

Construction Specifications for Residential Roadways

I. Purpose

In order to promote the public's health, safety, and welfare, the express intent and purpose of these Standards is to provide for the construction and completion of roadways in every detail of the work these Standards describe. The following specifications and standards shall apply to the construction of roads, sidewalks, bridges, and street signs that will, or may, become Town maintained or accepted. Where strict adherence of compliance with these Standards would result in construction which is not in the best interests of the public, the Town may waive, or modify, portions of the Standards. It shall be the responsibility of the Contractor/Developer to obtain a waiver for any article of these Standards.

II. Definitions

The Work – The furnishing of all labor, materials, equipment, and incidentals necessary or convenient to the successful completion of the roadway and associated sitework as shown and described on the approved drawings.

Town – The Selectmen, Planning Board, and/or their authorized representative assigned to observe the road construction and report to the Town on the acceptability of the Work. The Town's authorized representative may be an employee of the Town (ex. Road Agent or Building Inspector) or an outside consultant retained by the Town.

Contractor/Developer – The individual, partnership, firm, corporation, or any combination thereof is approved and permitted to construct, reconstruct or otherwise alter Town roadways.

Engineer-of-Record – The individual who is licensed to practice Civil Engineering by the State of New Hampshire and has overseen and is responsible for the design of the roadway.

III. Preliminary Matters

A. Submittals:

1. Roadway Bond Estimate – Prior to performing any work, the Contractor/Developer shall submit an estimate the total cost of labor and materials to construct the roadway. The Town will review and approve the amount of road bond.
2. Roadway Bond – Issuance of building permits will be dependent upon the Contractor/Developer providing a road bond of sufficient amount to complete the remaining road work including amounts for unforeseen consequences.

3. Drawings – The Contractor/Developer shall supply a minimum of four copies of the final and Town-approved construction plans for distribution to Town Departments and their agents. All plans shall be stamped with the Professional Engineer’s seal of the Engineer-of-Record.
4. Road Inspection Fees – Prior to the start of construction, the Contractor/Developer shall provide fund to cover the cost of the Town’s road construction inspection. Road inspection fees shall be assessed to the Developer as follows:
 - a. An amount equaling not less than five (5%) percent of the total roadway bond estimate shall be made payable to the Town Treasurer.
 - b. This fee shall cover the cost of a Town-appointed inspector who shall monitor and inspect improvements for compliance with approved plans and required construction standards.
 - c. Said five (5%) percent inspection fee shall be held in escrow by the Town for reimbursement of all inspection costs.
 - d. Any interest accrued by the escrow, plus ten (10%) percent of the total escrow amount, shall be claimed by the Town to offset cost incurred in administrating said escrow account.
 - e. Inspection by a Town employee shall be charged at regular or prorated hourly rate, plus benefits, plus one hundred (100%) percent for overhead.
 - f. Inspection by a Town’s consultant shall be reimbursed on a time and expenses basis at the Contract rates agreed upon by the Town and the consultant.
 - g. Mileage shall be reimbursed at the customary IRS mileage rate from the inspection representative’s office to the project site and back.
 - h. All costs incurred by the Town to insure the satisfactory construction of Town roadways are intended to be covered by this escrow. Said other costs may include attorneys’ fees, soils specialists, materials testing, etc.
 - i. After satisfactory completion and acceptance of the bonded roadway, any remaining unused portions of the escrow shall be returned to the applicant after reimbursement of all outstanding costs and invoices.
 - j. If, due to conditions out of the control of the Town and its representative, additional inspection fees are required, said project inspection requirements shall be reassessed, and additional payment of escrow costs shall be required from the Contractor/Developer.
5. Erosion Control – Submit two (2) copies of the Storm Water Pollution Prevention Plan.
6. Permits – The Contractor/Developer shall supply the Town with a minimum of three (3) copies (including all permit conditions) of all State and Federal Permits associated with the Work.

B. Access: For the purposes of inspection and for any other purpose, the Town may enter upon the Work and the premises, and the Contractor/Developer shall provide safe and proper facilities. The Town shall be furnished with every facility for ascertaining that the Work is in accordance with the requirements and intention of this Contract, even to the extent of uncovering or dismantling portions of finished Work.

