intensities and depths for Cabarrus County.
- Documentation of the equations used to generate the stage/storage/discharge tables.
- Hydrographs of the pre and post conditions.
- Buoyancy calculations for the riser and uplift anchor.
- Stormwater BMP Supplements.

Stormwater Structures:

- Provide a cross-section of the embankment showing fill slope angles, top width, barrel size & type, riser size & type, orifices (including size, location, type, & inverts), top of dam elevation, and spillway elevation.
- Make sure that the structures, orifices, and pipes and the associated inverts match in the design calculations and dimension details.
- Provide a construction detail for the trash rack.
- Show how the joints and connections will be made watertight.
- Show uplift anchor dimensions.

- If the structure is to be a regional or shared system, show the location of access easements and provide a copy of the proposed maintenance agreement.
- It is recommended that storage areas be fenced to prevent inadvertent entry.
- Provide a minimum 6" of freeboard in the system.
- If an emergency spillway is not provided, the system must pass the runoff from a 100 year storm event.
- Provide forebay construction details.

FEMA Flood Hazards:

- Show the location of FEMA floodway, 100 year flood fringe, cross-sections and flood elevations as determined by FIRM maps on the drawings.
- Show the location of the flood fringe area based on the FEMA flood elevation and the actual site topography.
- Show the minimum finish floor elevation for sites adjacent to a flood hazard (2 feet above flood elevation).
- Provide material specifications and compaction notes for fill to be placed in a floodplain. Certification of fill compaction is required for material placed in a floodplain.
- Provide the note listing the datum used for the topo and flood elevations.

Easements:

- Minimum easement width with water, sewer and stormwater is 20-feet. Additional width may be necessary based on pipe size & depth. Allow for trench box and an 1:1 excavation side slope.
- Sanitary sewer and stormwater easements must provide viable access with maximum slopes of 15% for maintenance vehicles. Cross slopes should not exceed 5%. If a storm drainage channel is also constructed in the easement, sufficient width shall be dedicated so that a minimum 12-foot travel area beyond the top of graded channels is provided.
- All water mains that serve more than one structure shall be considered public and will be provided with an adequate easement to maintain the line. All multi-family developments shall be provided with a separate meter for each structure. Waterlines feeding these meters will be considered public.

Other:

- Erosion Control Permit through NCDENR. Provide copy to City.
- Provide copies of all necessary environmental permits.
- Encroachments will be needed for work in public right-of-ways and easements.
- Provide copies of land owner agreements for any offsite grading.
- Provide an AutoCad file to run AutoTurn for the site.