

# PINEVILLE LAND DEVELOPMENT STANDARDS SPECIFICATIONS AND SPECIAL PROVISION NOTES

Revision 6 - February 28, 2022

The following specifications and special provisions are intended to be used in conjunction with Pineville Land Development Standard Drawings, NCDOT Roadway Standard Drawings, and NCDOT Standard Specifications for Roads and Structures for all development within the Town of Pineville unless otherwise directed by the Town Engineer.

## I. STREETS

### A. GENERAL NOTES

1. All work and materials shall conform to the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures *unless otherwise specified in this manual*.
2. All asphalt cuts shall be made with a saw when preparing street surfaces for patching or widening strips.
3. Paper joints shall be used to seal the ends of an asphalt pour so that future extensions can be made without causing rough joints.
4. When placing asphalt against existing surfaces, a straight edge shall be used to prevent “humping” at that location.
5. Stone shall be primed if paving is not complete within seven days following stone base approval.
6. Surfaces shall be tacked when asphalt is being placed over existing asphalt streets or adjoining concrete, storm drain and sanitary sewer structures.
7. All street widening shall be constructed with full depth asphalt. Longitudinal seams located within the tire travel path shall require a repair of minimum 1 ½ inch mill and surface course overlay to cover the seam.
8. In rolling and hilly terrains, sweeping of the stone base and/or application of a tack coat may be required near intersections.

These requirements will be established by the Town Inspector based on field conditions.

9. ALL concrete used for streets, curb and gutter, sidewalks and drainage structures, etc. shall have a minimum compressive strength of 3600 PSI at 28 days. This requirement shall be provided regardless of any lesser compressive strength specified in the North Carolina Department of Transportation Standard Specifications for Roads and Structures. The contractor shall prepare concrete test cylinders in accordance with Section 1000 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures at the direction of the project inspector. All equipment and cylinder molds shall be furnished by the contractor. It shall be the responsibility of the contractor to protect the cylinders until such time as they are transported for testing. Testing for projects shall be performed by an independent testing lab, at no cost to the Town. The contractor shall provide equipment and perform tests on concrete for a maximum slump and air content as defined in Section 1000 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures. These tests shall be performed at a frequency established by the inspector. Materials failing to meet specifications shall be removed by the contractor.
10. All concrete shall be cured with 100% Resin Base, white pigmented curing compound which meets ASTM Specifications C- 309, Type 1, applied at a uniform rate at 1 gallon to 400 square feet within 24 hours of placement of the concrete.
11. All curb and gutter shall be backfilled with soil approved by the Inspector within 48 hours after construction to prevent erosion.
12. All backfill shall be non-plastic in nature, free from roots, vegetative matter, waste, construction material or other objectionable material. Said material shall be capable of being compacted by mechanical means and the material shall have no tendency to flow or behave in a plastic manner under the tamping blows or proof rolling.
13. Materials deemed by the Inspector as unsuitable for backfill purposes shall be removed and replaced with select backfill material.
14. All trenches in the street right-of-way shall be backfilled with suitable material immediately after the pipe is laid. The fill around all pipe shall be placed in layers not to exceed 6 inches and each layer shall be compacted thoroughly.

15. Under no circumstances shall water be permitted to rise in un-backfilled trenches after the pipe has been placed.
16. Compaction requirements shall be attained by the use of mechanical compaction methods. Each 6 inch layer of backfill shall be placed loose and thoroughly compacted into place.
17. Straight forms shall not be used for forming curb and gutter in curves.
18. All excess concrete on the front edge (lip) of gutter shall be removed when curb and gutter is poured with a machine.
19. All subgrade shall be compacted to 100% of the maximum density obtainable with the Standard Proctor Test to a depth of 8 inches, and a density of 95% Standard Proctor for depths greater than 8 inches. All tests shall be performed by developer at no cost to the Town.
20. A canvas cover or other suitable cover shall be required for transporting plant mix asphalt during cool weather when the following conditions are present:
  - a. Air temperature is below 60 degrees F.
  - b. Length of haul from plant to job is greater than 5 miles.
  - c. Other occasions at the Inspector's discretion when a combination of factors indicates that material should be covered in order to assure proper placement temperature.
21. Concrete or asphalt shall not be placed until the air temperature measured at the location of the paving operation is at 35 degrees F and rising by 10:00 a.m. Concrete or paving operations should be suspended when the air temperature is 40 degrees F and descending. The contractor shall protect freshly placed concrete or asphalt in accordance with Sections 420 (Concrete Structures), 600 (Asphalt Bases and Pavements), and 700 (Concrete Pavements and Shoulders) of the North Carolina Department of Transportation Standard Specifications when the air temperature is at or below 35 degrees F and the concrete has not obtained an age of 72 hours.
22. The contractor shall maintain two-way traffic at all times when working within existing streets. The contractor shall place and maintain signs, danger lights, and barricades and furnish watchmen or flagmen to direct traffic

in accordance with the latest edition Work Area Traffic Control Handbook (WATCH), Work in the right-of-way of State System Streets may require additional traffic control provisions.

- 23. The contractor shall do that which is necessary to control erosion and to prevent sedimentation damage to all adjacent properties and streams in accordance with the appropriate Town of Pineville Erosion and Sedimentation Control Ordinance.
- 24. A Professional Engineer (PE) certification of roadway construction will be required, stating construction was performed in accordance with the design standards.

**B. STANDARDS OF STREET DESIGN**

Note: Use of Hilly Terrain criteria is NOT permitted without PRIOR approval of the Town Engineer.

Note: Design standards will apply from the latest edition of the NCDOT design manual *Subdivision Roads Minimum Construction Standards*. Any revisions to *Subdivision Roads* will supersede the design standards given in the Pineville Land Development Standards for NCDOT maintained roads and under no circumstances shall a NCDOT standard be less restrictive than what is required by the Town of Pineville.