C. Preconstruction Conferences: Prior to any site construction, the Applicant shall be required to schedule and attend a preconstruction conference. Said conference shall be held at a mutually agreed upon location, and the following persons shall be invited:

- Selectmen;
- Town Planning Board or their designee;
- Town Road Agent;
- Town Building Inspector;
- Fire and Police Chiefs;
- Portsmouth Water Department.

All attendees shall receive a minimum seven-day advance notice of preconstruction conference scheduling. At the meeting, the Contractor/Developer and Engineer-of-Record shall present the plans for constructing the roadway, the construction schedule, and the scope of the construction.

IV. General Responsibilities of the Contractor/Developer

A. Regulations and Permits: The Contractor/Developer shall fully comply with all governing local, State, and Federal laws, codes, rules, regulations, and ordinances. The Contractor/Developer shall obtain and pay for all permits and arrange for necessary inspections and approvals from the authorities having jurisdiction. For the Town's records, submit copies of permits, licenses, inspection reports, certifications, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations associated with the Work.

B. Coordination: The Contractor/Developer shall be fully responsible for coordinating all construction activities to assure efficient and orderly installation of each part of the Work. In general coordination duties shall include but not be limited to verifying dimensions and existing field conditions, coordinating construction operations, establishing on-site lines of authority and communication, monitoring schedules and progress, monitoring quality, maintaining records and reports, and, in general, assuring the proper administration of the Work.

C. Supervision: Construction Superintendent: The Contractor/Developer shall place and maintain a competent, experienced construction Superintendent/Foreman in charge of the Work on the job site at all times while work is in progress.

D. On-Site Documents: The Contractor/Developer shall provide the following in an accessible on-site location:

1. Complete, currently updated set of Town approved Drawings, Specifications, reviewed Shop Drawings, and other documents and samples.
2. Permits and notifications required by laws and regulations.

3. Product MSDS Sheets.
4. List of Town's Representative, Engineer-of-Record, Building Inspector, Police, Ambulance and Fire Departments, Developer's/Contractor's Engineers, Engineer's Consultants, Surveyor, Project Manager, Superintendent, utility companies, and subcontractors. Include telephone numbers, emergency contact numbers, fax numbers, and e-mail addresses on the list.

E. Safety: The Contractor/Developer shall assume full responsibility for all means, methods, procedures, sequences and techniques of construction employed and shall take all measures required to ensure the safety of construction workers, as well as the safety of the general public. The Contractor/Developer shall take into full consideration and assure himself that all necessary barricades, fencing, and shoring are provided and that they comply with applicable regulations and standards of good practice. The public shall be guarded from all construction hazards and/or attractive nuisances. The Contractor/Developer shall pay all costs necessary for temporary partitioning, barricading, fencing, shoring, walks, ramps, enclosures, flashing lights, warning signs, security and safety devices required for the maintenance of a clean and safe construction site.

F. Layout and Field Engineering: The Contractor/Developer shall be responsible for all layout of all Work, even if such layout is done by others. The Contractor/Developer shall employ a licensed surveyor to layout roadway centerline and right-of-way monuments. The Contractor/Developer shall employ a qualified field Engineer or land surveyor to determine all lines and grades and to field-verify existing job conditions and measurements indicated on the Drawings. The Contractor/Developer's responsibility includes but is not necessarily limited to levels, control points, base lines, on-site bench marks, reference points, siting of building and other improvements, locations of components, fixtures, equipment, site improvements, etc.

1. The Contractor/Developer shall be responsible for costs of survey work including but not necessarily limited to establishing and protecting on-site bench marks, replacement or relocation of bench marks, additional base lines or levels, reference points, location of site improvements, verification of existing building dimensions, layout and floor elevations. All discrepancies shall be reported to the Engineer-of-Record for clarification.
2. The existence and location of underground and other utilities and construction are not guaranteed. Before beginning sitework, the Contractor/Developer shall investigate and verify the existence and location of underground utilities and other construction. The Contractor/Developer shall also verify the location and invert elevation at point of connection of sanitary sewer, storm drainage, and water service piping, etc.
3. The Contractor/Developer shall maintain a surveyor's log of control and other survey work. Record deviations from required lines and level, and advise the Engineer-of-Record when deviations that exceed indicated or recognized tolerances are detected and copy the Town on all correspondence. On Project Record Drawings, record deviations that are accepted and not corrected.

