

# **Wildcat Subdivision Infrastructure Design Standards**

Adopted by the Board of Directors of the Wildcat Homeowners Association  
March 12, 2016

Any new infrastructure to be constructed within the existing property associated with the Wildcat Subdivision, and as may be added in the future, shall meet the following infrastructure minimum design criteria as confirmed and approved by the Board of Directors of the Wildcat Homeowners Association. The developer or builder associated with any new home that requires the construction of any new infrastructure shall be responsible for the construction and cost associated with the new infrastructure. Any builder, homeowner or developer wishing to utilize existing infrastructure must confirm with the Wildcat Homeowners Association Board of Directors the availability of existing infrastructure and the capacity of infrastructure prior to start of construction. The Wildcat Homeowners Association assumes no obligation in providing new or existing infrastructure to facilitate any development or residential construction. All new infrastructure shall meet the following design requirements.

## **Roads**

All roads constructed shall conform to all standards as may be required by Cherokee County and shall meet the minimum design criteria for Residential Local Subdivision roads as defined in the North Carolina Department of Transportation Subdivision Roads Minimum Construction Standards, 2010 edition.<sup>1</sup> All material and workmanship shall be in accordance with North Carolina Standard Specifications for Roads and Structures<sup>2</sup> and North Carolina Roadway Standard Drawings.<sup>3</sup> Regardless of the above cited standards, the minimum roadway width shall be 18 feet and asphalt thickness shall be 2 inches. Clearing and Grubbing (Division 2) Subgrade design, construction and materials (Division 5) shall be consistent with the standards defined in the North Carolina Department of Transportation, Standard Specifications for Roads and Structures, 2012 edition.<sup>4</sup>

## **Storm Drainage**

All storm drainage shall be constructed such that the road and rights of way may be maintained without excessive cost, and not cause flooding on private property from storm runoff. In areas where ditch grades or quantities of flow deem it impracticable to establish and maintain vegetation, an erosive resistant lining such as paving, matting or rip rap may be required. All storm drainage shall be designed using the standards and design criteria established in the North Carolina Department of Transportation Subdivision Roads Minimum Construction Standards, 2010 edition.

## **Water lines**

The construction of water lines shall be consistent with Section 1510 (Water Lines), North Carolina Department of Transportation, Standard Specifications for Roads and Structures, 2012 edition. Water pipe materials for potable water shall be PVC Schedule 40 or better, pressure

<sup>1</sup>[https://connect.ncdot.gov/resources/Asset-](https://connect.ncdot.gov/resources/Asset-Management/StateMaintOpsDocs/Subdivision%20Manual%20January%202010.pdf)

[Management/StateMaintOpsDocs/Subdivision%20Manual%20January%202010.pdf](https://connect.ncdot.gov/resources/Asset-Management/StateMaintOpsDocs/Subdivision%20Manual%20January%202010.pdf), page 26

<sup>2</sup> <https://connect.ncdot.gov/resources/Specifications/2012StandSpecsMan/PDF/2012StandardSpecifications.pdf>

<sup>3</sup> Asphalt Pavement Standards North Carolina Department of Transportation.

<sup>4</sup> <https://connect.ncdot.gov/resources/Specifications/2006%20Specifications%20Books/06.%20Asphalt%20Pavements.pdf>

<sup>4</sup> <https://connect.ncdot.gov/resources/Specifications/2012StandSpecsMan/PDF/2012StandardSpecifications.pdf>

rated, and sized 2 inches or larger. Detectable warning tape shall be installed on all water extensions. All water lines shall be installed in accordance with current AWWA605 standards for PVC pipe. All proposed water mains shall be subjected to a leakage test under hydrostatic pressure. Water lines shall be disinfected with chlorine and flushed before covering up. Any dead-end water lines constructed for future expansion shall have a valve at the end for periodic flushing.