**1. STREETS (PUBLIC and PRIVATE):**

	ALL LOCAL STREETS (Except Industrial & Collector)		LOCAL INDUSTRIAL & COLLECTOR ONLY	
	<u>Level/Rolling</u>	<u>Hilly</u>	<u>Level/Rolling</u>	<u>Hilly</u>
a. Terrain Classification	0-15%	15% +	0-15%	15%++
b. Maximum Grade	10%	12%	8%	10%
c. Design Speed (mph)	25	20	30	25
d. Minimum Radius (ft.)				
Public Street	150	90	250	175
Private Street	50	50	150	150

	Min. Tangent between				
e.	Reverse Curves (ft.) Horiz. And Vert.	50	50	100	100
f.	K Values (crest/sag)	20/20	15/20	28/35	20/20

Note: Provisions of adequate stopping sight distance may require use of larger K values than the minimums listed above. The Pineville Public Works Department reserves the right to prescribe more stringent sight distance standards and/or means to achieve adequate sight distance than these listed above.

## 2. INTERSECTIONS:

- a. PUBLIC STREET: Vertical Alignment is 5% maximum within 100 feet of intersection.  
PRIVATE STREET: Vertical Alignment is 5% maximum within 40 feet of intersection.
- b. Minimum Angle of Intersection is 75 degrees.
- c. Minimum Curb & R/W Radius

**Table 4 - Curb Radii for Local Street Intersections**

From\To	R/Narrow	R/Medium	R/Wide	C/Narrow	C/Wide	Industrial
R/Narrow	35					
R/Medium	20	15				
R/Wide	15	15	10			
C/Narrow	20	15	25	35		
C/Wide	15	15	15	30	10	
Industrial	30	25	15	40	25	50

R = Residential  
C = Commercial

Narrow = Pavement less than 20 inches wide  
Medium = Pavement 20 inches to 24 inches wide

Wide = Pavement greater than 24 inches wide

Minimum Intersection Separation.

Along local streets 125 feet

Along collector streets 200 feet

Along thoroughfares to be determined by Town

Intersection offsets/separation from a thoroughfare, at signalized intersections, or at intersections that may become signalized in the future may need to be greater than these minimums and will be determined by the Town on a case by case basis.

Design criteria for arterial streets shall be established jointly by the Town Engineer and the Director of the Department of Transportation on a case by case basis using the latest edition of the American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highway and Streets and/or NCDOT Roadway Design Manual.

Intersection corner – A minimum 35 feet by 35 feet sight triangle (measured along right-of-way lines) shall be provided at each intersection corner. An additional 10 feet by 70 feet sight triangle shall be provided at intersections connecting to NCDOT maintained roadways. Other sight distance requirements may be required by the NCDOT or the Town.

Refer to the NCDOT Subdivision Roads Minimum Construction Standards Manual for development criteria for sites located within the Town of Pineville Extraterritorial Jurisdiction (ETJ). For areas governed by Pineville Land Development Standards Manual and the NCDOT Subdivision Roads Minimum Construction Standards Manual, the more restrictive standard shall apply.

### **C. GRADING**

1. Proposed street rights-of-way shall be graded to their full width for ditch type streets and a minimum of 8 feet behind the curb for curb and gutter sections.
2. Fill embankments shall be formed of suitable material placed in successive layers not to exceed more than 6 inches in depth for the full width of the cross-section, including the width of the slope area. No stumps, trees,

brush, rubbish or other unsuitable materials or substances shall be placed in the embankment. Each successive 6 inch layer shall be thoroughly compacted by the sheeps foot tamping roller, 10-ton power roller, pneumatic-tired roller, or other methods approved by the Town Engineer. Embankments over and around all pipe culverts shall be of select material, placed, and thoroughly tamped and compacted as directed by the Town Engineer or his representative.

#### **D. ROADWAY BASE**

1. All roadways shall be constructed with a base course as described on the appropriate Town of Pineville Land Development Standard Detail Drawing.
2. The material for stone base course shall conform to the requirements of Section 1010, Aggregate for Non-Asphalt Flexible Type Base, and Section 520, Aggregate Base course of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.
3. The stone base shall be compacted to 100% of the maximum density obtainable with the Modified Proctor Test (AASHTO- T180) by rolling with ring or tamping roller or with a pneumatic tired roller with a minimum weight of ten tons. When completed, the base course shall be smooth, hard, dense, unyielding and well bonded.
4. A bituminous concrete base course, as specified on the Standard Detail Drawing may be substituted in lieu of a stone base course.
5. Asphalt base course will only be allowed within widening strips less than 5 feet in width.

#### **E. ROADWAY INTERMEDIATE AND SURFACE COURSE**

1. All public roadways shall be constructed with an intermediate and surface course as described on the appropriate Town of Pineville Land Development Standard Detail Drawing.
2. Density tests will be required every 200 feet with a minimum of 3 tests for each roadway. Density testing reports shall be provided to the Town Public Works Director.

3. Plant mixed asphalt shall conform in all respects to Section 610 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.
4. The final (lift of asphalt surface course for Residential /Commercial Subdivision Streets shall be withheld until the development has met the required percentage development occupancy according to Town requirements. All known base failures shall be repaired prior to application of the final lift of asphalt surface course.
5. The Town inspector shall be given a 24 hour notification to inspect the intermediate course deficiencies. All deficiency repairs are to be monitored by a Town Inspector and accepted prior to application of final layer.
6. Town inspectors shall be notified prior to using recycled plant mixes.
7. Failure to meet the above requirements may result in the delay or prevention of street acceptance by the Town of Pineville or NCDOT.

**F. SIDEWALKS AND DRIVEWAYS**

1. Sidewalks and all walkable or drivable concrete surfaces shall be constructed of not less than 3600 P.S.I. concrete and shall be minimum 4 inches thick, constructed on an adequately graded base, except where a sidewalk crosses a driveway it shall be 6 inches thick. Sidewalk shall be placed on a base of 6 inches ABC stone compacted to 95% of the maximum density obtainable with the Standard Proctor Test, OR placed on a subbase compacted to 95% density with Geogrid 1100 mat. The surface of the sidewalk shall be steel trowel and light broom finished and cured with an acceptable curing compound. Tooled joints shall be provided at intervals of not less than 5 feet and expansion joints at intervals of not more than 45 feet. The sidewalk shall have a lateral slope of one-quarter  $\frac{1}{4}$  inch per foot.
2. Planting strip adjacent to sidewalk shall be graded to  $\frac{1}{4}$  inch per foot (min.) up to 1  $\frac{1}{4}$  inch per foot (max.), except where excessive natural grades make this requirement impractical. In such cases, the Town Engineer may authorize a suitable grade.
3. Sidewalk widths shall be a minimum of 5 feet unless otherwise specified.



