# TOWN OF ALBANY, NEW HAMPSHIRE

# STREET STANDARDS FOR DESIGN AND CONSTRUCTION



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# SECTION 1: LEGISLATIVE INTENT

The intent of the following ordinance, to be known as the Town of Albany, N.H. Street Standards for Design and Construction, is to provide all citizens of Albany with safe roads which require a minimal amount of maintenance, while improving the circulation patterns of the Town.

# SECTION 2: AUTHORITY

In accordance with RSA 230 and 231, as amended, the Board of Selectmen shall enforce the provisions of the ordinance with the lone exception being the acceptance of private roads as Town roads, which shall be done by Town meeting vote. (See Section 5F-Street Acceptance.)

# **SECTION 3: DEFINITIONS**

<u>Average Daily Traffic</u> - An estimate of the daily volume of traffic utilizing a street.

<u>Base</u> - That elevation to which base materials must be brought prior to installation of pavement.

<u>Build Out</u> - That point in time when all approved lots and/or units along a street have been completed and occupied.

<u>Collector Street</u> - Those streets whose primary purpose is intersecting traffic from local streets and handling this movement to the nearest major street. A secondary function is service to abutting land use. Average daily traffic is typically 1500 to 3000 trips per day. However, collectors may be required for lower volumes based upon purpose of use. In determining the need for a collector, potential future development shall be considered.

<u>Crown</u> - The elevation of a road surface at its center above its elevation at its edges.

<u>Cul-de-sac</u> - A minor street with entrance and exit at the same end. Such streets have a turnaround at the end of the street. Cul-de-sacs are a type of local street.

<u>Curb</u> - The granite or concrete edging of a sidewalk or paved street.

<u>Curb Radius</u> - That radius which pavement must obtain when a street flares into an intersection.

<u>Drainage</u> - All drainage systems, catch basins, drains, ditches, culverts, pipes, mains and other similar structures.

<u>Driveway</u> - An area located on a lot, tract or parcel of land built for access to a garage or off-street parking space, serving not more than two lots. Driveways may be allowed for access to parking lots to unit type developments at the discretion of the Town, but must be built to a minimum width of twenty feet. Should the Town determine that too many units are proposed for a driveway, the developer must provide other means of access to the units.

<u>Easement</u> - That land area created through authorization by a property owner for the use by another for a specified purpose of any designated portion of his property.

<u>Grade</u> - The slope of a road, channel or natural ground.

<u>Headwall</u> - A structure protecting the exposed ends of draining structures from erosion and directing the flow of water into the structure. Headwalls are typically constructed of reinforced concrete, mortared stone or granite slabs.

<u>Intersection</u> - That location where more than one street intersects. In no case shall more than two streets meet at an intersection.

<u>Invert</u> - The elevation at which the bottom of a pipe is to be set.

Limits of Roadbed - That area which encompasses the traveled way, shoulders, sidewalks and slope gradings.

<u>Local Street</u> - The lowest functional classification of streets whose primary function is to serve abutting land use. Average daily traffic (ADT) ranges up to 1500 trips per day.

<u>Minimum Sight Distance</u> - That distance, achieved for both vertical and horizontal curves at which a driver, whose eyes are at a height of three- and one-half feet above the road surface, can see an object one half of a foot in height on the road.

<u>Parking Space</u> - An off-street space for exclusive use as a parking area for one motor vehicle, with a minimum size of nine by eighteen feet.

<u>Pavement</u> - For the purpose of these regulations, pavement refers to hot laid bituminous pavement.

<u>Right-of-way</u> - A general term denoting land, property or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

<u>Shoulder</u> - That portion of a roadway between the edge of the wearing course and the top of the foreslope of a ditch or embankment.

<u>Slope</u> - The steepness of land surface. Slope is expressed in a percent by dividing the change in elevation by a given horizontal distance and multiplying by 100%.

<u>Street</u> - A state highway or a highway, road, avenue, land and/or any other way which exists for vehicular travel, exclusive of a driveway serving not more than two adjacent lots or units. The word 'street' shall include the entire right-of-way.

<u>Subbase</u> - That elevation to which subbase materials must be brought prior to the installation of base materials and pavement.

<u>Subgrade</u> - The top surface of a roadbed upon which the base and subbase materials are constructed.

<u>Unsuitable Materials</u> - Those materials which tend to deteriorate a street if left in place. Such materials as loam, vegetative or organic matter, boulders, ledge and clay are examples. Others shall be determined by the Town or their representatives in the field.

<u>Valuation</u> - Shall be as per the assessment, records of the Town of Albany, factored up to 100% value.

