

North Carolina Department of Transportation Standard Utility Encroachment Plan Requirements

General

Only properly formatted, complete drawings with sufficient, applicable information should be submitted with encroachment requests. If proper plans are not submitted, encroachment requests may be returned to the Applicant and encroachment review will not begin until proper plans are resubmitted.

Plan Format

- Plans should be legible.
- Plan sheet size of 11"x17" or 8.5"x11" is preferred. Full size plan sheets (22"x34") shall be submitted only if requested by NCDOT.
- Plans should show the entire project limits
- Only applicable plan and detail sheets should be submitted. Plan sheets and details for work outside of NCDOT right of way, including work on City and non-NCDOT maintained roadways should be removed from the submittal.

Professional Engineer Seals

Certain utility encroachment requests require plans to be sealed by a licensed North Carolina Professional Engineer. Guidance on what requests have this requirement can be found in the NCDOT Utilities Accommodations Manual ([most recent version available for download here](#))

Plan Title Sheet

- Location / Vicinity Map: A vicinity map should be included in the submittal to provide a quick and easy reference to the location of the proposed work. The following aspects should be included in the vicinity map:
 - North arrow
 - Roads labeled
 - Proposed work area should be labeled.
- County name
- Contact information: This information should consist of names, telephone numbers, and email addresses of key people involved in encroachment plan development and encroachment construction and shall, whenever possible, include a 24-hour contact to address issues during construction.
- Utility owner project number
- Engineering firm information
- Project scope: This information should include a brief description of the work being proposed with a general to and from provided (e.g. "8 inch sanitary sewer along SR 1324 from SR 1875 to NC 431")

General Notes

If included, general notes should not only reflect Utility Owner requirements but also NCDOT requirements.

Legend / Symbology

All features shown within the plan set should have a corresponding symbol. The legend should include all applicable symbols and linestyles.

Detail Sheets

The following details shall be included as applicable:

- Standard Details
 - Aerial detail with minimum vertical clearance: This aerial detail should be included even if the proposed work is an overlash of an existing crossing.
 - Minimum bury depth
 - Road crossing detail for controlled access and/or non-controlled access roadways, depending on which is applicable.
 - Culvert crossing detail
 - Utility structures:
 - ANSI tier rating for outside of pavement or AASHTO HS-20 load compliance under pavement should be noted for all proposed structures. If the proposed structure is not ANSI Tier 22 or HS-20 load rated or stronger, the encroaching party must submit the utility structure details to Utilities Unit prior to use in NCDOT right of way. Vaults that appear on the [NCDOT Qualified ITS and Signals Qualified Products](#) list may also be used and specified as such on any encroachment plans submitted to NCDOT and subject to respective use in NCDOT right of way.
 - Applicable details for handholes, vaults, manholes, and other utility structures proposed.
 - Installation/sidewalk repair detail if utility structures are proposed to be installed within the sidewalk.
 - Bore pit detail: This detail should note the standard size and depth of proposed bore pits.
 - Bore detail: This detail should show maximum proposed bore diameter.
 - Other utility details as applicable
- Site-specific Details: Instances may occur when a standard detail is not applicable to a certain situation. In these instances, a site-specific detail should be required to provide more detailed guidance for the situation.

General Plan View

The following aspects should be included on all plan view sheets:

- North arrow
- State maintained highways showing road numbers and road names
- Scale / Dimension: All plans should either be to scale or properly and accurately dimensioned
 - Scaled plans
 - Scale should be shown
 - Scale should be no greater than 1" = 100'
 - Dimensioned plans should be sure to provide the information requested in sections below.
- Facility details
 - Length of the installation or segment
 - Size of the facility
 - Utility and non-utility material
 - Installation method
 - Utility and non-utility structures with dimensions, if necessary
 - Bore diameter
 - Bore pit locations
 - Include dimensions of bore pit
 - Offsets from roadway features should be included (i.e., offsets of bore pits from the edge of pavement or back of curb, the right of way line, other relevant roadway features).
- Roadway Details: The following roadway details should be shown on the plan set:
 - Edge of pavement and/or back of curb, with roadway width labeled for existing and proposed, if applicable
 - Right of way line and/or control of access line, with right of way width labeled (and for proposed, if applicable)
 - Guardrail
 - Storm drainage features (e.g. cross drainage pipes, longitudinal drainage pipes, catch basins and drop inlets, driveway pipes, etc.), with culvert diameters
 - Ditch line and/or toe of fill
 - Bridges
- Applicable non-utility features, including, but not limited to, curb ramps, sidewalk, and fencing type (e.g., chain link, woven wire).
- Offsets of proposed facilities from NCDOT assets: If not clearly conveyed by plan scaling, dimensions should be included to show the offset of the proposed facility from the following roadway features:
 - Edge of pavement or back of curb
 - Right of way line
 - Guardrail
 - Culverts, drainage structures, etc
 - Bridge components, including the substructure of the bridge if the encroaching utility is proposed in close proximity to a bridge.
 - Existing at-grade and above-ground utility features should be shown on plans. This includes, but is not limited to, utility poles, hydrants, valves, manholes, handholes, cabinets, etc.
- Existing utilities
 - Existing at-grade and above-ground utility features are encouraged to be shown on plans. This includes, but is not limited to, utility poles, hydrants, valves, manholes, handholes, cabinets, etc.
 - Existing underground and above-ground utilities should be shown on plans under the following circumstances:
 - In locations where the presence of existing utilities will prohibit the proposed facility from being installed in accordance with NCDOT alignment preferences (e.g. as close to the right of way line as possible, as far away from the roadway as possible, etc.)
 - In sensitive areas (e.g. near bridges and/or other NCDOT structures, areas of very limited right of way, etc.)
 - In situations where, at the discretion of the NCDOT, existing utility locations will aide in the proper review of the proposed utility installation.
- Distance from encroachment to nearest State route, when placing a single-point installation.

General Profile View

A profile view is required when crossing a roadway or entering the vertical plane of NCDOT assets (pavement, curb, ditches, drainage pipes/culverts, etc). At a minimum, a standard detail should be included to show how roadways will be crossed. The following aspects should be included on all profile view sheets:

- Roadway
- Right of way limits
- The entire crossing section through the right of way
- Minimum vertical dimensions and clearances
- Bore pit locations
- Elevations, sizes and materials for potential utility conflicts
- Grade and/or cover on proposed utilities
- Scale of profile view
- Rim and invert elevations for proposed utility structures
- Theoretical 1:1 slope from the edge of pavement and theoretical 2:1 slope at a point of 5 feet from edge of travel way
- Maximum bore diameter
- Applicable roadway characteristics (for non-utility encroachments):
 - Roadway grades of vertical alignments (existing and/or, if applicable, proposed)
 - K values
 - Design speed