- G. Shop Drawings/Product Information:** At times the Contractor/Developer shall prepare working drawings consisting of details that are not included in the Plan Set approved by the Town. Manufacturers' engineering for prefabricated material may also supplement these drawings.
1. Two (2) copies of the Shop Drawings and manufacturers' data shall be submitted for review by the Town prior to constructing the work.
 2. The drawings/data must be stamped and signed by the Contractor/Developer and the Engineer-of-Record signifying that they have been reviewed and approved by each.
- H. Protection of Adjoining Property:** The Contractor/Developer shall provide all shoring, fencing, and other work necessary to support, protect and keep unharmed all walls, footings, floors, roofs, walks, roadways, and all other parts of any existing buildings, facilities, site improvements, land forms, trees and plant materials, etc. The Contractor/Developer shall hold the Town and the Town's Representative harmless from any such damage due to any operations under this Contract. Any existing work or property damaged or disrupted as a result of this Contract shall be replaced or repaired to match original existing conditions. All costs for such repair shall be borne by the Contractor/ Developer.
- I. Utilities:** The Contractor/Developer shall send proper notices, make all necessary arrangements, and perform all other services required for the removal or the care, protection and maintenance of all utilities, including but not limited to mail boxes, fire plugs (hydrants), electric, gas, water, sewer, alarm, television, telephone, computer, poles and wires, and all other items of this character above or below the ground, on and around the building site, assuming all responsibility and paying all costs related thereto. Related services to any existing facilities shall not be disrupted without the prior approval of the Town, and then only to the minimum extent required. The Contractor/Developer shall comply with the "Underground Utility Damage Prevention System" by notification to DIG SAFE SYSTEM of intent to excavate near or around any underground utility installations. The Contractor/Developer shall call DIG SAFE SYSTEM at least 72 working day hours in advance of starting any such excavation.
- J. Traffic Regulations and Parking:** The Contractor/Developer shall properly regulate traffic at times when the Work interferes with the normal flow of traffic both on and off the site. Parking for workers on the project shall be limited to on-site areas. Parking for workers and equipment is prohibited along Town roadways. Roadways and driveways outside the limits of the Work shall be kept free of debris and dust resulting from construction related traffic.
- K. Roads and Access to the Site:** Access to the site for workers and the delivery or removal of construction materials and/or equipment shall be made only from locations approved by the Town. Existing roads, lanes, and other required fire access shall remain accessible to fire vehicles at all times. Hauling permits and route approvals shall be obtained from governing authorities as applicable.
- L. Dust Control:** During the progress of the Work, the Contractor/Developer shall, at all times, conduct his operations and maintain the area of his activities to prevent any dispersion of dust to abutting properties and/or public areas. A water truck shall be available for use at all times during dry weather. The truck shall have a gauge- equipped pressure pump and spray bar with nozzles.

M. Dewatering: The Contractor/Developer shall protect the Work, including but not limited to all excavations, trenches, buildings and materials from storm water, ground water, back-up of leakage of sewers, drains or other piping, and from water of any other origin and shall control, collect, and dispose of any accumulation of such water. Dewatering operations shall include but not be limited to:

1. Furnishing operating, and maintaining all pumps, piping, drains, and other equipment, including spare units available for immediate use in the event of equipment breakdowns.
2. Designing, Developer's/Contractor's Engineering, constructing, maintaining, and removing cofferdams, temporary underdrains, wellpoints, and all other systems necessary for dewatering.
3. Disposing of all water in a safe and proper manner, acceptable to Federal, State, and Town authorities.

N. Shipping and Storage of Materials: The Contractor/Developer shall be responsible for the proper protection from damage of all materials and equipment prior to and following their incorporation into the Work. Materials and equipment shall be inspected by the Contractor/Developer and, if found to be damaged or otherwise unsuitable, shall be promptly rejected.