#### SECTION 4: STREET STANDARDS

#### A. CONSTRUCTION OF STREETS

- 1. Right-of-way Width No street right-of-way shall be less than 50 feet in width. Greater width may be required if, in the opinion of the Town, additional area is needed to provide adequate room for the proposed street, sidewalks if required, street utilities, drainage, grading and snow retention.
- 2. Clearing and Grubbing A minimum of 10 feet from the edge of the road shoulder shall be cleared of all trees, stumps, roots, boulders and like materials. In addition, all topsoil and unsuitable materials must be removed from the limits of the road bed. Boulders and/or ledge shall be removed to a depth of six inches below the subgrade level.
- 3. Geotextile Placement Except where both the native soil and embankment material contain less than 12-percent fines (#200 sieve or finer), a woven geotextile shall be placed at subgrade. Where the embankment material contains less than 12-percent fines, the

geotextile shall be positioned at the base of the embankment. The geotextile shall comply with NHDOT Section 593.

- 4. Embankment Material In areas of fill, unsuitable material or in the presence of water, the construction of an embankment will be required to bring the level of the street up to that which is needed to place the aggregate subbase materials. The embankment shall be brought to grade with common material or bank run gravel (NHDOT Item 304.2). Material specifications and testing shall comply with NHDOT Section 304. Testing of the materials shall be done at the applicant's expense.
- 5. Aggregate Base and Subbase Materials The aggregate subbase course shall consist of 12 inches of gravel (NHDOT Item 304.2), and the aggregate base shall consist of 12 inches of crushed gravel (NHDOT Item 304.3). Testing of the materials' gradation and compaction shall comply with NHDOT Section 304 and shall be done at the applicant's expense. These are minimum standards. The amount of aggregate base and subbase materials shall be increased in areas of poor soils and for roads carrying commercial/industrial traffic. A geotechnical investigation may be required.
- 6. Compaction Compaction is required for the embankment, aggregate base and subbase materials. It shall be performed by using vibrating rollers and water in lifts of no greater than 12 inches. Compaction shall be performed until the required density is achieved, in accordance with the appropriate NHDOT specification section for each material. Should the Town or their representative determine that compaction testing is required, it shall be done at the applicant's expense.
- 7. Pavement
  - a. Binder Course A two-inch to three-inch lift of pavement meeting New Hampshire Standard Specifications for Road and Bridge Construction, Division 400, Section 401 for <sup>3</sup>/<sub>4</sub>" aggregate.
  - b. Wearing Course A one inch to one and one-half inch lift of pavement meeting New Hampshire Standard Specifications for Road and Bridge Construction, Division 400, Section 401 for ½" aggregate.
  - c. Pavement shall not be installed when the outside air temperature is below 40 degrees Fahrenheit, nor when the road base temperature is below 40° F. The temperature of pavement mix relative to road base temperature when spread shall be in accordance with Table 3. Pavement shall not fall below 185° F prior to the completion of rolling. Pavement shall not be installed when the subgrade or binder course is wet, frozen or the grades are incorrect. On newly constructed roads, the base course and the wearing course shall not be installed in the same season.
  - d. The wearing course must be installed within two calendar years of the installation of the base course.
- 8. Shoulders Shoulders shall be installed on both sides of the street in accordance with Details 1A and 1B and shall consist of modified crushed gravel, NHDOT Item 304.33. When curbs are installed this section shall not apply.
- 9. Loaming and Seeding
  - a. All remaining disturbed areas within the right-of-way shall have four inches of loam, which is free of stumps, roots and other unsuitable material, installed.

- b. All remaining disturbed areas within the right-of-way shall be fertilized and seeded in accordance with Section 646 of the NHDOT specifications, except that all mulch shall be anchored with a tackifier at a minimum.
- c. The seeding of slopes and ditches shall require the use of erosion-control matting.
- 10. Cross Sectional Grading of Slopes
  - a. Cross-sectional elements shall be in accordance with Details 1A and 1B.
- 11. Curbing Granite curbing shall be utilized when curbing is installed. Bituminous or concrete curbing shall not be permitted as those are substandard materials for this use. If sidewalks are present, vertical curbing is required. If there are no sidewalks, then either vertical or sloped curbing is acceptable (see Details 4A and 4B).

#### **B. DRAINAGE**

- 1. Adequate disposal of surface water shall be provided. Provisions must be made for maintaining natural water courses and, unless a drainage easement is provided, limiting the peak runoff from new or improved roads to the existing conditions during both the two- and 25-year rainfall events. Road cross-culverts and water flow in the curbline shall be designed for at least the twenty-five-year event and driveway culverts for at least the ten-year event. Water flow along the curbline shall not extend more than four feet into the travel lane. Drainage calculations must be submitted to the Planning Board for its approval. For comparison of existing conditions and proposed conditions, or where hydrograph routing is necessary, the SCS TR-20 methods shall be utilized. For storm drainage system sizing where the drainage area is less than 200 acres, the Rational Method or SCS methods may be utilized. For storm drainage system sizing where the drainage areas are greater than 200 acres, the Potters Small Watershed Analysis, SCS methods, or other methods as approved by the Planning Board or its representative may be used.
- All culverts shall be at least 15 inches in diameter, and all driveway culverts shall be at least 12 inches in diameter. Culverts shall be corrugated metal pipe (complying with AASHTO M36, Type III), reinforced concrete pipe (Class III or higher), or HDPE plastic pipe (complying with AASHTO M294, Type S). No aluminum shall be allowed. All culverts shall comply with NHDOT Section 603. See Detail 7B.
- 3. When pipe systems are included in a street design, plan and profile sheets shall be required for the systems showing proper sizing, slopes, inverts, etc.
- 4. Where roadside drainage ditches are utilized, they shall be in accordance with Details 1A and 1B. Riprap-lined roadside ditches are allowed only behind curbed roads. In such cases, the riprap shall extend no closer than four feet to the back of the curb. Cross-culverts and/or closed storm drain systems shall be used to limit the flow in ditches to 10 cubic feet per second (cfs) and velocity to three feet per second (fps) in grass-lined ditches. In no case shall the ditch length exceed 600 feet. Refer to Subsection C(3) for other conditions that require the use of curbing, catch basins and closed storm drains. Permanent turf reinforcement mats (TRMs) are not allowed in roadside ditches.
- 5. The street crown, center to shoulder, shall be ¼-inch per foot. Superelevation shall be required where the ADT is greater than 400. When designing a superelevated street, the slope shall not exceed ¾-inch per foot, and must be accompanied by engineering calculations.

