

ARTICLE 6

CONSTRUCTION PROCEDURES

SECTION 6.1 PURPOSE

The purpose of this Article is to set forth the Planning Commission's construction procedures. These procedures should create a closer continuity between the developer, Developer's engineering representative, contractor, the Planning Commission and representatives of the City/County Public Works Department.

All improvements shall conform with the City of Danville Standard Drawings or Subdivision Regulations and Engineer's Plan. Construction materials and methods for streets, storm sewers, and sidewalks shall conform to those of the current edition of the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, except as herein set forth and described; Portland cement concrete for all items of construction shall conform to requirements of Class "A", Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Current Edition.

SECTION 6.2 PROCEDURES

The following procedures shall extend to all subdivision construction:

- A. **PRE-CONSTRUCTION CONFERENCE** - The developer, contractor, and engineering representative shall contact the Planning Commission to schedule a pre-construction conference prior to starting construction. Major items, all appurtenances, and incidental work, which cover the entire scope of work involved, will be discussed. The developer and contractor will be requested to outline their proposed construction procedures and magnitude of operations, covering all work as detailed on approved subdivision plans. The developer's engineer shall have furnished 2 copies of the approved construction plans with all required changes to the Planning Commission prior to the pre-construction conference. The approved copy of the construction plans shall be the only set used by the contractor in the field. The group in attendance shall include the developer, contractor, their engineering representative, Planning Commission Staff, City or County Public Works Department, and representatives from all public utilities to be installed. At the pre-construction conference, it is the intention to compile sufficient information to prepare an inspection calendar for periodic and routine inspection. At the pre-construction conference, the developer shall provide a preliminary schedule for the work items discussed herein. The developer shall provide a copy of the Encroachment Permit from the City/County/State for access to existing roadways.
- B. **NOTICE OF INTENT** - The developer or his representative shall file a notice of intent (NOI) as required with the Kentucky Division of Water based on all applicable City/County/State/Federal ordinances and guidelines.

- C. **INSPECTIONS AND OBSERVATIONS** - Planning Commission, City or County Public Works Department will provide routine site visits and visual observations of the construction activities throughout the duration of the project. The developer, the engineer, surveyor, contractors, third party testing agencies, and suppliers (External Party Agents), shall be responsible for all Testing (Soil, Aggregate, and Asphalt), Concrete Testing, Utility Testing, As-Built Drawings, Asphalt Plant, Aggregate Plant, and Concrete Plant Testing, and any other testing and paperwork needed for acceptance. External Party Agents shall be properly certified by the Kentucky Transportation Cabinet or the appropriate trade organization for the work they are performing.
- D. **INITIAL GRADING OPERATION** - All areas subject to grading operations must have sedimentation and erosion controls in place prior to commencing work. The City or County Public Works Department and developer's representatives shall inspect the erosion controls prior to continuing with grading. The first field inspection will deal with a general review of the area to be graded within the limits of the roadway with emphasis on the subsoil in particular where any embankment is to be placed. The sod and topsoil shall be removed from the roadway grading area and stockpiled for redistribution. Any disturbed areas shall be stabilized and maintained according to appropriate Erosion Protection and Sediment Control guidelines. The grading operations will be inspected periodically throughout its construction period.
- E. **GRADING AND EMBANKMENTS** - The area on which streets are to be constructed should be cleared of all vegetation and disposed of outside of the limits of the right-of-way. Grading shall be done to the extent of the right-of-way or to the back of the sidewalk at a maximum cross slope of $\frac{1}{2}$ " per foot. Prior to the construction of embankments, any unsuitable material, on which the embankment will be superimposed, should be removed and the area should be stabilized by conventional methods. Where development is proposed on areas of existing fill where the composition and compaction of fill materials is in doubt test borings may be required by the City or County Public Works Department before development is permitted to occur. As the minimum, the area will be proof rolled with a loaded Tandem Axle Truck to determine suitability of the base material. The embankments shall be formed by placing material in successive horizontal layers of no more than six (6) inches in thickness, loose depth. Densities may be verified at minimum two hundred (200) foot interval and if required, shall meet or exceed ninety-five (95) percent standard proctor. No organic material shall be permitted in the embankments. No rock or similar irreducible material with a maximum dimension greater than twelve (12) inches shall be buried or placed in embankments unless approved by the City or County Public Works Department. Small boulders or rock layers shall not be deposited within two (2) feet of sub-grade elevation.
1. **CUT SECTION EXCAVATION** - Cut Sections should be excavated to the required typical section and any unsuitable material encountered shall be removed and the area backfilled in six (6) inch horizontal layers and thoroughly compacted before successive layers are placed. The area will be proof rolled with a loaded Tandem Axle Truck to determine suitability of the cut section. Densities may be run at minimum two hundred (200) foot intervals and if required, shall meet or exceed ninety-five (95) percent standard proctor.