4. Approval of sidewalk construction plans must be obtained as part of the plan review process. A recorded public sidewalk easement is required for all sidewalk located outside public right-of-way; the width shall be equal to the distance from the right-of-way line to the back of the sidewalk plus two feet or to the face of building, whichever is less. The sidewalk easement must be recorded with the Mecklenburg County Register of Deeds prior to issuance of a certificate of occupancy for the corresponding building(s).
5. Accessible ramps are required where sidewalks intersect curbing at any street intersection and at curbed driveway connections. All ramps and sidewalks shall be constructed to meet the requirements of the Americans with Disabilities Act (ADA) and Public Right-of-Way Accessibility Guidelines (PROWAG).
6. The Town Public Works Director shall be given a 48 hour notice prior to any concrete sidewalk or driveway apron pour to schedule an onsite inspection. Failure to schedule an inspection may result in rejection of the work.
7. Electrical Conduit shall be installed with sidewalk construction to allow for future lighting wiring where directed by the Town. Conduit shall be 2-inch Schedule 80 PVC, at minimum 18- inch depth, with stub ups placed in planting strip at 150 feet intervals.

**G. BASE COURSE STREET REPAIR**

1. Structural repair areas must encompass the full travel lane of roadways.
2. Minimum base course repair patch size is 10 feet by 10 feet.
3. Structural repairs to a road failure cannot be within 10 feet of each other, else the entire area requires structural repair.
4. Backfill depth for full-depth asphalt pavement repairs shall be minimum 9 ½ inches total below finished pavement grade on thoroughfare and industrial streets and 6 ½ inches on business and residential streets. Compaction for pavement repairs shall be 92% for asphalt and 95% for subgrade.

## **H. SURFACE COURSE STREET REPAIR**

1. Overlay patch area must encompass the full travel lane of roadways.
2. Minimum surface course repair patch size is 10 feet by 10 feet.
3. Overlay patch area cannot be any closer than 150 feet of each other, else the entire area requires mill and replace.

## **I. DECORATIVE STREET SIGNS AND POSTS**

1. New installed and replaced sign posts in the Town of Pineville must be approved by the Public Works Director prior to installation. The posts must conform to the Manual on Uniform Traffic Control Devices (MUTCD) and criteria shown in the Standard Details.
2. A site plan showing the proposed location of all proposed signs must be approved prior to sign placement.

## **J. BUS STOPS**

New developments along Public Bus routes shall provide bus stops as required by the Charlotte Area Transit System (CATS) guidelines and specifications. Standard Details may be found at:  
<https://charlottenc.gov/ld/CLDSM/Documents/Revised%20CATS%20Details.pdf>

## **II. STORM DRAINAGE**

### **A. GENERAL NOTES**

1. All work and materials shall conform to the latest edition of the NCDOT Standard Specifications for Roads and Structures. *Unless otherwise specified in this manual*. ALL concrete used for drainage structures shall have a minimum compressive strength of 3600 PSI at 28 days. This requirement shall be provided regardless of any lesser compressive strength specified in the NCDOT Standard Specifications

2. Reinforced concrete pipe may be used in all storm drain applications. High Density Polyethylene Pipe (HDPE) may be substituted for pipe diameters of 48-inches or less.
3. All pipe shall be laid with the bell or groove upgrade and the joint entirely interlocking.
4. All pipe shall meet minimum and maximum cover requirements of NCDOT Standard Drawing 300.01 and NCDOT Pipe Material Selection Guide. Special applications for less than 2 feet of cover will be reviewed and approved by the Town Engineer individually. Cover shall be measured from the bottom of the pavement structure (stone or asphalt base). Storm pipe design that exceeds these criteria may be approved at the discretion of the Town Engineer.
5. All pipes in storm drain structures shall be flush with the inside wall.
6. All storm drain structures over 3 feet and 6 inches in height must have steps in accordance with standard details set forth in this manual.
7. The interior surfaces of all storm drainage structures shall be pointed up and smoothed to an acceptable standard using mortar mixed to manufacturer's specifications.
8. Storm drainage piping shall be placed in a straight alignment at uniform grade. No changes in alignment shall be allowed except at catch basins, manholes, or other junctions that provide appropriate clean out access. The maximum length between access points is 300 linear feet.
9. A pipe collar meeting NCDOT standards or standard junction structure is required where pipes from two manufacturers or materials are tied together. Pipes should be on the same grade and alignment and have the same internal diameter where a pipe collar is specified.
10. All frames, grates, rings, covers, etc., must conform to the standards set forth in this manual.
11. All graded creek banks and slopes shall be at a maximum of 2 feet horizontal to 1 foot vertical (2:1) and not to exceed 10 feet without terracing or the slopes shall be designed by a Professional Geotechnical Engineer and approved by the Town Engineer on a case by case basis.

12. Driveway pipe shall be restricted to a single pipe, with minimum inside diameter of 15 inches.
13. CCTV video performed by NASSCO-PACP certified contractor shall be provided for each pipe/culvert segment begin considered for acceptance, in accordance with the Town of Pineville subdivision ordinance and PLDSM Special Provisions.
14. The County and/or Town's approval of construction plans does not relieve the design engineer nor the contractor from responsibility for defective or incomplete work resulting from errors or omissions of any kind.