V. Specifications

A. Standards: All work included shall be done in conformity with the Town Road Construction Standards and with the applicable provisions of the State of New Hampshire Department of Transportation *Standard Specifications for Road and Bridge Construction* (SSRBC), approved and adopted, 2006, including all the latest revisions, addenda, and supplements, except as noted in Section 1.2 below. Copies of the *Standard Specifications* may be obtained from the New Hampshire Department of Transportation, Special Services Division, John O. Morton Building, Hazen Drive, Concord, New Hampshire. Approval by the Town shall mean approval by the Board of Selectmen, Planning Board, or their authorized agent. Where the Town's Standards conflict with the NHDOT Standards, or the Town-approved documents, the more stringent requirements shall apply.

1. Items of work under this Contract specified in the New Hampshire Department of Transportation *Standard Specifications for Road and Bridge Construction* shall include, but are not limited to, the following:

Section	Title
201	Clearing and Grubbing
202	Removal of Structures and Obstructions
203	Excavation and Embankment
206	Structure Excavation for Pipes and Other Minor Structures
209	Granular Backfill
214	Fine Grading
304	Aggregate Base Course
401	Plant Mix Pavements - General
403	Hot Bituminous Pavement
520	Portland Cement Concrete

593	Geotextile
603	Culverts and Storm Drains
604	Catch Basins, Drop Inlets, and Manholes
606	Guardrail
608	Sidewalks
609	Curb
614	Electric Conduit
615	Traffic Signs
628	Sawed Pavement
641	Loam
642	Limestone
643	Fertilizer for Grasses
644	Grass Seed
645	Erosion Control
646	Turf Establishment
650	Planting – General

2. Products: Products and materials are as specified in the applicable sections of the New Hampshire Department of Transportation *Standard Specifications for Road and Bridge Construction*.

B. Clearing & Grubbing: Prior to the start of any site disturbance including clearing and grubbing, the Town's authorized agent shall be given a seven (7) day notification before construction of any roads or streets begin.

1. This work shall include clearing and grubbing to a minimum depth of two feet below existing grades across the full width of the roadway and replacement of unsuitable material with clean, well draining, granular material.
2. This work shall include the removal and disposal of all stonewalls and fences within the right-of-way except as noted in the following Paragraph 3.
3. Work shall include the preservation from injury or defacement of all vegetation, stonewalls and objects designated by the Planning Board to remain.
4. All stumps, large roots and any organic material within the right of way shall be completely removed.
5. All stumps shall be excavated and removed in accordance with RSA 149M.1 and Town regulations regarding same.
6. Stumps shall not be removed until the developer presents an approved removal and disposal plan. Any on-site disposal areas shall be recorded on the As-Built Plans.
7. All debris shall be disposed of outside of the road right of way.

C. Subgrade: The subgrade of the roadbed shall be constructed to the required width, grade and cross section as shown on the typical section on file with the Planning Board.

1. All testing of embankments, i.e.; gradation, compaction, etc. shall be performed by an independent testing laboratory approved by the State to perform such test and shall be paid for by the Contractor/Developer.
2. Upon completion of subgrade, the proposed centerlines shall be laid out, finish grades marked and offsets set by a registered land surveyor on the centerlines of all roads and submitted for approval. Layout stakes shall be set at every 50 foot station.
3. Prior to placing any gravel base courses, the Town or its authorized shall be notified with seven (7) day notice of the subgrade completion. The Town or its agent shall inspect proof rolling of the subgrade and either approves said subgrade as suitable for placing gravel base or deny subgrade with appropriate reasons recorded. The Engineer-of-Record shall determine the compensatory measures to strengthen the subgrade.

D. Underdrains: Underdrains shall be provided along road shoulders in all areas where the depth from road surface to seasonal high groundwater is less than four (4') feet. The pipe shall be six (6") inch diameter, perforated PVC or HDPE, surrounded by six (6") inch minimum of crushed stone. Non-woven geotextile shall encase the crushed stone. The underdrain shall have a minimum pitch of one (1%) percent and outlet to daylight at a concrete headwall or into a catch basin.