- F. **CULVERT PIPE AND OTHER DRAINAGE OPERATIONS** - The City or County Public Works Department and developer's representatives will inspect when the installation of culvert pipe and retention/ detention areas are started. The concrete headwall construction and various other concrete items, such as sinkhole boxes, etc., will be inspected. The City or County Public Works Department and developer's representatives shall inspect the drainage devices before backfill of major items occurs. In general reference, the overall proposed drainage pattern of the subdivision will be reviewed extending from the summit of the drainage area, along the meandering ravines and ditches to their terminus, whether it be to a natural waterway, natural sinkhole, or ponding area and dry well, to determine if the drainage pattern is substantially in accordance with the approved plans. Drainage operations shall be installed during the initial operations of construction and remain functional (protected from silt and erosion issues) throughout construction.
- G. **UTILITY CONSTRUCTION** - Utilities outside of right-of-way shall be installed according to the specification of the individual utility provider.
1. Water and Sewer trench shall be installed according to Danville Municipal Utilities' specifications including backfilling operations.
 2. In the event of a conflict between the engineer's plan or Planning Commission's Subdivision Regulations and utilities' specifications, utilities' specifications shall govern.
- H. **UTILITY AND STORM SEWER TRENCH BACKFILL REQUIREMENTS WITHIN RIGHTS-OF-WAYS** - The following requirements shall apply to all utilities, storm sewer, casings, and conduits (collectively known as pipes) under pavements and/or curb and gutter sections within right-of-way. References to Flexible and Reinforced Concrete Pipe below are for purposes of storm sewer installation.
1. Flexible Pipe trenches less than 4 feet deep (measured from bottom of pipe to subgrade elevation) shall be backfilled with compacted approved Crusher Run stone, or flowable fill to subgrade elevation.
 2. Reinforced Concrete Pipe trenches under pavements less than 4 feet deep (measured from bottom of pipe to subgrade elevation) or when the top of the pipe is within one pipe diameter of the subgrade elevation shall be backfilled with compacted approved Crusher Run stone or flowable fill to subgrade elevation.
 3. Flexible Pipe trenches more than 4 foot deep (measured from bottom of pipe to subgrade elevation) shall be backfilled with compacted Dense Graded Aggregate or approved Crusher Run stone, or flowable fill to an elevation 4 feet above the bottom of the trench or shall be backfilled with compacted approved Crusher Run stone, or flowable fill to an elevation 1 foot above the top of pipe, whichever provides greater pipe cover.
 4. Reinforced concrete pipe trenches under pavements more than 4 foot deep (measured from bottom of pipe to subgrade elevation) or when the top of the pipe is not within one pipe diameter of the subgrade shall be backfilled with compacted approved Crusher Run stone, or flowable fill up to the top of the pipe and either

granular backfill, flowable fill, or embankment material in 6-inch lifts to an elevation of 1 foot above the top of the pipe.

5. The remainder of the Flexible, Reinforced Concrete, and Utility Pipe trench backfill shall be constructed with Stone or unclassified materials soils mixed with shot rock or excavated stone not to exceed 6" in any dimension. Compaction of Stone backfill shall be six (6) inch or less lifts, placed with mechanical effort. Placement of unclassified materials shall be placed in lifts not to exceed twice the nominal size diameter (one foot maximum) of the stone material, place with mechanical effort, up to 2 feet below subgrade elevation. Clean Soil (without rock) backfill shall be compacted.
 6. All reinforced concrete pipe trenches outside of pavements shall be placed on 3-inches of uncompacted granular bedding material and then backfilled according to Section 6.2.H.5 above.
 7. Trench width shall be that necessary to lay the pipe and properly compact the backfill material (a minimum 12" on each side of the installed pipe) and to meet other industry requirements.
 8. Utility pipe bedding and the utility pipe envelope (backfill immediately adjacent to the pipe) shall meet the specification of the utility company and/or the pipe manufacturer's recommendation if different from #9 Stone, or flowable fill.
 9. Special attention shall be given to backfill around structures (such as manholes and curb inlets) to ensure adequate compaction of backfill. Compacted approved Crusher Run stone shall be used 24" adjacent to the structure then approved earth fill may be used in appropriate compacted lifts.
- I. **SUBGRADE PREPARATION** - As the minimum, the subgrade area will be proof rolled in the presence of the City or County Staff with a loaded Tandem Axle Truck to determine suitability of the sub-grade material. Nuclear density testing is preferred when material permits and must be submitted to the City or County Public Works Department for review, if required.
- J. **CURB AND GUTTER CONSTRUCTION** - Concrete Curb and Gutter materials and construction shall be per requirements of the current edition of the Kentucky Transportation Cabinet's Standard Specifications for Road and Bridge Construction; the number and type of tests may be reduced with the approval of the City or County but shall not be reduced below a minimum of two (2) cylinders tested at the 28-day threshold. If the contractor chooses to pour curb and gutter during impending freezing weather then the contractor shall be required to take appropriate, approved KYTC measures to protect the concrete while curing.
- K. **DENSE GRADED AGGREGATE BASE / CRUSHED STONE BASE CONSTRUCTION** - Prior to commencing DGA/CSB base construction, the developer's representative shall provide, at a minimum, a Gradation Test for the stone base. The City or County Public Works Department and developer's representatives will inspect the placing, shaping, and compaction of the Dense Graded Aggregate Base / Crushed Stone Base Construction. DGA shall be pugged and may placed with a mechanical paver. A box spreader may be

used as long as the contractor can demonstrate that it can be placed without segregation and can meet Kentucky specifications for compaction. Tailgating is not permitted. As the minimum, the DGA/CSB base area will be proof rolled in the presence of the City or County Staff with a loaded Tandem Axle Truck to determine suitability of the DGA/CSB base material. The roadway cross-section shall be checked for proper cross-slope on 50-foot intervals. Weigh tickets and summary shall be submitted to the City or County Public Works Department for approval.