The water distribution system shall provide sufficient water flow to residents such that the well pump does not run more than 12 hours a day. Water line construction on a residential lot shall comply with the requirements established in the North Carolina State Plumbing Code.<sup>5</sup> No water connection shall be made to an existing well or to a new well distribution that results in the system being classified as a Community Water System (if the system serves 15 home used by year-round residents or serves at least 25 year-round residents).<sup>6</sup>

Trenching, pipe laying, and backfilling shall be accomplished in a manner to prevent damage and misalignment of the pipe. Water mains shall be buried to a depth below the frostline or to a depth sufficient to provide a minimum of 30 inches cover, whichever is greater.<sup>7</sup> Water and power lines shall be separated in same trench by a minimum of 24 inches. Electric utility may require additional requirements or distances.

The embedment material should be a coarse grained soil, such as gravel or sand, or a coarse grained soil containing fines, such as a silty sand or clayey sand. The particle size should not exceed one-half inch for 2 to 4-inch pipe, three-quarter inch for 6 to 8-inch pipe and one inch for all other sizes. Where the embedment is angular, crushed stone may be placed around the pipe by dumping and slicing with a shovel. Where the embedment is naturally occurring gravels, sands and mixtures with fines, the embedment should be placed in lifts, not exceeding 6 inches in thickness, and then tamped. Tamping should be accomplished by using a mechanical tamper. The final backfill may consist of the excavated material, provided it is free from unsuitable matter such as large lumps of clay, organic material, boulders or stones larger than 8 inches, or construction debris.<sup>8</sup>

Valves shall be installed in a horizontal position at both the house, property line and at strategic locations as preapproved by the WHOA. Backflow preventers shall be installed for each home pursuant section 605.3.1 of the North Carolina Plumbing Code, 2012 edition<sup>9</sup>.

### **Bridge Construction**

Bridge construction shall be designed by a licensed North Carolina civil engineer to meet the needs of the subdivision. Bridges which are to span streams shall be designed for hydraulic requirements. The architectural style of the bridge shall be consistent with the existing bridges in Wildcat or an alternative style as approved by the WHOA Board of Directors.

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<sup>5</sup> [http://ecodes.biz/ecodes\\_support/free\\_resources/2012NorthCarolina/Plumbing/12NC\\_plumbing.html](http://ecodes.biz/ecodes_support/free_resources/2012NorthCarolina/Plumbing/12NC_plumbing.html)

<sup>6</sup> North Carolina Drinking Water Act,  
[http://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter\\_130A/Article\\_10.pdf](http://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter_130A/Article_10.pdf)

<sup>7</sup> This language was taken from 15A NCAC 18C .0904

<sup>8</sup> This was taken from "Underground Installation of PE Pipe", Chapter 7, <https://plasticpipe.org/pdf/chapter07.pdf>

<sup>9</sup> [http://ecodes.biz/ecodes\\_support/free\\_resources/2012NorthCarolina/Plumbing/12NC\\_plumbing.html](http://ecodes.biz/ecodes_support/free_resources/2012NorthCarolina/Plumbing/12NC_plumbing.html)

## **Well Construction**

Any new well shall meet the applicable construction standards defined in 15A NCAC 02C.0107<sup>10</sup> and water quality standards adopted by the State of North Carolina and Cherokee County Health Department. Any design proposed that does not meet the construction standards defined in 15A NCAC 02C.0107 shall be approved by the Wildcat Homeowners Association Board of Directors in advance of construction. The well production shall provide adequate flow for existing or proposed homes to be served and shall have capacity to provide a minimum of 200 gallons per day per home with the well pumping less than 12 hours per day to meet this standard<sup>11</sup>. A new well shall not be put into service for drinking until such time as the well has met all required drinking water standards. Any new well construction shall not be designed to serve more than 14 homes.