**B. HIGH DENSITY POLYETHYLENE PIPE (HDPE)**

1. The Product used shall be corrugated exterior/smooth interior pipe (Type S), conforming to the requirements of AASHTO Specification M294 (latest edition) for Corrugated Polyethylene Pipe.
2. Bell and spigot joints shall be required on all pipes inside the right-of-way. Bells shall cover at least two full corrugations on each section of pipe. The bell and spigot joint shall have an "O" ring rubber gasket meeting ASTM F477 with the gasket factory installed, placed on the spigot end of the pipe. Pipe joints shall meet all requirements of AASHTO M294.
3. All HDPE pipe installed must be inspected and approved by the Town's Inspector prior to any backfill being placed. The Town inspector must be present during the backfilling operation as well.
4. Backfill material used to install HDPE pipe within the street right-of-way shall be Select Material, Class II-IV, as defined by Section 1016-3 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures. Upon submittal of written certification of material suitability by a licensed geotechnical engineer, NCDOT Class I Select Material may be used. All backfill material shall be approved by the Town inspector prior to placement of the material within the street right-of-way.
5. The minimum length of HDPE pipe permitted for use shall be 4 feet. HDPE flared end sections are not allowed.
6. All HDPE pipe installed shall be third party certified and shall bear the Plastic Pipe Institute's (PPI) certificate sticker.

### **C. REINFORCED CONCRETE (RCP)**

1. All concrete shall be at least 3600 PSI. Prior approval shall be obtained in order to use pre-cast storm drainage structures in any street right-of-way by Town Engineer.
2. Concrete pipe used within the street right-of-way shall be a minimum of Class III Reinforced Concrete Pipe, with a minimum diameter of 15 inches (18 inches minimum on cross drain culverts within the ETJ). Installation of Class IV or higher concrete pipe shall be identified on the As-Built Plan and the Town inspector shall be given documentation and notification of this information prior to construction.
3. Concrete mortar joints shall be used for joining all concrete pipes. The pipe shall be clean and moist when mortar is applied. The lower portions of the bell or groove shall be filled with mortar sufficient to bring the inner surface flush and even when the next joint is fitted into place. The remainder of the joint shall then be filled with mortar and a bead or ring of mortar formed around the outside of the joint. The application of mortar may be delayed until fill is completed when the pipe is larger than 30 inches.
4. Performed joint sealer, which conforms to AASHTO specification M-198 for Type B flexible plastic gaskets, may be used in lieu of the mortar joining method.

### **D. INSTALLATION OF REINFORCED CONCRETE (RCP) AND CORRUGATED METAL PIPE (CMP)**

1. All backfill shall be non-plastic in nature, free from roots, vegetative matter, waste, construction material or other objectionable material. Said material shall be capable of being compacted by mechanical means and shall have no tendency to flow or behave in a plastic manner under the tamping blows or proof rolling.
2. Materials deemed by the Engineer as unsuitable for backfill purposes shall be removed and replaced with select backfill material.
3. Backfilling of trenches shall be accomplished immediately after the pipe is laid. The fill around the pipe shall be placed in layers not to exceed 8 inches, each layer shall be thoroughly compacted to 95% of the maximum density obtainable with the Standard Proctor Test (a density of 100% Standard Proctor is required for the top 8 inches).

4. Compaction requirements shall be attained by the use of mechanical compaction methods. Each layer of backfill shall be placed loose and thoroughly compacted in place.
5. Under no circumstances shall water be permitted to rise in un-backfilled trenches after the pipe has been placed.

#### **E. STANDARDS FOR DESIGN**

1. All storm drainage design shall conform to the standards and specifications as provided in the Charlotte-Mecklenburg Storm Water Design Manual, North Carolina Department of Transportation Standards Specifications for Roads and Structures, Pineville Land Development Standards Manual, or the more restrictive of any standards that conflict.
2. Adequate storm drainage shall be provided throughout the development by means of storm drainage pipes or properly graded channels. All pipes shall be of adequate size and capacity, as approved by the Town Engineer, to carry all storm water in its drainage area.
3. In accordance with the Town Zoning Ordinance, the Town Engineer shall review the drainage plan for compliance with the standards contained in the current edition of the Pineville Land Development Standards Manual and the Charlotte-Mecklenburg Storm Water Design Manual and all other relevant and appropriate standards established by the Town.
4. Sub-surface drainage shall be provided where the ground water level is likely to be near the surface. In capillary soils, the water level should be 4 feet to 6 feet below the surface to prevent the rise of moisture into the subgrade. Subdrains shall be used to lower ground water in low areas in the street.
5. The NCDOT Standard Drawings have been accepted as approved standards to be specified for Land Development projects in the Town of Pineville and Town of Pineville ETJ. See standard PLDS 20.00A, B, and C of this manual for a table listing the standards accepted. These standard drawings shall be referenced by NCDOT number or shown on all plans submitted to the Town of Pineville for approval.

## **F. PIPE VIDEO STANDARDS**

Installation of pipes/culverts and structures consisting of the following approved materials (concrete, high density polyethylene – HDPE) used for the purpose of conveying stormwater runoff in and out of public rights-of-way, that are eligible for acceptance/maintenance by the Town of Pineville, are subject to the following:

### ***A. General:***

- a. All storm drainage system installation requires a Closed-Circuit Television (CCTV) video inspection as part of the pre-final inspection process. Video must be done once the Town’s build out requirement has been met.
- b. All costs associated with these requirements will be the responsibility of the storm drainage system owner (developer, builder, property owner, etc.). Video costs must be included in the performance/construction bond.
- c. National Association of Sewer Service Companies – Pipe Assessment Certification Program (NASSCO-PACP) video, video reports, Engineer’s certification, and deflection confirmation results (flexible pipes must not exceed 5%) must be approved by Mecklenburg County or Town representative prior to installing the final surface course of asphalt, unless surface course was installed within one year of base course.
- d. Pipes larger than 48 inches may require manual entry and inspection (confined space regulations may be applicable).
- e. Video inspection must be conducted in a manner that provides an unobstructed view of the entire pipe and storm drain system. The storm drain system must be free of debris and obstructions that impede visibility. Weather conditions must not impede visibility. If there is flow in the pipe, it cannot exceed 5 percent or impede visibility of invert.
- f. Cracks, fractures, and joint separation may require measurements to determine if a minor repair, major repair (Engineer approved), or replacement is required.
- g. Any systems that do not meet the requirements of this section will be rejected and will require rehabilitation or replacement at the discretion of the Owner’s Engineer, Town, NCDOT or Mecklenburg County.

