

## **040 GENERAL PROVISIONS**

### **040.01 GENERAL**

040.01.01 All construction, both development and Town projects, shall conform to the requirements and dimensions on the construction plans, Standard Specifications and Details, and the Town Code.

040.01.02 All Contractors performing any construction activity involving Town infrastructure shall be licensed to practice general contracting in the State of North Carolina. The Contractor shall be classified in the appropriate area of license for the type of construction to be performed and shall not perform construction activity which exceeds the limitations of the designated Contractor's license.

040.01.03 Where the Owner/Developer does not respond to directives by the Town to complete certain repairs and/or work that, in the Town's opinion, causes a safety hazard or the potential for damages, the Town may have such work performed and charge the Owner/Developer all associated expenses plus a 25% mobilization fee (examples: trench repairs, street washing, etc.). The Owner/Developer is provided 24 hours between notice being given and determination of failure to respond. This section shall not create an obligation of the Town to undertake such work or to be liable in any way for failure to undertake such work.

### **040.02 APPROVED MANUFACTURER'S LIST PROCEDURES**

040.02.01 An Approved Manufacturer's List is included in the Appendix of this document. Items found on the list that are included in design plans for construction will typically not receive additional review comments. The Director of Engineering may periodically update the list by adding or deleting certain items.

040.02.02 Equipment and systems of equal quality and efficiency may be available from manufacturers and suppliers other than those listed in the Approved Manufacturers List. No attempt is made to preclude the furnishing of similar quality items by other manufacturers. The use of alternate equipment and products will be considered if it can be demonstrated that these items have equal or superior construction performance, operating and maintenance costs, offer a present worth cost equal to or less than the specified items, and do not adversely affect other system components. To substitute an alternative item for an item from the Approved Manufacturers List, the Owner/Developer or Contractor shall obtain a letter of "Approved as Equal" from the Engineering Department.

040.02.03 To obtain Approved as Equal, three copies of submittal packages shall be provided to the Director of Engineering and contain the following information, at a minimum:

040.02.03.01 Current catalog data sheets and complete technical data to support specification compliance.

040.02.03.02 A point-by-point list clearly stating all differences between the named item and the proposed alternate and a separate list clearly stating all exceptions to the

Specifications. If no exceptions are listed, then no exceptions to the Specifications shall be allowed.

040.02.03.03 Installation list with name, address and phone number of contact person for each of at least five (5) installations where the proposed equipment has been in similar service and satisfactory operation for at least two (2) years. The date of placing equipment in service at each listed installation shall be provided.

040.02.04 Approval of alternative equipment and supplies shall be at the discretion of the Director of Engineering, based on the information provided in the submittal package. Purchasing equipment in no way obligates the Town to accept equipment that does not meet the specified standards or other requirements the Town may have. Approval of Equal equipment or systems in no way eliminates the requirement for complete submittals at a later date.

### **040.03 PRE-CONSTRUCTION MEETING**

040.03.01 Prior to commencing construction of any improvements, the Contractor's foreman/supervisor will attend a pre-construction conference with the Public Works Department, the Planning Director, the Director of Engineering, the Public Utilities Director, and/or other delegated representatives of the Town, as appropriate. The Contractor shall schedule this meeting with the Public Works Director as early as possible but in no case shall it be less than 1 week prior to commencement of construction. The following will be covered:

040.03.01.01 Construction Plans will be reviewed.

040.03.01.02 The Town will assign a Construction Inspector who will be the contact person for the Town.

040.03.01.03 Tentative construction/completion schedule will be established.

040.03.01.04 Permits and fees will be reviewed.

### **040.04 INSPECTIONS**

040.04.01 During construction, the Construction Inspector shall make periodic inspections to check quality and reliability of work in progress. The Town may suspend work due to any discrepancy or deviation from the plans..

040.04.02 The Construction Inspector shall be given adequate advance notice (not less than 24 hours) so that all utility and street testing can be observed.

040.04.03 The Contractor shall provide the necessary manpower and equipment required as a part of the inspection process. The presence of the Construction Inspector at the work site shall in no way lessen the Contractor's responsibility for conformity with the approved plans and/or Standard Specifications and Details. Should the Construction Inspector accept materials or work that does not conform to plans and specifications, whether from lack of discovery or for any other reason, it shall in no way prevent later rejection or corrections to the unsatisfactory materials or work when discovered. The Contractor shall

have no claim for losses suffered due to any necessary removals or repairs resulting from the unsatisfactory work.