- L. **ASPHALT BASE CONSTRUCTION** - The Asphalt mixture shall be provided by a Kentucky Transportation Cabinet (KYTC) certified asphalt plant. Prior to commencing asphalt base construction, the developer's asphalt supplier shall provide and certify, at a minimum, a job mix formula for the asphalt base. At a minimum, the temperature of the material should also be checked when it arrives on the project site. A representative sampling by coring, or nuclear density testing shall be done. At a minimum, sampling will be required on the compacted asphalt base at random locations and intervals not to exceed 200 feet. Test results shall be submitted to the City or County Public Works Department. Periodic inspections will be made as the operations progress. If a deficiency develops in the asphalt base course of any consequence, adjustments will be made in the overlying or succeeding asphalt surface course to compensate for the deficiency. The developer's representative or contractor shall obtain for the information of the City or County Public Works Department the test reports. Liquid asphalt shall be from a state approved source. Weigh tickets and summary shall be submitted to the City or County Public Works Department. The City or County Public Works Department reserves the right to require additional core samples of the finished asphalt base if insufficient thickness, poor compaction or other deficiencies are suspected.
- M. **ASPHALT TACK COAT AND ASPHALT SURFACE APPLICATION** - Prior to commencing asphalt surface construction, the developer's representative shall provide, at a minimum, a job mix formula, which includes tests and calculations for percent air voids, VMA, max. specific gravity, bulk specific gravity, and percent liquid asphalt content for the asphalt surface. The City or County Public Works Department and developer's representatives shall review the application of asphalt tack coat and the application of the asphalt surface course. The developer's representative or contractor shall obtain for the information of the City or County Public Works Department the test reports showing, at a minimum, the test results, and calculations for percent air voids, VMA, max. specific gravity, bulk specific gravity, and percent liquid asphalt content. Liquid asphalt shall be from a state approved source. Weigh tickets and summary shall be submitted to the City or County Public Works Department. Periodic inspection will be made of this construction. The contractor shall check manholes, valve boxes, and other obstacles within the pavement and adjust them to match the finished cross section, if needed. The City or County Public Works Department reserves the right to require additional core samples of the finished asphalt surface if insufficient thickness, poor compaction or other deficiencies are suspected. The roadway cross-section (including crown and sidewalk areas) shall be checked for proper cross-slope on 50-foot intervals.
- N. **PAVEMENT CONSTRUCTION** - See standards in Section 5.7.R.4 and Appendix A.

- O. **CONSTRUCTION REVISIONS** - Changes to the Construction Plans shall be submitted to the City or County Public Works Department for approval prior to continuing work affected by the changes. Review will be performed in a timely manner to minimize delay.
- P. **INSPECTION OF FINAL DRESSING** - The City or County Public Works Department and developer's representatives will review the final dressing of shoulder, ditches, buffer areas, the back-slopes in cuts, embankment slopes, and all other disturbed areas within the subdivision. Soils and amendments suitable for vegetation must be placed on any slopes that are to be seeded. Improvements will not be accepted until a good stand of grass is achieved and it appears unlikely that damages will occur due to heavy rain.
- Q. **INSPECTION AT COMPLETION OF CONSTRUCTION** - When all items, appurtenances and incidentals have been completed in compliance with the approved Subdivision Construction Plans, the Planning Commission Staff will request the City or County Public Works Department to attend a semi-final inspection of the subdivision in its entirety, and for final inspection. The final inspection will be made by the Planning Commission, the City or County Public Works Department, the developer's engineer, and the contractor.
 - 1. **INSPECTION OF SIDEWALKS** - Sidewalks forms shall be inspected by the City or County Public Works Department prior to, and during, concrete placement. Sidewalk installation must be complete prior to the issuance of the Certificate of Occupancy on any lot by the Building Inspector. Sidewalk ramps and transition areas shall be the responsibility of the developer as included in the construction contract, and shall be installed when curb and gutter are constructed.
- R. **AS-BUILT PLANS** - When all Improvements have been made and approved, two (2) sets of As-Built plans shall be submitted to the Planning Commission. The plans shall show the finished plan and profile of all streets, finished contours and volume of all retention/detention basins and profiles of all major drainage ditches, inlet/outlet elevations of all pipe and storm sewer, and all other pertinent construction. As-Built Plans of the gutter flow lines, edges of pavement, and centerline of road shall be done prior to the surface course or as directed by the City or County Public Works Department. Adjustments to the grade shall be made, if needed, prior to proceeding with surface pavement construction. The As-Built Plans shall be dated and signed by a licensed civil engineer or surveyor.