- h. Governing entities may require video of private alleys/roads.

**B. Video Contractor:**

- a. All CCTV videos must be performed by a certified NASSCO-PACP professional. The video inspection, reporting, and coding must follow the latest addition of the NASSCO-PACP Manual.
- b. A certified NASSCO-PACP professional (operator) must be on site during collection of data and coding, and that individual's certification number shall be entered on the Header Section of the video report.

**C. Post Installation:**

- a. The Town requires storm drainage systems to be clean, have good alignment, tight joints with mastic or manufacturer's seal, no broken or fractured pipes, no infiltration or inflow (I&I) in pipes, joints, or structures. Structures must be pointed up, and built per the approved plans prior to performing video and submittal of CCTV video documents.
- b. All evaluation and acceptance of the installed pipe will be based upon the NCDOT Guidelines for Post Installation Evaluation and Repair of Newly Installed Drainage Pipe.
- c. Pipe/Structure rehabilitation must meet or exceed Industry Standards: American Concrete Pipe Association (ACPA), ASTM, AASHTO, NCDOT or other method approved by the County Engineer or Town Engineer.

**D. Video Report:**

- a. The storm drainage system owner will provide the following to Town or their representative:
  - i. Plat, map, or drawing identifying each pipe segment being presented for acceptance with all inlet nodes labeled and corresponding to the accompanying video. For example, start of video is at inlet CB1 to JB2 as shown on accompany drawing. (video map segments should match the approved drawings.)
  - ii. The NASSCO-PACP report shall include each pipe/culvert segment and structures being considered for acceptance. The report shall include still digital photos of any anomalies or defects that were required and not required to be rehabilitated.



- b. The Town, or its representative, and NCDOT will only review the certified reports (NASSCO-PACP and Engineer's Reports/Certification). Mecklenburg County, Town, or representative, and NCDOT will review video upon request.

***E. Engineer's Report & Certification***

- a. The Owner's Engineer will be responsible for documenting the visual observations of the pipe's current condition, determine if/when rehabilitation needs to be made on the pipe segment and specify the best renewal or repair method per Industry Standards. All NASSCO-PACP defect codes and grades will require recommendations from the Owner's Engineer for rehabilitation, or replacement (if warranted).
- b. The Owner's Engineer's recommendations must be reviewed and approved by MC, Towns, or their representatives before starting rehabilitation or replacement.
- c. All video reports, Engineer's recommendations for rehabilitation, and the Engineer's certified report must be submitted to MC, Towns, or their representatives; this would include the initial report and any post rehabilitation reports if deficiencies/defects are found.
- d. Include a copy of the pipe manufacturer's certification letter for the RCPs, including date, project name, compliance with ASTM C-76 and ASTM C- 443, and if the pipes are NCDOT stamped.
- e. The video report shall be sealed by a NC registered professional engineer certifying the recommendations for rehabilitation and that the Pipe Video Standards have been met.
- f. The report shall include an Executive Summary Table in a format to be provided by Mecklenburg County or equivalent Video Summary Table.

### III. PLAN REQUIREMENTS

#### A. GENERAL NOTES - The notes below shall be placed on the Cover sheet of all construction drawings with the Town of Pineville's jurisdiction

1. The property owner, builder, contractor, and any delegated representatives for the project shall be familiar with and responsible for adhering to all Town of Pineville Standards.
2. All work and materials shall conform to the latest edition of the *North Carolina Department of Transportation Standard Specifications for Roads and Structures* and the *Pineville Land Development Standards Manual (PLDSM)*.
3. Concrete sidewalk shall be placed on a base of 6" ABC Stone compacted to 95% of the maximum density obtainable with the Standard Proctor test, OR, or placed on subgrade compacted to 95% density with Geogrid 1100 mat. Reference Town Standard Detail 10.22.
4. Accessible ramps shall be installed where sidewalks intersect curbing at any street intersection and at curbed driveway connections. All ramps and sidewalks shall be constructed to meet the requirements of the Americans with Disabilities Act (ADA) and Public Right-of-Way Accessibility Guidelines (PROWAG).
5. Concrete curb shall be placed on 4" Asphalt concrete base course Type B25.0B, or 6 inch ABC Stone compacted to 100% density. Top 6 inch subgrade shall be compacted to 100%. The asphalt or stone base shall extend 12 inches in front and back of curb and gutter section. Reference Town Standard Typical Street Section Details 10.01 through 10.10C, and Standard Details 10.17A and 10.17B.
6. Pavement cuts shall be saw cut with square and smooth edges. Backfill depth for full-depth asphalt pavement repairs shall be minimum 9 ½ inches total below finished pavement grade on thoroughfare and industrial streets and 6 1/2 inches on business and residential streets. Compaction for pavement repairs shall be 92% for asphalt and 95% for subgrade.
7. Asphalt repairs with longitudinal seams evident in the tire travel area shall not be allowed. Longitudinal seams located within the tire travel area shall require a repair of minimum 1 ½ inch mill and surface course overlay to cover the seam.

8. The Contractor shall schedule an onsite inspection with the Town Public Works Director (704-889-7467) at least 48 hours in advance of any street pavement repair or concrete pour for sidewalk, accessible ramp, or driveway apron. Failure to schedule an inspection may result in rejection of the work.
9. All erosion control measures shall conform to the standards set forth in the Pineville Land Development Standards Manual, North Carolina Erosion and Sediment Control Planning and Design, or the more restrictive of any standards that conflict.
10. All storm drainage design shall conform to the standards and specifications as provided in the Charlotte-Mecklenburg Storm Water Design Manual, Pineville Land Development Standards Manual, or the more restrictive of any standards that conflict.
11. In areas where the Floodway Regulations are applicable, the FEMA Flood Fringe Line and FEMA Encroachment Line shall be shown on the preliminary plan and the final plat. An application for a Floodplain Development Permit shall be submitted to the Floodplain Administrator in accordance with the requirements set forth in the Town's Regulations.
12. Standard detail numbers for any structures or specifics used within the plans shall reference the most current edition of the Pineville Land Development Standards Manual.