E. Fill: Common fill material shall be of suitable nature with no stumps, roots, sod, or frozen lumps permitted. All excavation and embankment shall be brought within required lines and grades. Fine grading of the subgrade shall be within ½ "of the final grade.

1. Suitable material shall be free of debris, pieces of pavement, organic matter, topsoil, wet or soft muck, peat, clay, silt and all excavated ledge or rocks over 9" in its largest dimension. Suitable material for reuse shall be approved by the Planning Board or its designated agent. All suitable material shall have no greater than fifteen (15%) percent of its total weight passing a #200 sieve.
2. Earth excavation shall consist of all material not classified as rock or ledge. Any suitable material as defined above may be used to flatten slopes where possible.
3. Earth fills shall consist of all suitable material other than rock or ledge. The soil shall be placed in not more than 12" layers with 95% modified proctor compaction before successive layers are placed. No earth embankment shall be constructed on frost or include frost in the fill material.
4. Rock excavation to the required subgrade, shall consist of removal of all solid rock or ledge which requires for its removal; drilling, blasting, wedging, or sledging. In roadways, rock removal shall be to a depth of 3'-0" below roadway finish grade.
5. Rock fills shall consist of solid rock placed in not more than 2'-0" lifts. Rocks shall be placed to the best advantage of roadway construction. All rock fill plans, under roadways, shall be designed and stamped by the Engineer-of-Record and shall incorporate use of a filter fabric or material to control particle migration between road bedding and rock embankment.

6. All fills shall be compacted in accordance with the NHDOT *Standard Specifications* to ninety-five (95%) percent of the soils Standard Proctor value.

F. Drainage: All drainage construction shall conform to the following regulations at a minimum.

1. All roadway culverts shall be reinforced concrete pipe Class IV or V. ADS pipe is also acceptable for all burial depths between two feet and eight feet. Pipe shall be bell & spigot or tongue & groove type with elastomeric oil resistant compression ring jointing. All pipes shall have a minimum cover of 2 feet. Minimum culvert size shall be 12".
2. Headwalls conforming to NHDOT Standards or otherwise approved by the Planning Board shall be constructed at the ends of all pipes which drain to the surface of the ground.
3. If it is discovered that there are wet areas, swales, etc. which are not handled by culverts shown in the drainage plan, additional culverts shall be installed as required and at the Contractor/Developer's expense. All swales must discharge to a positive outlet.
4. Catch basins, grates and frames shall conform to NHDOT Standards. There shall be no tees or angles in pipes, all such connections must occur at basins or manholes. The maximum run for any gravity pipeline shall be three hundred (300') feet.
5. All drains shall be bedded on six (6") inches of ¾" crushed stone (12-inch thick bed on bedrock). Stone shall extend to the centerline of the pipe. Sand backfill shall be provided to twelve (12") inches (minimum) over top of pipe. All trench backfill shall be compacted in twelve (12") inch (maximum) lifts.

G. Base Course Gravels: Gravel base course shall be placed in twelve (12") inch maximum lift compacted to ninety-five (95%) percent of the Standard Proctor density shall be constructed on the approved subgrade in accordance with the currently used NHDOT *Standard Specifications*. The width and depth of the gravel base shall be in accordance with the typical section on file with the Planning Board.

1. A crushed gravel base course containing no stone larger than one and one-half (1½") inches in diameter shall be constructed on the approved bank run gravel base. This shall be placed in a six (6") inch lift and compacted to a 95% of the Standard Proctor density.
2. All compaction shall be for the full width of the roadway and shoulders and shall be done with water and machinery designed for that purpose.
3. Scarification of any or all layers may be required to determine the existence of large or unsuitable objects.

H. Pavement: The construction of Bituminous Concrete Pavement and materials used shall be in accordance with the currently used NH DOT *Standard Specifications for Highway and Bridges*.