- Headwalls with properly designed cutoffs shall be required at the inlet end of all culverts. See Detail 8A. For driveway culverts, prefabricated end sections with toe plates may be used in lieu of headwalls.
- 7. Underdrains shall be used under ditches where the seasonal high water table is within three feet of the subgrade elevation. Where the road runs nearly perpendicular to the existing contours, additional underdrains shall be installed laterally across the road and spaced no greater than 100 feet apart. Where the road runs nearly diagonal to the contours, underdrains shall be installed laterally across the road and spaced no greater than 200 feet apart. Underdrains shall be installed in accordance with Detail 6A. Storm drain pipes may be perforated in lieu of providing separate underdrain pipes. Perforations in storm drain pipes shall be positioned at 10:00 and 2:00, and the depth of flow in the pipe shall be kept below the perforations.
- 8. Infiltration devices shall require: pretreatment of the stormwater before infiltration; test pits demonstrating that the bottom of the devices are at least three feet above the seasonal high water table; the bottom of the entire infiltration surface to be at least three feet below finished grade; and the infiltration area to be located outside the travel way and shoulder. In areas of SCS Adams soils, confirmed by test pitting, the exfiltration velocity may be assumed to be 0.0022 cfs/sf. In all other areas, the exfiltration velocity shall be determined by field permeability testing or established correlations to grain-size distributions, with a 1.5 factor of safety applied.
- 9. Drainage easements shall be provided where the peak rate of runoff will increase and/or where the runoff flow type changes to concentrated flow. Drainage easements shall extend from point of increased flow and/or the point the flow becomes concentrated to the point the runoff reaches an NHDES jurisdictional wetland/channel. Drainage easements are not required within the road right-of-way.
- 10. For subdivisions, the assumed impervious area per building lot shall not be less than 5,000 square feet and the assumed cleared area per building lot shall not be less than 10,000 square feet. The assumed impervious and cleared areas shall be stated on the subdivision plan with a note specifying that if the actual impervious and/or cleared areas exceed the assumptions, the lot owner shall revise the drainage analysis accordingly and provide measures to limit the flow to those assumed in the drainage design. Note: impervious area includes both paved and compacted gravel surfaces.
- 11. Bridges On stream crossings with spans of 10 feet or more, the structure shall be designed to HL-93 loading (AASHTO specifications). The minimum bridge width shall be 26 feet and shall include properly designed guardrails constructed of materials in accordance with NHDOT specifications. All bridges shall be designed by a professional engineer registered with the State of New Hampshire.

#### C. STREET DESIGN

- 1. Terrain Classifications As there is a wide variation of slopes in this region, streets must be designed to work with the existing topography. The terrain classification is representative of existing topography of the area on which a street is to be constructed. When question arises as to which classification a street should be, the Town shall make the final determination.
  - a. Level Existing grades of 0 8%
  - b. Rolling Existing grades of 8.1 15%
  - c. Hilly Existing grades of > 15%

- 2. Pavement Width Pavement widths shall be in accordance with Details 1A and 1B. The minimum pavement width is 18 feet. This width is only applicable to dead-end roads with an ADT below 160 which do not have any truck traffic. If a road does not meet these conditions, then the minimum width shall be 20 feet. When curbing is required on rural roads, such as at intersections or steeper grades, then the pavement width shall be increased by four feet. Roads in areas zoned commercial or industrial shall vary based on accepted methods of design, number of lanes, the need for bike lanes, etc. In general, the minimum width for these roads shall be 24 feet.
  - a. Level Terrain Pavement width shall be 20 feet if shoulders are provided or 24 feet if the street is to be curbed.
  - b. Rolling Terrain Pavement width shall be 20 feet if shoulders are provided or 24 feet if curbs are provided.
  - c. Hilly Terrain Pavement width shall be 22 feet if shoulders are provided or 24 feet if curbs are provided.
- 3. Curbing
  - a. Use Curbing may be required where road or ditch grades exceed 8% or 6% when the developed length exceeds 250 feet. Use of curbing requires drainage systems.
    - i. Level Terrain Use of curbing is optional. If used, either a sloped curb or vertical curb shall be used.
    - ii. Rolling Terrain Use of curbing is optional. If used, vertical curb shall be used.
    - iii. Hilly Terrain Vertical curb shall be used.
- Sidewalks As a matter of pedestrian safety, sidewalks are required in the vicinity of schools and in commercial districts. Sidewalks shall be a minimum of five feet wide and shall be either concrete or bituminous asphalt.

