

## SECTION 8.00

### REQUIRED IMPROVEMENTS FOR SUBDIVISIONS AND DEVELOPMENTS FOR MORE THAN ONE BUILDING FOR DWELLING PURPOSES PER LOT

#### 8.01 STREET AND ROADWAY CONSTRUCTION

##### 1. Clearing and Grubbing

- a. No clearing or excavating shall be started on any part of the street until the Tree Warden has designated in writing those trees which are to remain in the tree belt. Such trees to be preserved shall be protected during construction by fenders or boxes.
- b. The entire area within the right-of-way of each street shall be cleared of all stumps, brush, roots, boulders and like material, except those trees that are intended for preservation.
- c. No perishable matter such as stumps, trunks, or limbs of trees or brush shall be buried within the limits of the right-of-way lines.
- d. All loam, peat, muck and other yielding material shall be removed from the roadway, side slopes, driveway aprons and sidewalks.

##### 2. Gravel Foundations

###### a. Subgrade

- 1) Within the roadway area including driveway aprons, sidewalks, and grass strips, all material shall be removed to subgrade and any unsuitable material, in the opinion of the DPW Superintendent below subgrade shall be removed and shall be replaced with proper bank-run gravel and brought to proper compaction. The depth of the subgrade will be governed by existing conditions and shall be as specified by the DPW Superintendent.
- 2) Where fill is required, it shall be placed in layers not deeper than eight (8) inches and shall be spread uniformly with the large stones at the bottom.

- 3) Any gravel used as fill in the sub-base shall be composed of hard, durable stone and coarse sand, practically free from loam and clay containing no stone having a dimension greater than six (6) inches, and when spread and compacted shall present a stable foundation.
- 4) Each layer shall be thoroughly compacted with a roller weighing not less than ten (10) tons and rolling shall continue until a firm, even surface true to line and grade is achieved. Any depressions shall be filled and rerolled and any soft or unsuitable areas shall be removed and replaced with suitable material and rolled.
- 5) The subgrade shall be shaped and finish graded at the required depth below and parallel to the proposed pavement surface, in conformance with the Typical Street Cross-Section.
- 6) Inspections shall be required after completion of the subgrade (see Section 9.00).

b. Gravel Base

- 1) The gravel base course shall consist of not less than twelve (12) inches of well compacted gravel placed upon the subgrade the entire width of the roadway in layers not greater than six (6) inches deep.
- 2) When spreading the gravel, care should be taken to rake forward and distribute the largest stones so they will be at the bottom of the gravel base course and evenly distributed.
- 3) Each layer shall be thoroughly compacted with a roller weighing not less than ten (10) tons, and rolling shall continue until a firm, even surface true to line and grade is achieved. Any depression that appears during or after rolling shall be filled with gravel and rerolled.
- 4) The gravel used in the base course shall conform to the specifications of the subgrade (8.01 – 2.a.[3]), except that it shall contain no stones having a dimension greater than four (4) inches.
- 5) The gravel base surface shall be shaped and finish graded at the required depth below and parallel to the proposed

pavement surface, in conformance with the Typical Street Cross-Section.

- 6) Inspections shall be required before commencement and after completion of the gravel base (see Section 9.00).

## **8.02 ROADWAY SURFACING**

1. The roadway and driveway aprons shall be paved the entire width, including under the berms, and the surface treatment shall be compacted bituminous concrete placed in two (2) layers.
2. The first layer or binder course shall be Class I bituminous concrete pavement, Type I-1, binder course mix, laid at a thickness of two (2) inches in accordance with Section 460 of the Massachusetts Department of Public Works Standard Specifications for Highways, Bridges and Waterways (1967). The first layer or binder course must be in place at least six (6) months and have the approval of the DPW Superintendent before the second layer or surface course is applied.
3. The second layer or surface course shall be Class I bituminous concrete pavement, Type I-1, top course mix, laid at a thickness of one and one half (1 ½) inches in accordance with Section 460 of the Massachusetts Department of Public Works Standard Specifications for Highways, Bridges and Waterways (1967).
4. The plant mix material shall be delivered to the site in a hot and easily workable condition, when weather conditions are satisfactory, so that it can be properly placed on the appropriate base. Irregularities in the existing foundation material shall be eliminated by the use of extra bituminous material.
5. All bituminous concrete shall be spread by an approved mechanical spreader in a uniformly loose layer to the full width required and to such thickness that each course when compacted shall have the required thickness and shall conform to grade and the Typical Street Cross-Section. Hand spreading of bituminous concrete material will be allowed only for special areas which do not permit mechanical spreading and finishing.
6. Each course of bituminous material shall be rolled with a self-propelled, equally balanced, tandem roller weighing not less than five (5) nor more than ten (10) tons. Places inaccessible to the power roller, shall be compacted by means of hand or vibratory tampers. Any displacement caused by the roller shall be corrected by ranking and adding fresh mixture where required.