1. Bituminous concrete pavement shall be constructed in two courses as shown on the typical section. Minimum two and three-quarter (2³/₄") inch base course (using 3/4" stone), minimum one and one-quarter (1¹/₄") inch top (using 1/2" stone) as measured after compaction. Base course must be in place within one year of crushed gravel. Wearing course shall not be placed any sooner than six months or one winter after the base course, unless approved otherwise by the Planning Board, or its designated agent. Also, wearing course shall not be placed before eighty-five (85%) percent build out of subdivision.
2. A maximum surface tolerance of one-quarter (1/4") inch ten (10') feet in any direction from the specified slope will be allowed.
3. Weather Limitations: Quality of asphalt mixtures is closely related to the temperature of the mix. Mixtures shall be placed only when the underlying surface is dry, frost free, and the surface temperature is above 40°F for courses greater than or equal to 1½ in compacted depth and above 50°F for courses less than 1½ in compacted depth. The Town may permit, in case of sudden rain, the placing of mixture then in transit from the plant, if laid on a base free from pools of water, provided all other specifications are met. No load shall be sent out so late in the day that spreading and compaction cannot be completed during the daylight. If rapid surface cooling of the laid down mix is occurring due to wind, the Town may suspend operations for the day. Wearing course shall not be scheduled for placement after October 1st of any year without written approval by the Town. If it is determined to be in the best interest of the Town to schedule placement after October 1st, the above specified weather and surface conditions shall remain in effect.
4. Bituminous concrete pavement shall be supplied and applied by a State-approved paving contractor in accordance with the latest edition of NHDOT *Standard Specifications for Road and Bridge Construction*.
5. Base course shall be NHDOT 3/4" base mix. Wearing course shall be NHDOT 1/2" finish mix.
6. No Certificate of Occupancy shall be issued by the Town until roadway is constructed up to and including the base course of asphalt.

I. Guardrails: On all fill sections in excess of four (4) to one (1) slope with a vertical drop of four (4') feet or greater, or at other hazardous locations, guardrails will be installed in accordance with the current NHDOT *Specifications*.

1. Guardrail shall consist of pressure treated wood post and spacer block with steel "W" beam.
2. Terminations shall be designed and specified by the Engineer-of-Record.

J. Loam & Seed: Topsoil shall consist of a loose friable with no ad mixture, refuse, or material toxic to plant growth. Topsoil shall be free from stones, lumps, stumps, or similar objects larger than two (2") inches in greatest diameter. Prior to stripping material to be used as topsoil, it shall have demonstrated by the occurrence upon it of health crops, grass or other plant growth, that it is of good quality and reasonable from drainage. All topsoil material shall be approved for use by the Planning Board or its designated agent. All disturbed areas shall receive a minimum four (4") inch layer of approved topsoil.

1. All disturbed and graded areas shall be seeded with the Rockingham County Slope mix (USDA approved) at the rate of 65 lb. per acre.
2. All seeded areas shall be fertilized with an analysis of 5-10-10 and be applied at the rate of fifty (50 lb.) pounds per one thousand (1,000) square feet.
3. All seeded areas shall be mulched within twenty-four (24) hours of seeding. A good quality mulch hay shall be used and applied at the rate of two (2) tons per acre.

K. Signs: Signs with names of streets conforming to standards of the Town shall be erected. All stop signs and traffic control signs, as required, shall be placed as well. House delineator signs as required and deemed necessary by the Fire Department shall also be installed.

1. Street name signs shall be independently supported, not fastened to utility poles.
2. Street name signs shall consist of nine (9") inch aluminum extruded blanks with six (6") inch white letters on a green background.
3. Delineators are required at the end of guardrails with red reflectors at the beginning, green reflector at the end and silver reflectors in middle, every fifty feet (50').
5. Striping: Paint shall be ready-mixed Traffic Paint as specified in NHDOT *Standard Specifications*.

L. Driveways: The Contractor/Developer shall construct all portions of driveways within the proposed Town right-of-way at the same time as the road is constructed except as otherwise approved. Where driveway culverts are required they shall be a minimum of ten (10") inch diameter twenty (20') feet long, made of corrugated, smooth wall HDPE or concrete. Headwalls conforming to NH DOT regulations shall be installed both ends of all culverts. The driveway shall slope away two (2%) percent from the road for twenty-five (25') feet from edge of pavement. The driveway shall be paved from lot line to edge of highway pavement with a minimum of two (2") inch hot bituminous pavement.