Concrete sidewalks shall be poured at a four-inch thickness with a 3,000 PSI mix and 5% to 7% air entrainment (NHDOT Specification Section 608 Class B). Concrete shall be poured at no more than a four-inch slump. Acceleration ad mixtures shall not be used. The concrete shall be reinforced with 3/4-inch fibrillated polypropylene fibers at 1.50 #/cy in accordance with the manufacturer's instructions. A seven-foot wide, one-foot (twelve-inch) deep subbase of 1.5-inch gravel (NHDOT Item 304.3) shall be used. Compaction of the subbase shall be in accordance with Subsection A(6). Expansion joints shall be installed in accordance with NHDOT standards at four-inch spacing. Concrete sidewalks shall be treated with Silane-Siloxane or equal, and shall have a broom finish.

Bituminous asphalt sidewalks shall be placed at a depth of two inches and shall conform to NHDOT Specification Section 608. A seven-foot wide, six-inch deep subbase of 1.5-inch gravel (NHDOT Item 304.3) shall be used. Compaction of the subbase shall be in accordance with Subsection A(6).

Where sidewalks cross driveways, they shall ramp down to the level of the driveway and all sidewalks shall conform to the regulations set forth in the Americans with Disabilities Act (ADA). The Planning Board may require more expansive sidewalks as part of their review. (See Detail 5)

- 5. Minimum Sight Distance All sight distances shall be computed for both vertical and horizontal curves. Sight distance is defined as a straight line view which encounters no obstruction measured between two points, each point to be a height of three feet nine inches above the road surface. Sight distances shall be as shown below:
  - a. Level Terrain A minimum sight distance of 200 feet is required.
  - b. Rolling and Hilly Terrain A minimum sight distance of 150 feet is required.
- 6. Dead-End Roads A maximum length of one thousand feet from the nearest through road to the end of the road shall apply. No road shall be designed with a permanent dead end when there is a potential for further development on the lot or on an adjacent lot. All dead-end roads shall be provided with a cul-de-sac or hammerhead turn-around providing adequate room for the movement of snowplows and fire equipment. If a hammer-head or cul-de-sac is proposed, a hammer-head shall be designed with a "T" with turnaround points fifty-five (55) feet long and of the same material and width as the connecting road surface. For cul-de-sacs, a center island is required with the road surface to remain at the required widths, with shoulders on both sides for the entirety of the circle. The center island shall be green space, but may contain stormwater infrastructure. The cul-de-sac right-of-way shall have a diameter of no less than 120 feet. All road surfaces, shoulders and infrastructure for hammer-heads and cul-de-sacs shall be fully contained within the street right-of-way.
- 7. Grades All changes in grade more than 2% shall be connected by vertical curves of such length and radius that clears visibility shall be provided for a distance of 250 feet.
  - a. Maximum
    - i. Level Terrain Maximum grade shall be 6%.
    - ii. Rolling Terrain Maximum grade shall be 9%.
    - iii. Hilly Terrain Maximum grade shall be 11%.
    - iv. Intersections Maximum grade shall be 2% for a distance of not less than 100 feet measured along the centerline of the proposed road to the closest edge of the intersected road to provide a safe and adequate landing area.
  - b. Minimum No grades less than 0.5% shall be allowed.
- 8. Design Speed
  - a. Level Terrain 30 MPH
  - b. Rolling Terrain 25 MPH
  - c. Hilly Terrain 20 MPH
- 9. Minimum Center Line Radius of Curves
  - a. Level Terrain A minimum radius of 150 feet is required if designed with superelevated curves, 200 feet if no superelevation.
  - b. Rolling Terrain A minimum radius of 150 feet is required of designed with superelevated curves, 200 feet if no superelevation.
  - c. Hilly Terrain A minimum radius of 125 feet is required if designed with superelevated curves, 150 feet if no superelevation.