## **B. SUBDIVISIONS & PRELIMINARY PLANS**

1. The preliminary plan must include, at a minimum, the information described in the Town of Pineville Subdivision Ordinance.
2. Storm Drainage Easements shall be provided for all storm drainage pipe and shown on site plans, construction plans and plats with widths specified below. The following note shall be placed on all grading plans and plats; "The purpose of the storm drainage easement (SDE) is to provide storm water conveyance. Buildings are not permitted in the easement area. Any other objects which impede storm water flow or system maintenance are also prohibited."

**PIPES**

<b><u>Diameter</u></b>	<b><u>Width</u></b>
15" – 24" .....	15'
30" – 36" .....	20'
42" – 48" .....	25'
54" + .....	30'

**CHANNELS**

<b><u>Drainage Area (Ac)</u></b>	<b><u>Channel Easement Width (feet)</u></b>
1 – 45 .....	20'
45 – 120 .....	30'
120 – 500 .....	40'
500 + .....	see PLDS 20.30

3. Overlapping of storm drainage easements shall be approved by the Town Engineer.

**C. BOND POLICY – SUBDIVISION IMPROVEMENTS**

1. Release of the final subdivision plat will not occur until the improvements required for the area of the final plat are constructed and a final inspection has been performed and found to be in conformance with the plans approved by the Town of Pineville, or a security has been posted with the Town Engineer and all required documents are received in their entirety.
2. The security shall be posted and remain in force until the construction is complete and found to be in conformance with the plans approved by the Town of Pineville. The security will be reevaluated after one year from the date of posting.

3. The Applicant shall notify the Town Engineer that construction is complete according to the appropriate subdivision ordinance and the Pineville Land Development Standards Manual before any security will be released. A final inspection will be made to check completeness of the project upon notification.
4. One type of security may be replaced by another type of security in certain situations. The amount of the replacement security will be based on the Town's Engineer Estimate of the work remaining. If the estimate of work results in a lower amount, the replacement security will be treated as a reduction. Certain situations will require an increase in a security and in such cases the replacement security shall be required to equal the higher amount.
5. A one-time reduction in security will be allowed if requested in writing by the principal party of the security. However, the security shall never be less than \$15,000 for the Town of Pineville unless approved by the Town Engineer.

#### IV. APPROVED PLANT SPECIES

The following list of trees and shrubs represent the approved plant species that may be used to comply with the Pineville Zoning Ordinance.

List subject to change

\* - Not allowed for required town planting.

\*\* - Not recommended for required town planting.

† - Cultivars under 15 feet tall only.

‡ - Trees <25 feet mature height can be planted directly under power lines.

Common Name	Scientific Name	Town Tree Ordinance Approved	CIP/ROW Approved	Town Zoning Approved (Large)	Duke Transmission Zone(T) or Distribution line(D) Approved	Shade Tolerant	Tolerates Poor Drainage	Native	Blooming	Foliage (Deciduous, Semi-deciduous, or Evergreen)
<b>LARGE MATURING TREES (50'+ H)</b>										
Arborvitae, 'Green Giant'	Thuja 'Green Giant'		x				x			E
Ash, Green	Fraxinus pennsylvanica			L		x		x		D
Ash, White	Fraxinus americana	x		L				x		D
Baldcypress	Taxodium distichum	x	x	L			x	x		D
Beech, American	Fagus grandiflora	x	x	L				x		D
Birch, River	Betula nigra	x	x	L		x	x	x		D
Black Gum	Nyssa sylvatica	x	x	L				x		D
Cedar, Deodar	Cedrus deodara	x	x	L						E
Cedar, Eastern Red	Juniperus virginiana		x	L				x		E
Cryptomeria, Japanese	Cryptomeria japonica	x	x				x			E
Dawn Redwood	Metasequoia glyptostroboides	x	x							S
Elm, Princeton	Ulmus americana 'Princeton'		x							D
Elm, Lacebark	Ulmus parvifolia	x	x	L		x	x			D
Ginkgo ‡	Ginkgo biloba	x	x	L		x	x			D
Hackberry, Common	Celtis occidentalis	x		L		x	x	x		D
Hackberry, Sugar	Celtis laevigata	x				x	x	x		D
Hemlock, Eastern	Tsuga canadensis			L		x		x		E
Hickory, Bitternut	Carya cordiformis			L				x		D

Common Name	Scientific	Town Tree Ordinance Approved	CIP/ROW Approved	Twon Zoning Approved (Large or Small Maturing)	Duke Transmission Zone(T) or Distribution line(D) Approved	Shade Tolerant	Tolerates Poor Drainage	Native	Blooming	Foliage (Deciduous, Semi-deciduous, or Evergreen)
<b>LARGE MATURING TREES (50'+ H) continued</b>										
Hickory, Pignut	<i>Carya glabra</i>			L				x		E
Hickory, Shagbark	<i>Carya ovata</i>			L				x		E
Holly, American	<i>Ilex opaca</i>	x	x	S		x		x		E
Honeylocust, Shademaster**	<i>Gleditsia tricanthos inermis 'Shademaster'</i>							x		D
Hornbeam, European	<i>Carpinus betulus</i>	x	x	S		x	x			D
Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	x	x			x		x		D
Linden, Little Leaf	<i>Tilia cordata</i>	x				x	x		x	D
Magnolia, Cucumber	<i>Magnolia acuminata</i>		x					x	x	D
Magnolia, Southern	<i>Magnolia grandiflora</i>	x	x	L			x	x	x	E
Maple, Freeman	<i>Acer x fremanii</i>	x	x			x		x		D
Maple, Red *	<i>Acer rubrum</i>		x	L		x	x	x		D
Maple, Sugar	<i>Acer saccharum</i>	x	x	L		x		x		D
Oak, Black	<i>Quercus velutina</i>			L		x		x		D
Oak, Fastigiante English	<i>Quercus robur 'Fastigiata'</i>		x							D
Oak, Laurel	<i>Quercus laurifolia</i>	x		L		x		x		D
Oak, Live	<i>Quercus virginiana</i>	x	x	L		x	x	x		E
Oak, Northern Red*	<i>Quercus rubra</i>			L		x		x		D
Oak, Nuttall	<i>Quercus nuttallii</i>	x	x			x		x		D
Oak, Overcup	<i>Quercus lyrata</i>	x	x			x	x	x		D
Oak, Scarlet**	<i>Quercus coccinea</i>			L				x		D
Oak, Shumard	<i>Quercus shumardii</i>	x	x	L		x		x		D
Oak, Southern Red	<i>Quercus falcata</i>	x	x	L		x		x		D
Oak, Swamp White	<i>Quercus bicolor</i>		x	L		x	x	x		D
Oak, Water	<i>Quercus nigra</i>		x	L			x	x		D
Oak, White	<i>Quercus alba</i>		x	L		x		x		D