040.04.04 Any work which has been covered without the Construction Inspector's approval shall, at the Construction Inspector's request, be uncovered and be made available for inspection at the Contractor's expense.

040.04.05 Work performed before or after Town staff's normal work hours or during the weekend or Town holidays shall conform to the approved plans and/or Standard Specifications and Details, and shall include only such tasks that do not require observation by a Construction Inspector.

## **040.05 ACCEPTANCE PROCEDURES**

040.05.01 After the installation of improvements in accordance with the approved plans and Standard Specification and Details, the Owner/Developer or designee shall contact the Public Works Secretary to schedule a warranty inspection. Note that this inspection must be performed prior to recordation of a final plat for the project or issuance of a Certificate of Occupancy.

040.05.02 The Public Works Department will respond with a punch list within 30 working days from the warranty inspection date. The punch list will contain a listing of items that need immediate attention, and items that must be addressed during the warranty period.

040.05.03 The Owner/Developer or designee must request a follow up inspection with the Public Works Secretary once items requiring immediate attention have been completed so that the punch list can be cleared. Acceptance of improvements/plat signature/or certificate of occupancy signoff will not be approved until the final punch list is clear.

040.05.04 The Owner/Developer or designee must complete all items indicated as requiring immediate attention on the punch list within 60 days of the date of the warranty inspection for the Town to accept the infrastructure and begin the one-year warranty period. The Owner/Developer or designee must request another warranty inspection if more than 60 days passes before the immediate attention work is complete. Other items on the punch list may be completed during the 1 year warranty period.

040.05.05 Building permits will be withheld on any project that does not receive a Beginning of One Year Warranty Acceptance Letter.

040.05.06 Upon the acceptable completion of all punch list items and payment of any outstanding fees, the Owner/Developer or designee will receive a Beginning of One Year Warranty letter from the Town. This acceptance begins a warranty for materials and workmanship of not less than 1 year in duration from the date of acceptance. The warranty shall state that all improvements shall remain in substantial conformance with the quality and test standards for new construction outlined in these standards. The warranty will be to the Town from the Owner/Developer or designee. The Town may perform routine maintenance during the warranty period at its discretion.

040.05.07 The final pavement shall be completed prior platting of the subdivision. The plat date will be the commencement date for the 1 year warranty.

040.05.08 Forty –Five (45) days before the end of the warranty period, the Owner/Developer or designee shall request a final (end of one year warranty) inspection from the Construction Inspector.

040.05.09 The Construction Inspector will respond with a punch list on workmanship or materials within 30 days of the request.

040.05.10 The Owner/Developer or designee must complete all items indicated on the punch list, and any additional items noted, within 60 days of the final inspection. The Owner/Developer or designee must request another final inspection if more than 60 days passes before the punch list work is complete.

040.05.11 Upon the acceptable completion of all final punch list items, the Owner/Developer or designee will receive an End of One Year Warranty Acceptance Letter from the Town. The Town will begin total maintenance of the project as of the date of the letter.

040.05.12 Until an End of One Year Warranty Acceptance Letter has been issued, all materials and workmanship are the responsibility of the Owner/Developer.

## **040.06 CONSTRUCTION SITE SAFETY**

### **040.06.01 OSHA Standards**

040.06.01.01 All Contractors and their employees must comply with all OSHA standards while working on any Town projects and while on Town property or ROW.

### **040.06.02 Safety and Health Hazards**

040.06.02.01 The operations of any Contractor shall not expose the Town employees to any hazardous chemicals or other occupational safety and health hazards. All Contractors working on Town projects or on Town property shall inform the Design Professional of any hazardous chemicals or substances which the Contractor might expose while working in that area. The Contractor shall also advise the Town of the appropriate control measures to be used by the Town employees to prevent exposure and to minimize risk of exposure.