- 10. Minimum Tangent Between Reverse Curves A minimum of 50 feet shall be required between reverse curves to facilitate steering and control.
- 11. On Street Parking On street parking shall not be permitted.
- 12. Street Lighting At a minimum, street lighting shall be provided at every intersection. The intent of this section is to provide safe pedestrian and vehicular movements through intersections. An engineer competent in illumination shall submit documentation as to the adequacy of the proposed intersection lighting.
- 13. Driveways Driveways shall be located and their entrances designed as a part of street design. The minimum standards which must be met are as follows:
  - a. Drainage analysis, design, full paving and curbing may be required all the way to the building site if the driveway is likely to divert runoff to the roadside or cause flow into the street.
  - b. A minimum width of 10 feet shall be required for a single-family residence, 14 feet for one-way non-residential, and 20 feet for two-way non-residential; maximum width of 18 feet for residential and 36 feet for non-residential.
  - c. Driveways shall be designed to intersect with the street at 90 degree +/- 15-degree angles.
  - d. Intersection flares At a minimum, single-family driveways shall provide a five-foot intersection flare radius, while driveways to residential parking lots shall provide a 15-foot radii.
  - e. Commercial driveways shall have a minimum intersection radius of 25 feet and may require curbing at the discretion of the Town.
  - f. Driveway grades shall not exceed 8 percent within the right-of-way and shall maintain a negative grade to beyond the ditch line.
  - g. Unpaved driveways will require paved aprons extending at least to the ditch line but not less than 15 feet for residential driveways and 25 feet for commercial driveways.
  - h. No more than one curb cut is allowed for residential lots unless the lot's frontage along that road exceeds eight hundred feet (800'). The same ratio of one access point per 800 feet of frontage, provided the minimum safe sight distance requirements can be met, shall be used for parcels which have more than 800 feet of frontage.
  - i. See also Table 2 for driveway sight distance requirements and location relative to intersections and other driveways and Detail 3 for other requirements.

#### D. INTERSECTION DESIGN

- 1. Approach speed refers to the safe speed required for safe stopping distance on vertical and horizontal curves, beginning 100 feet from the intersection, and clear sight distance.
  - a. Level and Rolling Terrain 25 MPH approach speed.
  - b. Hilly Terrain 20 MPH approach speed.
- 2. Clear sight distance at intersections promotes intersections which operate without traffic signals.
  - a. Approach Sight Distance

- i. Level and Rolling Terrain A minimum distance of 90 feet along each approach leg shall be required.
- ii. Hilly Terrain A minimum distance of 70 feet along each approach leg shall be required.
- b. Intersection sight distance shall be computed based upon the design speed of the road to be entered.
- 3. Vertical Alignment within Intersection Area
  - a. Grade A maximum grade of 2% shall be allowed for all terrain classifications. No grades less than 0.5% shall be allowed.
  - b. Length The above-mentioned grades must be achieved for a minimum length of 100 feet, measured along the centerline of the proposed road to the closest edge of the intersected road.
- 4. Minimum Angle of Intersection Every effort to achieve a 90-degree intersection shall be made. However, when this is impractical, an angle of 90 degrees plus or minus ten degrees may be allowed.
- 5. Minimum Intersection Radius
  - a. Intersection of Two Local Streets The minimum intersection radius shall be 20 feet.
  - b. Intersection of a Local Street with a Collector The minimum intersection radius shall be 25 feet.
  - c. Intersection of Two Collector Streets The minimum intersection radius shall be 30 feet.
  - d. Where intersection angles are less than 90 degrees, a radius of at least 30 feet shall be required.
  - e. The use of curbing at intersections may be required at the discretion of the Town.
- 6. Minimum Centerline offset of Adjacent Intersections As a general practice, T-type intersections are safer than four-way intersections. As such, they are encouraged in the design of subdivisions. However, in order to operate efficiently and safely, these intersections must be adequately offset from one another.
  - a. If both intersecting streets are local, then the minimum offset shall be 125 feet.
  - b. If one intersecting street is a local street and one is a collector street, then the minimum offset shall 150 feet.
  - c. If both intersecting streets are collectors, the minimum offset shall be 200 feet.
- 7. Minimum Tangent Length Approaching an Intersection All approaches to an intersection which have curve radii of less than 400 feet, must provide a 50-foot tangent length of roadway measured from the center of the intersection.

#### E. UTILITIES

1. All buried utilities shall be located beyond the ditch line. All above-grade utility facilities such as transformers, pedestals, and sector cabinets shall be located at the right-of- way line.

2. The design and location of fire cisterns, ponds, dry hydrants, etc. shall be reviewed and approved by the local authority having jurisdiction.

# SECTION 5. MISCELLANEOUS STANDARDS

#### A. STREET NAMES

1. The name of new roads shall not duplicate or bear phonetic resemblance to the names of existing roads, within the Town, or be numbered or lettered (i.e., 1st, first, or "A" street). Any extension of an existing road shall bear the same name.

#### B. HIGHWAY BOUNDS AND SIGNS

- 1. Concrete or granite highway bounds, at least 24 inches in length and four inches square, shall be set at all points of street intersection, at all points of change of direction (PC/PT), at points along tangents no more than 800 feet and as per proper surveying standards. Discs shall be set in the top of the bounds and shall be stamped with numbers corresponding to those indicated on the metes-and-bounds plan.
- 2. All projects shall conform with the Manual of Uniform Traffic Control Devices for signage and pavement markings.

### C. CONSULTANTS

1. The Planning Board or Board of Selectmen may hire consultants to review plans, perform inspections and/or perform other duties related to the project as they deem appropriate. All costs of said consultants shall be paid by the applicant.