Common Name	Scientific	Town Tree Ordinance Approved	CIP/ROW Approved	Town Zoning Approved (Large or Small Maturing)	Duke Transmission Zone(T) or Distribution line(D) Approved	Shade Tolerant	Tolerates Poor Drainage	Native	Blooming	Foliage (Deciduous, Semi-deciduous, or Evergreen)
<b>LARGE MATURING (50'+ H) continued</b>										
Oak, Willow	<i>Quercus phellos</i>	x	x	L		x	x	x		D
Pecan	<i>Carya illinoensis</i>			L				x		D
Persimmon	<i>Diospyros virginiana</i>			L		x		x		D
Pine, Austrian	<i>Pinus nigra</i>	x		L			x			E
Pine, Japanese Black	<i>Pinus thunbergi</i>			L						E
Pine, Loblolly	<i>Pinus taeda</i>	x	x	L			x	x		E
Pine, Shortleaf	<i>Pinus echinata</i>		x	L				x		E
Pine, Virginia	<i>Pinus virginiana</i>	x	x	L				x		E
Poplar, Tulip	<i>Liriodendron tulipifera</i>	x	x	L		x	x	x	x	D
Sweetgum, Fruitless	<i>Liquidambar styraciflua</i> 'Rotundiloba'	x	x	L		x	x	x		D
Sweetgum, Slender	<i>Liquidambar styraciflua</i> 'Slender Silhouette'		x			x	x	x		D
Zelkova, Japanese *	<i>Zelkova serrata</i>			L		x				D
<b>MEDIUM MATURING TREE (30'-50'H)</b>										
Arborvitae, American †	<i>Thuja occidentalis</i>		x		D		x	x		E
Carolina Silverbell	<i>Halesia carolina</i>	x	x	S		x		x	x	D
Chinese Pistache	<i>Pistacia chinensis</i>	x	x			x	x			D
Crape Myrtle (Biloxi, Natchez)*	<i>Lagerstroemia</i>		x							D
Dogwood, Flowering ‡	<i>Cornus florida</i>	x	x	S	D	x		x	x	D
Dogwood, Kousa ‡-	<i>Cornus kousa</i>	x	x	S	D	x		x	x	D
Fringetree, Chinese	<i>Chionanthus retusus</i>	x				x			x	D
Golden Raintree	<i>Koelreuteria paniculata</i>		x	S					x	D
Hawthorne, Green	<i>Crataegus viridis</i> 'Winter King'	x	x				x	x	x	D
Holly, 'Emily Brunner'	<i>Ilex X 'Emily Brunner'</i>		x			x				E
Holly, 'Nellie R. Stevens'	<i>Ilex X 'Nellie R. Stevens'</i>		x			x				E



Common Name	Scientific	Town Tree Ordinance Approved	CIP/ROW Approved	Town Zoning Approved (Large or Small Maturing)	Duke Transmission Zone(T) or Distribution line(D) Approved	Shade Tolerant	Tolerates Poor Drainage	Native	Blooming	Foliage (Deciduous, Semi-deciduous, or Evergreen)
<b>MEDIUM MATURING TREE (30'-50'H)</b>										
Holly, Savannah	Ilex X attenuata 'Savannah'		x	S			x	x		E
Hornbeam, American	Carpinus caroliniana	x	x	S		x	x	x		D
Maple, Hedge	Acer campestre		x	S			x			D
Maple, Paperbark	Acer griseum		x							D
Maple, Trident	Acer buergerianum	x	x			x				D
Redbud, Chinese ‡	Cercis chinensis	x	x		D	x			x	D
Sourwood	Oxydendrum arboreum			S		x		x	x	D
<b>SMALL MATURING TREES (UP-25'H)</b>										
Arborvitae, Emerald Green	Thuja occidentalis 'Emerald Green'		x							E
Buckeye, Bottlebrush †	Aesculus parviflora	x	x		T	x		x	x	D
Camellia, Sasanqua	Camellia sasanqua		x	S		x			x	E
Cherry, Kwanzan	Prunus serrulata 'Kwanzan'	x		S					x	D
Cherry, Snowgoose	Prunus serrulata 'Snowgoose'		x						x	D
Cherry, 'Okame'	Prunus X 'Okame'	x	x						x	D
Cherry, Weeping	Prunus subhirtella pendula			S					x	D
Cherry, Yoshino	Prunus X yedoensis	x	x	S	D				x	D
Cherry laurel, Carolina	Prunus caroliniana			S		x	x	x	x	E
Crabapple, Japanese Flowering †	Malus floribunda		x	S	D				x	D
Crape Myrtle	Lagerstroemia		x							D
Dogwood, redbud †	Cornus sericea f. baileyi		x		D		x	x	x	D
Dogwood, Rutgers Hybrid	Cornus kousa X florida		x		D	x	x		x	D
Filbert, American	Corylus americana	x	x		T	x		x		D
Fringetree	Chionanthus virginiana		x				x	x	x	D
Hawthorne, Washington	Crataegus phaenopyrum	x	x	S			x	x	x	D
Holly, Foster	Ilex X attenuata 'Fosteri'	x	x	S			x	x		E
Holly, Yaupon	Ilex vomitoria		x	S		x		x		E