040.06.02.02 Flammable or Combustible Liquids shall be stored, handled, or used on the construction site in accordance with all applicable Fire Codes and referenced standards. Only approved containers and portable tanks shall be used for storage and handling of flammable liquids. Approved safety cans or Department of Transportation approved containers shall be used for the handling and use of flammable liquids in quantities of 5 gallons or less, except that this shall not apply to those flammable liquid materials which are highly viscid (extremely hard to pour), which may be used and handled in original shipping containers. For quantities of one gallon or less, the original container may be used, for storage, use and handling of flammable liquids. Permits are required according to Section 030.

040.06.02.03 Contractors that anticipate the use or storage of any hazardous materials at a project site are required to consult with the Fire Code Administration staff of the

Fire Department prior to any on-site use or storage. Reference Occupational Safety & Health Administration part 1926.152 "Flammable Liquids" for complete instruction.

## **040.07 CONSTRUCTION ENTRANCE**

040.07.01 When possible, construction vehicles shall be afforded entrances and exits separate from the developed portions of the construction site to preserve the integrity of paving in such areas. Entrances and exits to such developed areas shall exhibit a sign or signs bearing the legend "NO CONSTRUCTION VEHICLES" and directing such traffic to the appropriate entrance.

040.07.02 Gravel construction entrance pads shall be constructed at each point of construction access to the site, including residential lots. The gravel pads shall be maintained in such a manner as to prevent the deposition of mud and debris onto existing public roadways or properties adjacent to the site.

040.07.03 Gravel pads for construction sites other than single family lots shall be 50 feet long. The width shall be 20 feet as a minimum. Surge Stone or Railroad Ballast (Nominal size 2" – 3"), shall be placed to a nominal depth of twelve (12) inches for the first fifteen (15) feet and six (6) inches for the remaining 35 feet.

040.07.04 Gravel pads for individual single-family lots shall be 25 feet long and twelve (12) feet minimum width. Washed stone shall be six (6) inches thick.

040.07.05 It shall be the Owner/Developer's responsibility to see that the construction entrance pads are properly maintained so that mud is not tracked onto adjacent streets. In the event that the gravel construction entrances are not properly maintained, or are otherwise ineffective, the Town may issue a Notice of Violation, Stop Work Order, and/or assess a penalty which shall remain in effect until such time as the pads are restored and replenished and until any resulting mud and debris has been removed from the adjacent streets by the Contractor.

## **040.08 EARTHWORK**

040.08.01 Earthwork shall be defined as removal of earth or soft rock from its natural location or as the depositing of such material into fills areas as designated on the plans.

040.08.02 Backfill Material shall be free from construction material debris, frozen material, organic matter, granite blocks, broken concrete, masonry rubble, or unstable material. It shall have physical properties such that it can be readily spread and compacted during filling. Backfill shall not contain stones larger than 4 inches in largest dimension and shall have at least 60% passing the No. 4 sieve, a maximum of 60% passing the No. 200 Sieve, a maximum liquid limit of 60, and a maximum plasticity index of 25.

040.08.03 Under proposed roadways and extending at a slope of 1 to 1 beyond the back of curb measured perpendicular from centerline, backfill material shall be compacted to a density of 100% maximum Standard Proctor dry density as determined by AASHTO method T99. For that portion of fill under roadways and extending at a slope of 1 to 1 beyond the back of curb, compact to a density of NO LESS THAN 95% of the maximum Standard Proctor dry density as determined by AASHTO method T99.

040.08.04 Backfill Fill material shall be placed in lifts of 8 inches or less of uncompacted soil. Other fill material shall be compacted to a density of NO LESS THAN 90% of the maximum Standard Proctor dry density as determined by AASHTO method T99. Backfill material shall be placed in lifts of 12 inches or less of uncompacted soil.

040.08.05 Cut and fill slopes shall have side slopes no steeper than 3H:1V except as provided below:

040.08.05.01 Slopes between 2.5H:1V and 3H:1V may be allowed if stabilized with vegetation that requires minimal maintenance such as Weeping Love Grass, Red Fescue or other variety with similar characteristics. Such slopes shall not be stabilized with turf grass.

Slopes that are steeper than 2.5H:1V may be allowed if stabilized with permanent slope retention devices or a suitable combination of plantings and retention devices.