#### D. INSPECTIONS

- 1. Initial inspection shall take place upon submission of proposed road plans. It is the responsibility of the owner(s) to have roads laid out with center-line grade stakes at every half station. The Town will notify the owner(s) of the date of inspection.
- 2. Prior to the start of the work, a preconstruction meeting will be held to review procedures, identify responsibilities and discuss Town requirements. The contractor and the contractor's superintendent shall attend the preconstruction meeting. The following items shall be submitted at or before the preconstruction meeting:
  - a. Two copies of the approved plans;
  - b. USEPA NPDES notice of intent (NOI) and stormwater pollution prevention plan (SWPPP);
  - c. Surety of work;
  - d. Testing and inspection fees; and
  - e. Project schedule
- 3. The Town and the Town's representatives shall have full access to the site when the work is in preparation, during construction and after completion. They may observe the work on a periodic or full-time basis. The Town must be present during the installation of utilities, drainage pipes, geotextile and pavement and must observe the work at other specified stages.

- 4. At a minimum, the applicant shall notify the Town two business days prior to the required inspections. Upon notification by the applicant, the Town or designee shall perform the following inspections within 48 hours:
  - a. Cleared and Grubbed Roadway has been cleared and grubbed down to native soil free of loam or other unsuitable materials prior to the placement of any fill.
  - b. Subbase Gravel Subbase gravel has been installed and compacted.
  - c. Crushed Gravel Crushed gravel has been installed and compacted.
  - d. Embankment Placing and compacting the embankment material.
  - e. Drainage Installation of pipe, culvert, basins, etc.
  - f. Geotextile Geotextile is laid.
  - g. Pavement Installation Applicant must notify the Town as to date(s) pavement is scheduled to be installed. The Town must give approval prior to the placement of pavement. The Town or designee must be present during the installation of pavement.
  - h. Utilities Installation of conduits, cables, pipe, and warning tape for electric, water, sewage, etc. The Town or designee must be present during the installation of utilities.
  - i. As-built drawings shall be maintained on a daily basis; weekly inspections will be conducted.
  - j. Final inspection After the submission of as-built drawings and prior to the release of the surety the Town shall conduct a final inspection. All items from the Town's punch list shall be addressed prior to the acceptance of the work.

Failure to notify the Town or their representative of said inspection points shall give the Town the right to reject the work and require reconstruction.

The Town and/or their designated representative shall at all times have access to the site for the purpose of performing inspections.

The cost of inspection and testing shall be paid by the applicant(s). For items 'a' thru 'd' above, it is anticipated that if the roadway exceeds 1,000 linear feet, then additional testing shall be required. It is assumed that one additional inspection shall be required for each 1,000 linear feet of construction.

#### E. SURETY OF WORK

- 1. Proper surety in the form of cash or bonds must be submitted to the Town to ensure the completion of work. No work shall start on the property until proper surety is in place. The surety amount shall be 110% of the current estimated cost.
- 2. An itemized cost estimate shall be submitted to the Town for approval prior to the surety being accepted. The cost estimate shall include the costs of inspection and testing. Surety may be drawn down at no greater frequency than monthly. In no case shall the surety be drawn below 10% until the completed road has successfully stood for one year.
- 3. The surety may be used by the Town to repair work which has failed or was not performed in accordance with the plans and specifications, to restore the site should the project default, to

cover the cost of testing and inspections and to cover legal or other fees the Town may incur during the collection process.

#### F. STREET ACCEPTANCE

In accordance with RSA 674:40, the annual March Town Meeting shall be the only body authorized to accept streets as Town owned and maintained streets. The following conditions shall be met prior to the Selectmen recommending a street for acceptance:

- 1. The lots and/or units along the street shall have achieved at least 80% build out and are ready for occupancy.
- 2. The valuation along said street shall be a minimum of \$2,000,000per mile.
- 3. Street construction shall have been complete for a minimum of 18 months.
- 4. The standards of this ordinance shall have been met.
- 5. At least 1,000 feet of street shall be proposed for acceptance except when the proposal is for a generally straight extension of an existing Town street.
- 6. A fee-simple deed shall be submitted prior to acceptance. A metes and bounds description, prepared by a New Hampshire licensed surveyor, shall be submitted to the Town. Accompanying the legal description shall be a certification by the Owner's surveyor that the right-of-way bounds have been set at the locations shown on the street design plan.
- 7. No road will be considered unless accessible via a Town or state roadway.
- 8. When there are no records indicating that the Town witnessed the road construction (i.e., inspection reports, sieve analysis, compaction tests, etc.), road corings to investigate subgrade shall be performed and paid for by the applicant. Testing will not be done between November 1 and May 1. The following testing shall be performed:
  - a. Pavement and aggregate testing at one-hundred-foot spacing;
  - b. Aggregate base density and percent compaction at two- hundred-foot spacing;
  - c. Aggregate base sieve analysis at four-hundred-foot spacing; subgrade sieve analysis at four-hundred-foot spacing; and
  - d. Aggregate base proctor tests at eight-hundred-foot spacing (composite from corings).
- Betterment projects shall conform to the provisions of RSA 231:28 through 231:33. All costs
  of betterment engineering shall be paid for by the applicant. Betterment periods shall be no
  longer than 10 years.
- 10. Upon acceptance of the road, a maintenance bond shall be provided to reserve funds to repair or reconstruct streets which have become damaged due to latent defects in the street construction. The maintenance bond shall remain in effect until two years after acceptance and the bond value shall generally be \$20 per linear foot of roadway accepted. The bond value is intended to approximately equal 10% of the cost to fully reconstruct the road.