After water supply well has been cleaned of foreign substances, including sediment, grease and oil, the well shall be disinfected by the addition of chlorine solution in concentrations sufficient to produce a minimum chlorine residual of 100 milligrams per liter (or ppm) in the entire water column within the well casing. The chlorine solution shall remain in the well for a period of 24 hours. The well shall then be pumped until the water is free of chlorine. All interior surfaces of new potable water supply systems, including wells, filters, storage tanks and distribution lines shall be thoroughly disinfected by means of hypochlorite or chlorine solutions. After disinfection, the water supply shall not be placed into service until bacteriological test results of representative water samples analyzed by the Cherokee County Health Department are found to be satisfactory.<sup>12</sup> A well pump cover shall be installed that is consistent with existing well pump covers in Wildcat or that is acceptable to the WHOA Board of Directors.

## **Erosion Control**

All construction shall provide adequate erosion control systems both for temporary construction impact and for post construction use. All erosion control systems used shall conform to the design standards defined in Division 16 (Erosion Control and Roadside Development), North Carolina Department of Transportation, Standard Specifications for Roads and Structures, 2012 edition<sup>13</sup> and shall meet the erosion control and buffer standards defined in 15A NCAC 04B.<sup>14</sup>

## **Electric Service**

The contractor or developer shall be responsible for all cost associated with providing electric service to any new homes to be constructed. Additionally, all electric service shall be underground. The siting of transformers shall not conflict with any infrastructure and shall be at least 10 feet from the edge of the road pavement. No new construction of homes shall impact the electric service capacity of the electric service provider to provide services to existing homes or platted lots in the Wildcat subdivision. If such a service impact is anticipated, then the builder or developer shall be responsible for the cost and management of the electric system upgrade.

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<sup>10</sup> <http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2002%20-%20environmental%20management/subchapter%20c/15a%20ncac%2002c%20.0107.pdf>

<sup>11</sup> 15A NCAC 18C.0409 (b)(1) Requires public water systems to design for a 400 gallon per residence Daily flow.

<sup>12</sup> This language is consistent with 15A NCAC 18C .1001 and 15A NCAC 18C .1002 related to disinfection of Water Supply Systems.

<sup>13</sup> <https://connect.ncdot.gov/resources/Specifications/2012StandSpecsMan/PDF/2012StandardSpecifications.pdf>

<sup>14</sup> <http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2004%20-%20sedimentation%20control/subchapter%20b/subchapter%20b%20rules.pdf>

### **Utility Coordination**

Any builder or developer seeking to construct infrastructure is responsible for proper utility location surveying prior to construction and shall properly coordinate with impacted utility providers during construction. The developer shall be responsible for any costs associated with relocating utilities necessary to facilitate any new construction and shall obtain prior approval by the Board of Directors of the Wildcat Homeowners Association. Additionally, existing utility service may not be temporary discontinued for any construction without prior written approval of the Wildcat Homeowners Association. Construction of any infrastructure shall not result in restrictions of access by any existing property owners in the Wildcat development.

### **Existing Infrastructure Upgrades**

If any permitting agency requires an upgrade of any infrastructure due to the new development triggering the upgrade, the builder or developer shall be responsible for these costs and not any existing homeowner, lot owner or the Wildcat Homeowners Association.

### **Pre-Construction Requirements**

Prior to start of construction, the builder or developer of any infrastructure shall:

1. Present all construction plans (10 copies), clearly illustrating compliance with all State and local permitting requirements and these infrastructure standards.
2. Provide a lot plot plan that been accepted by the County and that complies with lot requirements defined in the subdivision Declaration. The recording of the lot plot plan shall occur prior to the start of residential construction on the lots.
3. Provide an insurance certificate, with at least a million dollars of liability coverage, listing the Wildcat Homeowners Association as an additional insured.
4. If infrastructure is constructed on land not already owned or under easement with the Wildcat Homeowners Association, then the developer/builder shall provide at their cost a warranty deed or an alternative deed or easement as deemed acceptable by the Wildcat Homeowners Association. The conveyance of land or easement shall be accompanied with a survey identifying the conveyed land. Wildcat Homeowners Association reserves the right to hire an attorney and/or a surveyor to review both the proposed property for conveyance to the Association and to review the proposed deed or easement.
5. Provide copies of all permits associated with the infrastructure construction.
6. Every effort shall be made to limit heavy vehicle impact on existing subdivision roadways for the construction of new infrastructure and shall be described and/or illustrated in a heavy vehicle access plan/map.
7. If any proposed infrastructure connection or construction impacts existing roadway flow or utility service, a mitigation and management plan shall be provided.
8. The Board of Directors of Wildcat Homeowners Association shall estimate the cost of inspection and testing of proposed infrastructure and shall present to the builder or developer this estimated cost. If actual costs are higher, the Board shall provide additional invoices to the builder or developer. If actual cost of inspection and testing is less than funds placed on deposit with the Association, the Association shall refund the difference.
9. The builder or developer shall pay the Wildcat Homeowners Association the cost of the association to review the construction plans (including the assistance of design and legal professionals) and the estimated cost of inspection and testing of proposed infrastructure, prior to the start of construction.