040.08.06 The minimum slope on landscaped drainage swales is 0.50%. The minimum slope on residential lots, landscaped areas and drainage slopes between buildings is 2.0%.

040.08.07 The maximum number of lots draining to a common swale is six; after which stormwater must be piped to a natural drainage feature or stormwater collection system.

## **040.09 MAINTENANCE OF TRAFFIC**

### **040.09.01 General**

040.09.01.01 When construction occurs in a traffic zone, traffic control devices must be erected, maintained, relocated, and removed in accordance with the plans, specifications, NCDOT Supplement to the MUTCD, and the MUTCD. This requirement shall apply for all construction occurring on public streets, including construction or repairs by utility companies. The MUTCD referred to in this provision shall be the current edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, as prepared by the National Advisory Committee on Uniform Traffic Control Devices, including all standard documents referred to in Section 1A-7 of the MUTCD.

040.09.01.02 Traffic control devices shall include but not be limited to signs, drums, barricades, cones, delineators, flashing arrow panels, temporary guardrail, temporary concrete median barrier, vehicle-mounted temporary impact attenuators, pavement marking, raised reflective pavement markers, flaggers, and pilot vehicles.

### **040.09.02 Materials**

040.09.02.01 Unless otherwise required, materials used in the fabrication and installation of construction traffic control devices shall be in accordance with the applicable provisions of the MUTCD.

040.09.02.02 All enclosed lens (Engineers Grade) sheeting required for use on traffic control devices shall have an identification mark on the surface. This mark signifies that the sheeting meets the requirements of Federal Specification L-S-300C for Minimum Reflectivity 1 Sheeting and Tape. The identification mark shall not interfere

with the function of the device, but shall be visible both day and under illumination at night without the use of special devices.

040.09.03 Installation and Maintenance

040.09.03.01 Existing public streets or highways shall be kept open to traffic at all times by the Contractor unless permission to close the street, or portions thereof, is granted by the Director of Engineering/NCDOT District Engineer, as applicable. The Police Department and Fire Department must be contacted by the Contractor a minimum of 24 hours before any streets are closed or partially closed.

040.09.03.02 Work on any project shall not start until all traffic control devices required for the particular work activity are properly installed.

040.09.03.03 Traffic control devices shall be properly maintained, relocated as necessary, cleaned and operated during the time they are in use. During periods when use of the devices is not warranted, they shall be removed from the work area, covered, or otherwise positioned so that they do not convey their message to the traveling public.

040.09.03.04 The location, legends, sheeting, dimension, number of supports, and horizontal and vertical placement of warning signs, barricades, and other traffic control devices shall be as required by the plans or the MUTCD.

040.09.03.05 Weeds, brush, trees, construction materials, equipment, etc., shall not be allowed to obscure any traffic control device in use.

040.09.03.06 Competent and properly trained, attired, and equipped flaggers, using "stop" and "slow" paddles shall be provided when two-way traffic cannot be maintained.

040.09.03.07 The Contractor shall assume full responsibility for the continuous and expeditious maintenance or replacement of all construction warning signs, barricades, and other traffic control devices. The Contractor shall continuously review and maintain all traffic control measures to assure that adequate provisions have been made for the safety of the public and workers. Failure to maintain all traffic control devices in a satisfactory condition shall be cause for suspension of construction operations until proper traffic control is re-established.

## **040.10 MATERIALS**

040.10.01 All materials incorporated in work to be accepted by the Town for maintenance shall be new of the highest quality standard known to the trade, and free from defects in workmanship and product. Materials shall be installed in accordance with the manufacturer's instructions or these specifications, whichever in the opinion of the Town is more stringent or applicable. Any deviations from this requirement must be approved in advance by the Director of Engineering in writing. The Contractor must provide documentation and samples necessary for the Director of Engineering to determine their acceptability.

## **040.11 CONCRETE**

040.11.01 Concrete shall be only plant-mixed or transit-mixed concrete conforming to ASTM C33 for aggregates and to ASTM C94 for ready-mixed concrete.