#### G. WAIVERS

Waivers to any section may be requested. All waiver requests must be submitted in writing. The Town shall not approve waivers unless findings based upon evidence presented in each specific case shows that:

- 1. The granting of the waiver will not be detrimental to the public safety, health or welfare or injurious to other properties located nearby.
- 2. Because of the particular physical surroundings, shape or topographical conditions of the specific property involved, a particular hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of the regulations is carried out.
- 3. The granting of the waiver shall not have the effect of nullifying the intent and purpose of these regulations.

Upon receiving the request, the Town shall evaluate the arguments, review possible precedence which the decision may set, and shall vote to approve or disapprove the request.

#### H. MORE STRINGENT PROVISIONS

In all cases of conflict between this and other Town or State regulations, the stricter regulations shall apply.

#### I. MINIMUM DATA REQUIREMENTS

- The applicant shall submit two complete sets of street design plans for the Town's review. The applicant shall also submit two copies of any revisions made to the plans for approval. The plans shall be submitted on 22x34 inch plan/profile paper and shall be done with a horizontal scale of 1" = 40' and a vertical scale of 1" = 10'.
- 2. Data Requirements
  - a. Title showing the name of the subdivision, name of the street and name of the owner, date (day, month, year), scale, and name and seal of an engineer licensed in the State of New Hampshire.
  - b. Right-of-way lines
  - c. Slope and drainage easements
  - d. All center-line data (tangent lengths and bearings, curve data and stationing)
  - e. Edge of pavement lines
  - f. Cross sections at each half station
  - g. Existing grade at each half station (on profile)
  - h. Proposed grade at each half station (on profile)
  - i. Length of vertical curves and data (on profile)
  - j. Sight distance of horizontal and vertical curves
  - k. Design speed
  - I. Type of terrain considered to control design
  - m. Average daily traffic (ADT) based on the current edition of the "ITE Trip Generation Manual"
  - n. Drainage structure location and inverts, station, skew, length, slope and end treatment

- o. Benchmarks not more than 500 feet apart
- p. Utility locations and details
- q. Specific material specification or reference
- r. A detailed engineer's opinion of construction cost
- s. A letter of certification that all road and utility materials meet the standards specified in these regulations
- t. A notarized letter fixing the legal responsibility for maintenance of the streets, for privately owned and maintained streets.
- u. Grading plan showing existing and proposed contours at a minimum of two-foot frequency within the right-of-way.
- v. General notes for inspections (see Subsection D for inspection requirements).
- w. Driveway layout with the street right-of way and spot elevations at edge of pavement, ditchline/gutter, and right-of-way line.
- x. Erosion and sediment control plan with project-specific construction sequence.

#### J. AS-BUILTS

- 1. In order to ensure the proper construction of development streets, "As-Builts" shall be presented to the Town for review prior to final drawdown of the surety for the project.
- 2. Except for those referred to above, the Planning Board does not require as-built subdivision plans, nor will it stamp and sign such plans. The only as-built subdivision plans which the Board will stamp and sign is the plan showing the location of structures on condominium property. Such plans shall:
  - a. Be certified to be correct and stamped by a New Hampshire licensed land surveyor
  - b. Be accompanied by certificates of occupancy, if applicable;
  - c. Clearly identify in the title block exactly what the as-built plan is approving; and
  - d. Have the following plat note printed on each sheet: "These as-built plans are pursuant to, and without modification of, the original Planning Board approval."

# TABLE 1STREET DESIGN GUILDELINES

Section	Description	Terrain		
4.C.1	Terrain Classification	Level	Rolling	Hilly
4.A.1	Right-of-Way	50'	50'	50'
4.C.2	Pavement Width - With Shoulders - With Curbing	20' 24'	20' 24'	22' 24'
4.A.8	Shoulder Width	3'	3'	3'
4.C.5	Minimum Sight Distance	200'	150'	150'
4.C.7	Maximum Grade	6%	9%	11%
4.A.10	Cross Slope	2%	3%	4%
4.C.8	Design Speed	30 MPH	25 MPH	20 MPH
	Vertical Curve K-Value - Crest - Sag	15 24	15 24	30 40
4.C.9	Minimum Centerline Radius - 4% Superelevation - Without Superelevation	150' 200'	150' 200'	125' 150'
4.C.10	Minimum Tangent Length Between Reverse curves - 4% Superelevation - Without Superelevation	100' 75'	100' 75'	100' 20'