10. The builder or developer shall agree in writing to comply with the terms defined herein.

Once the builder or developer has complied with the above requirements, the Board of Directors shall provide the builder or developer with a letter authorizing the builder or developer to proceed with the construction.

### **Design Standard Conflicts**

Any conflicts within this specification, any cited reference or applicable permitting regulation shall be addressed by the Wildcat Homeowners Association upon the request of a builder or developer. It is the builder's or developer's responsibility to obtain clarification of any conflicts prior to construction when possible and if identified during construction, must obtain clarification prior to covering up any buried infrastructure.

### **Alternative Infrastructure Design**

The Board of Directors may consider alternative infrastructure design standards proposed by a builder or developer, but shall not be required to do so. If alternative designs are proposed, the Board of Directors may require any or all of the following:

1. The design shall be prepared by a licensed Civil Engineer and certified by the Civil Engineer as an equal or better alternative.
2. The Board may hire its own design professional to both confirm that the alternative design is equal or better to the current design standards. The builder or developer shall be responsible for all cost associated with this review process and may be required to provide a financial deposit in advance of the alternative design review process equal to the estimated cost associated with the review process.

### **Acceptance of Infrastructure**

The Wildcat Homeowners Association shall have no obligation to accept infrastructure until:

1. The Association has inspected the constructed infrastructure and confirmed that it meets the required design standards of the Wildcat Homeowners Association.
2. All material, debris, including tree stumps and other tree material is removed from the construction site.
3. Wildcat Homeowners Association reserves the right to hire third party testing companies and professionals to review and confirm compliance of infrastructure with the Infrastructure Design Standards. This compliance process may include preconstruction, construction and post construction testing and consultation by test laboratories and testing professionals. The developer or builder shall be responsible for all costs associated with third party testing or professional consulting services required by the Wildcat Homeowners Association to verify compliance with Infrastructure Design Standards. Payment by the developer or builder for this review process must be received prior to final acceptance of infrastructure.
4. Any permitting agencies associated with the infrastructure have completed their inspection and approved of the construction as complete per the permitting agencies standards. (Developer or Builder shall provide to the Wildcat Homeowners Association copies of final inspections by permitting agencies)
5. All residential lots serviced by the infrastructure have been platted and recorded and are in compliance with lot requirements established in the subdivision declaration.

6. The developer or builder shall provide a one-year warranty bond for both all materials and labor. All material warranties shall also be provided to the Wildcat Homeowners Association.
7. The developer or builder shall provide two certified as-built drawings to cover all infrastructure installed.
8. If the infrastructure is constructed on land not already owned or under easement with the Wildcat Homeowners Association, then the developer/builder shall provide at their cost a warranty deed or an alternative deed or easement as deemed acceptable by the Wildcat Homeowners Association. The conveyance of land or easement shall be accompanied with a survey identifying the conveyed land. Wildcat Homeowners Association reserves the right to hire an attorney and/or a surveyor to review both the proposed property for conveyance to the Association and to review the proposed deed or easement. The developer or builder shall be responsible for all costs associated with third party review of surveys, deeds and easement. Payment by the developer or builder for this review process must be received prior to final acceptance of infrastructure.
9. The homes served by the infrastructure shall be in the Wildcat subdivision and subject to the Declarations adopted for the subdivision.
10. All Wildcat Homeowners Association dues associated with lots served by the new infrastructure shall be current when the infrastructure is accepted by the Wildcat Homeowners Association.