		Town Tree Ordinance Approved	CIP/ROW Approved	Town Zoning Approved (Large or Small Maturing)	Duke Transmission Zone(T) or Distribution line(D) Approved		Shade Tolerant	Tolerates Poor Drainage	Native	Blooming	Foliage (Deciduous, Semi-deciduous, or Evergreen)
Common Name	Scientific										
SMALL MATURING TREES (UP-25'H)											
Magnolia, Star †	Magnolia stellata	x	x	S	D		x	x	x	D	
Magnolia, Lily Flowered	Magnolia liliiflora		x				x		x	D	
Magnolia, 'Little Gem'	Magnolia grandiflora 'Little Gem'	x	x				x	x	x	E	
Magnolia, 'Merrill'	Magnolia X loebneri 'Merrill'		x				x	x	x	D	
Magnolia, Saucer	Magnolia X soulangiana	x	x	S	D		x	x	x	D	
Maple, Armur 'Flame' †	Acer tataricum ginnala 'Flame'	x	x		D		x			D	
Maple, Japanese	Acer palmatum	x	x			x				D	
Maple, Purplebow/Shantung	Acer truncatum		x							D	
Plum, Purpleleaf	Prunus cerasifera 'Atropurpurea'	x	x	S					x	D	
Redbud, Eastern	Cercis canadensis	x	x	S	D	x	x	x	x	D	
Serviceberry	Amelanchier arborea	x	x					x	x	D	
Serviceberry, Shadbush †	Amelanchier canadensis	x	x	S	T	x		x	x	D	
Waxmyrtle	Myrica cerifera	x		S			x			E	

**SHRUBS**

Common Name	Scientific Name
Burford holly *	<i>Ilex cornuta burfordi</i>
Camellia *	<i>Camellia japonica</i>
Convex Japanese holly *	<i>Ilex crenata 'convexa'</i>
Dwarf burford holly *	<i>Ilex cornuta burfordi nana</i>
Emily brunner holly *	<i>Ilex "Emily Brunner"</i>
English holly *	<i>Ilex aquifolium</i>
Evergreen euonymus *	<i>Euonymus japonicus</i>
Flowering quince	<i>Chaenomeles speciosa</i>
Forsythia	<i>Forsythia intermedia</i>
Glenn dale azalea *	<i>Azalea hybrida</i>
Glossy abelia *	<i>Abelia grandiflora</i>
Hetzi Japanese holly *	<i>Ilex crenata 'hetzi'</i>
Hetzi jumper *	<i>Jumperus chinensis hetzi</i>
Indian azalea *	<i>Azalea indica</i>
Inkberry holly *	<i>Ilex glabra</i>
Japanese aucuba *	<i>Aucuba japonica</i>
Kaempferi azalea *	<i>Azalea obtusum Kaempferi</i>
Laurel *	<i>Laurus nobilis</i>
Loropetalum *	<i>Loropetalum chinense</i>
Lusterleaf holly *	<i>Ilex latifolia</i>
Oakleaf hydrangea	<i>Hydrangea quercifolia</i>
Perny holly *	<i>Ilex pernyi</i>
Pfitzer juniper *	<i>Juniperus chinensis pfitzeriana</i>

Common Name	Scientific Name
Roundleaf Japanese holly *	<i>Ilex crenata 'rotundifolia'</i>
Sasanqua Camellia *	<i>Camellia sasanqua</i>
Witch-hazel	<i>Hammamelis virginiana</i>
Yaupon holly *	<i>Ilex vomitoria</i>
Wax myrtle *	<i>Myrica cerifera</i>
Wild olive *	<i>Osmanthus americana</i>
Chinese photinia *	<i>Photinia serrulata</i>
Mountain andromeda *	<i>Pieris floribunda</i>
Japanese andromeda *	<i>Pieris japonica</i>
Pittosporum *	<i>Pittosporum tobira</i>
English laurel *	<i>Prunus laurocerasus</i>
Podocarpus *	<i>Podocarpus macrophyllus maki</i>
Narrow leafed English laurel *	<i>Prunus laurocerasus angustifolia</i>
Scarlet firethorn	<i>Pyracantha coccinea</i>
Yeddo-hawthorn *	<i>Raphiolepis umbellata</i>
Reeves spirea	<i>Spirea cantoniensis</i>
Thunberg spirea	<i>Spirea thunbergii</i>
Bridalwreath spirea	<i>Spirea prunifolia plena</i>
Vanhoutte spirea	<i>Spirea vanhouttei</i>
Japanese yew *	<i>Taxus cuspidata</i>
Leatherleaf viburnum *	<i>Viburnum rhytidophyllum</i>
Laurestinus viburnum *	<i>Viburnum tinus</i>

\* denotes evergreen

**Other species may be allowed with town approval**

List subject to change

## V. REFERENCES

- North Carolina Department of Transportation, most recent edition, Standard Specifications for Roads and Structures.
- North Carolina Department of Transportation, most recent edition, Roadway Standards Drawings.
- City of Charlotte Department of Transportation, most recent edition, Work Area Traffic Control Handbook (WATCH)
- Charlotte-Mecklenburg Storm Water Design Manual
- American Association of State Highway and Transportation Officials most recent edition, A Policy on Geometric Design of Highways and Streets
- North Carolina Department of Transportation, Roadway Design Manual, latest edition
- North Carolina Department of Environment and Natural Resources most recent edition, Erosion and Sediment Control Planning and Design Manual
- NCDENR, Storm Water Best Management Practices, latest edition.
- Mecklenburg County Land Development Standards Manual, latest edition.
- North Carolina Department of Transportation Subdivision Roads Minimum Construction Standards Manual, latest edition