# TABLE 2 INTERSECTION DESIGN GUILDELINES

Section	Description	Terrain		
4.C.1	Terrain Classification	Level	Rolling	Hilly
4.D.1	Approach Speed	25 MPH	25 MPH	20 MPH
4.D.2	Clear Sight Distance - Approach - At Intersection	200' 200'	200' 200'	150' 200'
4.D.3	Maximum Grade - Distance	2% 100'	2% 100'	2% 100'
4.D.4	Minimum Intersection Angle	90° ± 10°	90° ± 10°	90° ± 10°
4.D.5	Minimum Intersection Flare Radius - Local - Local - Local – Collector - Collector - Collector	20' 25' 30'	20' 25' 30'	20' 25' 30'
4.D.6	Minimum Centerline Offset from Adjacent Intersection - Local - Local - Local – Collector - Collector - Collector	125' 150' 200'	125' 150' 200'	125' 150' 200'
4.D.7	Minimum Tangent Length Approaching Intersection	50'	50'	50'

### TABLE 3

Base	Mat Thickness						
Temp.(F)	1⁄2"	3/4"	1"	1.5"	2"	3"	
+40-50	-	-	310	300	285	275	
+50-60	-	310	300	295	280	270	
+60-70	310	300	290	285	275	265	
+70-80	300	290	285	280	270	265	
+80-90	290	280	275	270	265	260	
+90	280	275	270	265	260	255	
Rolling Time	4 mins	6 mins	8 mins	12 mins	15 mins	15 mins	

# **RECOMMENDED MINIMUM PLACEMENT TEMPERATURES**





SLOPE

HOT BITUMINOUS WEARING SURFACE: LOCAL ROADS: 1" WEARING + 2" BINDER\_



















VESS		CORE HOLE SIZE					
			R	CP	PLASTIC		
		FIFE SIZE	CORE H	OLE DIA.	CORE HOLE DIA		
		INCHES	INCHES	FEET	INCHES	FEET	
		6			7	0.6	
		12	18	1.5	18	1.5	
		15	22	1.8	20	1.7	
		18	26	2.2	24	2.0	
		24	34	2.8	32	2.7	
		30	42	3.5	42	3.5	
		36	48	4.0	48	4.0	
		42	54	4.5	54	4.5	
		48	64	5.3	64	5.3	
		54	72	6.0			
		60	78	6.5			

- 1. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS
- 2. CATCH BASIN GRATES IN PAVED AREAS SHALL BE SET ACCORDING TO THE PAVEMENT DEPRESSION DETAIL FOR BASINS INSTALLED ALONG ROADWAY CURBLINES.
- 3. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE
- 4. FOR STRUCTURES WITH DIAMETERS GREATER THAN 4 FEET. THE DIAMETER MAY BE CONSTANT FROM TOP TO BOTTOM WITH A FLAT SLAB TOP, OR A RISER SECTION THAT TRANSITIONS FROM A STANDARD 4 FOOT CONE SECTION TO THE LARGER DIAMETER RISER. OR BASE SECTION MAY BE USED.
- 5. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
- 6. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3 INCHES BEYOND INSIDE WALL OF
- 7. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4 INCHES HIGH, AT AN 11 DEGREE ANGLE CENTERED IN THE WIDTH OF THE WALL, AND SHALL BE ASSEMBLED USING AN APPROVED
- 8. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12 INCHES OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75 PERCENT OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3 INCHES TO JOINTS.

SCALE: NONE **REVISED: AUGUST 7, 2019** 





TOWN OF ALBANY, NH

STREET STANDARDS

DETAIL #8A

TYPICAL CULVERT HEADWALL

SCALE: NONE REVISED: AUGUST 7, 2019



![](_page_33_Figure_0.jpeg)

![](_page_34_Figure_0.jpeg)

#### GENERAL NOTES:

- 1. END SECTION FOR 12 INCH TO 30 INCH DIA. PIPE IN ONE PIECE, FOR 36 INCH TO 48 INCH DIA. PIPE TO BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTER LINE.
- 2. CONNECTOR SECTION, CORNER PLATE AND TOE PLATE TO BE SAME THICKNESS AS END SECTION AND EACH TO BE GALVANIZED.

![](_page_34_Figure_4.jpeg)

![](_page_34_Figure_5.jpeg)

		DIMENSIONS				
PIPE	METAL	A	В		L 11/ " TOI	W
DIA.	GAGE	I IOL.	MAX.	I IOL.	1/2 IUL.	Z 10L.
12"	16	6"	6"	6"	21"	24"
15"	16	7"	8"	6"	26"	30"
18"	16	8"	13"	6"	31"	36"
24"	16	10"	16"	6"	41"	48"
30"	14	12"	16"	8"	51"	60"
36"	14	14"	19"	9"	60"	72"
42"	12	16"	22"	11"	69"	84"
48"	12	18"	27"	12"	78"	90"

TOWN OF ALBANY, NH STREET STANDARDS DETAIL #8D

HDPE END SECTION

SCALE: NONE REVISED: AUGUST 7, 2019

![](_page_35_Figure_0.jpeg)

![](_page_36_Figure_0.jpeg)

![](_page_37_Figure_0.jpeg)

![](_page_38_Figure_0.jpeg)