If infrastructure is not accepted by the Association, the developer or builder shall have responsibility for maintaining the infrastructure until it is accepted by the Wildcat Homeowners Association. The Wildcat Homeowners Association reserves the right to charge assessments to the homeowner connected or served by infrastructure that has not been accepted by the Association to offset other Wildcat Homeowners Association costs associated with the existing infrastructure.

The Wildcat Homeowners Association is under no obligation to accept infrastructure that increases the per household maintenance cost due to poor construction quality, inferior materials or quality of material or construction techniques that exceeds the existing standards in the Wildcat Subdivision.

### **Remedies for Failing to Comply with Infrastructure Design Standards**

Failure to comply with these Infrastructure Design Standards may at the discretion of the Board of Directors of the Wildcat Homeowners Association result in any or all of the following:

1. Temporarily halting some or all infrastructure construction covered by these standards until such time as there is agreement by both the contractor or developer and the Board of Directors of the Wildcat Homeowners Association as to how the infrastructure shall be brought into compliance.
2. The Builder or developer shall reconstruct infrastructure as necessary to comply with these standards.
3. Payment to the Wildcat Homeowners Association with any additional cost associated with testing, construction consulting or legal costs related to failure to comply with the infrastructure standards.
4. Termination of Approval of additional construction phases utilizing or connecting to existing Wildcat roadways or other existing infrastructure, regardless of whether they have already been approved by the Board of Directors of the Wildcat Homeowners Association.
5. Any other remedies allowed by law.

## Referenced Material

- North Carolina Department of Transportation, Subdivision Roads Minimum Construction Standards, January 2010, <https://connect.ncdot.gov/resources/Asset-Management/StateMaintOpsDocs/Subdivision%20Manual%20January%202010.pdf>
- North Carolina Department of Transportation, Standard Specifications for Roads and Structures, January 2012, <https://connect.ncdot.gov/resources/Specifications/2012StandSpecsMan/PDF/2012StandardSpecifications.pdf>
- North Carolina State Building Code, Plumbing Code, 2012 edition. [http://ecodes.biz/ecodes\\_support/free\\_resources/2012NorthCarolina/Plumbing/12NC\\_plumbing.html](http://ecodes.biz/ecodes_support/free_resources/2012NorthCarolina/Plumbing/12NC_plumbing.html)
- North Carolina Administrative Code, Chapter 15A, Section 18C.0904 Pipelaying <http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2018%20-%20environmental%20health/subchapter%20c/15a%20ncac%2018c%20.0904.pdf>
- North Carolina Administrative Code, Chapter 15A, Section 02C.0107, Standards of Construction: Water Supply Wells <http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2002%20-%20environmental%20management/subchapter%20c/15a%20ncac%2002c%20.0107.pdf>
- North Carolina Administrative Code, Chapter 15A, Subchapter 4B – Erosion and Sediment Control, <http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2004%20-%20sedimentation%20control/subchapter%20b/subchapter%20b%20rules.pdf>
- North Carolina Administrative Code, Chapter 15A, Section 18C.1001, Disinfection of New Systems, <http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2018%20-%20environmental%20health/subchapter%20c/15a%20ncac%2018c%20.1001.pdf>
- North Carolina Administrative Code, Chapter 15A, Section 18C.1002, Disinfection of Wells, <http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2018%20-%20environmental%20health/subchapter%20c/15a%20ncac%2018c%20.1002.pdf>
- North Carolina Drinking Water Act, Chapter 130A, Article 10. [http://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter\\_130A/Article\\_10.pdf](http://www.ncleg.net/EnactedLegislation/Statutes/PDF/ByArticle/Chapter_130A/Article_10.pdf)
- The Plastic Pipe Institute, Inc., Handbook of Polyethylene Pipe, Second Edition <https://plasticpipe.org/publications/pe-handbook.html>