1. A minimum sight distance of two hundred (200') feet shall be required for all proposed and newly installed driveways
2. Only one driveway entrance per lot is permissible. There shall be only one point of access/egress per lot.

3. Driveway culvert headwalls constructed of stone rubble and mortar and conforming to NHDOT *Standard Specifications* shall be installed at both ends of all culverts. The top of the headwall shall be constructed slightly below the elevation of the driveway. The width shall be determined by the depth of the culvert.
4. The driveway shall slope away from the edge of the paved roadway at a slope of two (2%) percent for a distance of twenty-five (25') feet, and be paved to the depth of two (2") inches from the existing road pavement edge to the applicant's property line.
5. All driveways shall intersect the Town's roadway at a perpendicular angle to the centerline of each.

M. Curbing and Sidewalks: If required, curbing shall be granite; sidewalks shall be bituminous concrete and constructed in accordance with the NHDOT *Standard Specifications*. The curb reveal shall be a minimum of six to seven (6" to 7") inches above finished pavement grade.

1. Bituminous sidewalks shall be two and one-half (2½") inches consisting of one and one-half (1½") inch thick binder and one (1") inch thick wearing course.
2. Sidewalks shall be founded upon twelve (12") inches of crushed gravel compacted to 95% of its Standard Proctor density value.

N. Utilities: All utility lines shall be placed in underground in the street right-of-way or in dedicated easements. Wherever possible, underground services will be placed under grassed areas rather than paved areas.

1. Conduit Duct System: The Primary Electrical and Communication Duct System shall be made up of four (4), four (4") inch, schedule 40, PVC conduit, buried to a depth of not less than thirty-six (36") inches.
 - a. For electrical conduits, the duct system shall, at a minimum, meet the standards set forth in Public Service Company of New Hampshire's Construction Specifications for Underground Conduit Systems, latest revision, as well as the standards detailed in these regulations. The stricter standard(s) shall govern.
 - b. Conduit installed under road pavement, and within six (6') feet of the road pavement edge, shall be encased with a minimum of three (3") inches of concrete. All other conduit shall be embedded in six (6") inches of select compacted sand. The conduit duct system shall be approved by PSNH.
 - c. Pull rope shall be installed in all conduit for future pulls. Pull rope shall be nylon rope having a minimum tensile strength of three hundred (300 lbs.) pounds. A minimum of twenty-four (24") inches of rope slack shall remain at the end of each duct.
 - d. All conduit terminations shall be capped to prevent debris from entering conduit.

- e. The Secondary Electrical and Communication Duct System shall be made up of three (3), four (4") inch, schedule 40, PVC conduit and shall be extended to each buildable lot prior to road surfaces being put in place. Conduit shall be extended onto each lot no less than ten (10') feet.
 - f. Reinforced concrete handholes of appropriate size (typically 4x4 – 4/4) with labeled manhole covers shall be used where deemed appropriate by the local power, telephone, and cable companies, subject to final approval by the Planning board, e.g. at telephone and cable distribution pedestals. Handholes shall not be located in paved areas.
 - g. Conduit spacing: Power conduit shall be spaced a minimum of six (6") inches from other conduit or as the National Electric Safety Code permits, whichever is greater. Conduit shall be supported in place using pipe support stanchions spaced every five (5') feet. Conduit termination locations shall be clearly marked at the site and on as-built/record drawings.
 - h. Conduit shall be installed with a maximum of one hundred eighty (180°) degrees of bends between pull points, or as approved by the local utility companies.
 - i. An electrical and communication duct system plan shall be approved by the local power, cable, and telephone companies prior to submission to the Planning Board.
2. Street Light Service Enclosures: At locations where the requirement for street light installation is waived by the Planning Board, service enclosures shall be installed along the underground electric system in order to facilitate the installation of street lights in the future.
 3. Water Service shall be extended to each buildable lot prior to road surfaces being put in place.

