

# THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL SUBSURFACE UTILITY LOCATION STANDARDS

Created on July 7, 2005

(Updated March 2017)

**Scope:** Perform field location surveys of utilities installed during the construction phase. The following outline lists the utilities to be located and the data to be collected. Conventional survey standards are to be utilized during the collection of field data. A mylar copy and digital file of the location surveys are to be provided in AutoCAD 2000 or later format and a DXF file. The surveys will also require an ESRI Shapefile (shp,shx,dbf,xml) file to include the current Metadata Minimum Standards developed by the UNC-CH Engineering Information Services, GIS Team. Prior to awarding of contract, contact Katherine O'Brien at (919)843-1872 or kobrien@fac.unc.edu for the current Metadata requirements.

All locations performed will be tied to the University of North Carolina Campus Control Network, North Carolina State Plane Coordinate System NAD83 (2011), horizontal and NAVD88, vertical. For a map of Campus Control Points contact UNC's Campus Surveyor at 919-962-3039 or see <https://maps.unc.edu/pdf/>. A minimum of two (2) survey control points of semi-permanent material such as rebar or iron pipe oriented to this system shall be established at the project location. The bearing and distance from at least one of the project control points to the UNC-CH Control Monuments used shall be labeled.

## 1. Steam Tunnel and Lines

- a. Location and elevations of the tunnel slab, top of the cap, condensation lines and manholes.
- b. Location, size and change in elevations on the steam and condensation pipes in the tunnel.
- c. List the construction material for the tunnels.
- d. Elevations are to be within a tenth of a foot (0.10').

## 2. Water Lines (Domestic, Chilled & Hot Water other than OWASA mains)

- a. Locations, size and elevations at the top installed water lines.
- b. Locations of valves and a valve type designation.
- c. Elevations are to be within a tenth of a foot (0.10').

## 3. Electric and Communication Duct Banks

- a. Location and elevation of the duct bank top and bottom.
- b. Location and elevations of conduit runs in the duct bank.
- c. Elevations are to be within a tenth of a foot (0.10').

## 4. Storm Sewer

- a. Locate manholes rims or inlets with invert elevations to a hundredth of a foot (0.01').
- b. Note if manhole rims are in the center of the structure or measure the offset, pipe sizes, material types and the direction of the flow.

**5. Sanitary Sewer**

- a. Locations and elevations of manholes with inverts of all pipes entering and leaving the structure.
- b. Elevations are to be within a tenth of a foot (0.10’).

**6. Existing Utilities**

- a. Locate any existing utilities exposed during excavation of trenches for new utilities. Provide the locations and elevations of these utilities along with a digital photograph of the crossing.
- b. Elevations are to be within a tenth of a foot (0.10’)

**7. Safety Issues:**

Safety is UNC’s number one priority on the job site. On sites with current construction activity, Surveyors must sign in with the Construction Superintendent. The Surveyors are required to wear safety glasses, hard hats and orange vests at all times on a construction job site. The Construction Superintendent will direct all locations being performed in or near open trenches and structures.

**8. Deliverables**

- a. The subsurface location surveys data and platting will be continuous throughout the project. All data and plats are due to UNC-CH within two-weeks of the backfilling of utilities or completion of a construction task.