040.11.02 Any concrete with a batched time of more than 90 minutes will be considered unacceptable.

040.11.03 Any concrete poured that has a slump over 4 inches as per ASTM C143 will be considered unacceptable.

040.11.04 Concrete shall not be deposited on frozen subgrade.

040.11.05 During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required. When air temperature is between 85°F and 90°F, reduce mixing and delivery time from 75 to 90 minutes, and when air temperature is above 90°F, reduce mixing and delivery time to 60 minutes. For concrete structures greater than 3 feet in thickness, the temperature of the mix shall be controlled by approved methods to a temperature not greater than 70°F at the time of placement.

040.11.06 Concrete shall not be poured when the air temperature is falling and below 40° F. and the predicted low temperature for the succeeding 24 hour period is less than 32° F. All concrete, when placed in the forms, shall have a temperature of between 50 and 90 degrees Fahrenheit and shall be maintained at a temperature of not less than 50 degrees Fahrenheit for at least 72 hours for normal concrete and 24 hours for high-early strength concrete, or for as much time as is necessary to secure proper rate of curing and designed compressive strength.

040.11.07 Concrete shall have a minimum cement content of 564 pounds per cubic yard, and a maximum water-cement ratio of 0.532.

040.11.08 Concrete shall be air entrained with 5-7% air.

040.11.09 Water for mixing or curing the concrete shall be free from injurious amounts of oil, salt acid, or other products injurious to the finished product.

040.11.10 Concrete Curing Agents shall be free from any impurities which may be detrimental to the concrete and shall meet Section 926 of NCDOT Standard Specifications for Roads and Structures.

040.11.11 Aggregate for portland cement concrete shall meet the requirements for fine and course aggregate of Section 1014 of the NCDOT Standard Specifications for Roads and Structures.

040.11.12 Portland cement and admixtures shall meet the requirements of Section 1000 of the NCDOT Standard Specifications for Roads and Structures.

040.11.13 Retarders and accelerators shall be used only as directed by the Director of Engineering.



## **040.12      RETAINING WALLS**

040.12.01    All retaining walls with a height of 4 feet or greater must be designed by either an Architect or Professional Engineer and shall be signed and sealed. Design and construction drawings shall be submitted to the Building Inspections Director for approval prior to construction. All necessary permits (e.g., building permit) must be obtained prior to any construction associated with retaining walls. Safety rails or fencing may also be required.

## **040.13      EXTERIOR GARBAGE RECEPTACLES/DUMPSTERS**

040.13.01    All exterior garbage receptacles and recycling containers located within the Town's Corporate Limits or ETJ shall meet the following requirements:

040.13.01.01    Garbage receptacles/dumpster shall be screened on three (3) sides with an opaque screen consisting of a fence around the exterior of three (3) sides. The open side shall face the interior of the lot or have an opaque gate enclosure.

040.13.01.02    Fencing shall be installed at a height a minimum of 12 inches above the top of the garbage receptacle/dumpster/recycling containers.

040.13.01.03    Drains shall not be allowed on any garbage receptacle/dumpster pads.

040.13.01.04    Dumpster pads must be a minimum of 20 feet from any curb inlet or yard inlet for stormwater collection. The outfall of any stormwater pipe that drains the area where a dumpster pad is located must traverse a minimum of 50 feet of vegetated area before reaching the bank of the watercourse itself. Where dumpster pads are adjacent to a watercourse and where stormwater drains in sheet flow directly into the watercourse, a minimum landscape area of 50 feet must be maintained between the pad and the bank of the watercourse. For the purpose of this Section, watercourse shall be defined as a stream identified on the latest version of the USGS Quadrangle Map or the Wake County Soils Map.

040.13.02    Exterior Garbage Receptacle Washing Areas

040.13.02.01    Washing area drainage platform shall be elevated to not less than 6 inches above ground floor elevation and constructed with a protective lip to prevent splash over. Washing areas shall be enclosed on 3 sides with not less than a 36-inch high enclosure wall.

040.13.02.02    Drainage platform shall be protected from the elements by an overhanging structure large enough to prevent rain from getting to the drain and in accordance with North Carolina State Building Code (NCSBC). The overhang structure shall not exceed 7 feet above finished gra.

040.13.03    Mail Box Kiosks

040.13.03.01    Layout of mail box kiosks shall be in accordance with the LDO.

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040.13.03.02 All curbs, materials, pavement, and other items shall comply with the Standard Specifications and Construction Details.