VI. Testing

- A. Testing Laboratory:** The Contractor/Developer shall provide a qualified independent testing laboratory with personnel who are thoroughly trained and experienced with the sampling and testing of soils and asphalt. All costs associated with sampling and testing shall be borne by the Contractor/Developer.
- B. Inspection Milestones:** The Town shall require all roadways under construction to be inspected by the Town's designated agent.
1. Mandatory inspections shall be scheduled for each of seven construction milestones plus miscellaneous progress inspections, at a minimum. The Contractor/Developer shall identify names of all roadways for approval by the Planning Board.
 2. Mandatory minimum inspection milestones shall be as follows:
 - Pre-clearing and grubbing
 - Post-clearing and grubbing
 - Subgrade
 - Bank Run gravel
 - Crushed gravel
 - Paving – both courses
 - Completion
- C. Subgrade Testing:** Prior to the start of placing fill or gravels, the soil subgrade shall be proof rolled with a fully loaded tandem axle dump truck. Any unstable areas encountered shall be excavated and replaced with compacted granular fill.
- D. Earth Fill Testing:** Sampling of granular fills shall be from on-site stockpiles at the minimum rate of one sample per 400 CY. Each sample shall be tested for maximum density and gradation. The maximum density of each sample shall be determined by test method AASHTO T 99 (Standard Proctor Test). The in-place density determination shall be made by AASHTO T 310 (Nuclear Methods). In-place density tests shall be performed at the minimum rate of one test per 50 CY. The testing procedure for gradation of each sample shall be in accordance with AASHTO T 27.
- E. Base Gravels Testing:** Road base gravels shall be tested at the same frequency and test criteria as earth fills.
- F. Notification:** To permit the Town to witness inspections where the Town so desires, notify the Town not less than forty-eight (48) hours in advance when inspection will, or will not, be performed as scheduled.
- G. Alternative Inspection Procedure:** The Town shall have the right to require alternative inspection procedure other than those specified when, in the Town's opinion; such is required to demonstrate compliance with this Standard's requirements.
- H. Test Reports:** All test reports shall be signed by the testing laboratory's individual so authorized in the testing plan approved by the Town. Copies of all test reports shall be provided to the Town.

VII. Construction Close-Out

- A. As-Built Plans:** After completion of the wearing course of asphalt and all slope work, the Contractor/Developer shall submit “as-built” plans which shall include but not be limited to the following:
1. Plan view, including all right of way and easements, road names, adjoining property boundaries with lot number, edge of shoulder, drainage, utilities, driveways, culvert invert elevations, underdrain locations, stump disposal areas, and other special features requested by the Town.
 2. Profiles of all roads.
 3. Signed statement from Engineer-of-Record that the roads were constructed according to the design as approved and to these regulations listing any exceptions and stating they pose no threat to public health and safety and are of equal or better quality than originally designed.
 4. Seal of licensed land surveyor preparing plan.
 5. “As-Built” plans must be updated if any additional work is performed.
- B. Town Acceptance:** The Town will not perform any maintenance on any road, including snow plowing, until the road is accepted by the Town. In order to obtain maintenance acceptance, the following items must be satisfactory completed.
1. Road construction must be substantially complete except for the wearing course of pavement. All incomplete items must be bonded.
 2. All subdivision, impact, and inspection fees must have been paid.
 3. Full “As-Built” plans, including profiles and engineer’s statement, must have been received and approved.
 4. A maintenance bond or maintenance agreement for two years after substantial completion to cover latent defects must have been received.
 5. A copy of the highway plan and a deed transferring the right-of-way to the Town of must be recorded at the Rockingham County Registry of Deeds.
 6. Vote of the Board of Selectmen to accept the completed and dedicated roadway.
- C. Driveways:** Driveways not completed at the time of Certificate of Occupancy issuance shall require the owner to provide the Town with a cash bond to cover unacceptable or incomplete driveway construction prior to certificate release. Said cash bond shall be based at a minimum on the following stipulated values:
- | | |
|--------------------------------------|---------|
| Pavement Completion | \$1,000 |
| Culvert Completion | \$1,000 |
| Headwall Completion..... | \$1,000 |
| Excavation & Filling..... | \$ 500 |
| Loam, Seed, & Establish Growth | \$ 500 |