7. Traverse joints shall be formed by laying and rolling against a form of the thickness of the compacted mixture placed across the entire width of the pavement. When the laying of the mixture is resumed, the exposed edge of the joint shall be painted with a thin coat of hot asphalt or asphalt cement thinned with naphtha. The fresh mixture shall be raked against the joint and thoroughly tamped with hot tampers and rolled.
8. The final bituminous surface shall show no deviation greater than one-quarter (1/4) inch when tested with a sixteen (16) foot straight edge placed parallel to the centerline of the surface course.
9. Finished roadway and driveway apron surface less than the required thickness or containing any soft or imperfect places will not be approved.
10. All roadways shall be brought up to the finish grade as shown on the Definitive Plan, and all manhole covers, gate boxes, gas drips and other access to underground utilities shall be set flush with the surface of the road, grass strip or sidewalk.
11. Inspections shall be required upon completion of the binder and surface courses (see Section 9.00).

### **8.03 CURBS AND BERMS**

1. Bituminous concrete curbs of the type and dimensions as shown on the Typical Street Cross-Section, (see Appendix), shall be required along both sides of the roadway, except at curb inlets or where, in the opinion of the Planning Board, such curbs are not necessary.
2. The berms shall be constructed of Type I-1, Class I bituminous concrete, and laid with a berm forming machine.
3. The curbs shall butt against all granite curb inlets, and constructed so as to be true to line and grade after compaction. Any mixture which becomes defective in any way shall be replaced with a fresh mixture.
4. Under special conditions, specially constructed berms or gutters may be required by the Planning Board, particularly in areas of heavy slope.
5. Bituminous concrete berms shall be applied onto the binder course of roadway paving and the top course of pavement laid against the face of the berm.

### **8.04 DRIVEWAY APRONS**

1. In Type "A" Subdivisions, the minimum driveway width within the right-of-way shall be twelve (12) feet, with at least a two (2) foot curb radius.

2. In Type “B” Subdivisions, the minimum driveway width within the right-of-way shall be thirty (30) feet, with at least a seven (7) foot curb radius.
3. The rate of change of grade from property line to the pavement line shall not be over one (1) foot per ten (10) feet of distance.
4. The nearest line of a driveway shall not be any closer than fifty (50) feet from the intersection of any two (2) streets.
5. Driveway apron construction shall consist of a twelve (12) inch rolled gravel base, and the hardened surface shall be composed of the standard one and one half (1 ½) inches of compacted binder course and one (1) inch of compacted surface course Type I-1, Class I bituminous concrete, rolled with at least an eight (8) ton roller.
6. A permit must be obtained from the State Department of Public Works for all driveway entrances to a State Highway and such driveways must conform to State standards.
7. The gutter end of the paving of any driveway shall have a lip of approximately one (1) inch to one and one half (1 ½) inches to control water flowing along the street gutters.

#### **8.05 SIDEWALKS**

1. Sidewalks of not less than four feet in width shall be constructed on one or both sides of the street starting at the property line, when in the opinion of the Planning Board such sidewalks are necessary.
2. Sidewalk construction shall consist of at least eight (8) inches of select gravel placed over a suitable subgrade, graded to a ¼ inch per foot slope and rolled with a minimum five (5) ton roller. The sidewalk surface shall be composed of the standard one and one-quarter (1 ¼) inches of compacted binder course and a three-quarter (¾) inch of compacted surface course Type I-1, Class I bituminous concrete.
3. The property side of the sidewalk shall be set at least six (6) inches to the street from the property line. (See 8.08: Monuments and Markers).
4. Wheelchair ramps will be constructed to ADA (Americans with Disabilities Act) standards.
5. Sidewalk/Bikeway Construction Fund. Where the Planning Board waives the construction of a sidewalk within a development pursuant to Section 1.05 of these Subdivision Regulations, the Applicant will pay, in lieu of performance,

an amount approximately equivalent to the cost of constructing the waived sidewalk to the Town of South Hadley to be used for sidewalk/bikeway construction. The amount of the payment will be calculated by the Town Engineer and provided to the Planning Board and the Applicant before the waiver request is considered.

#### **8.06 GRASS STRIPS AND SIDE SLOPES**

1. Where sidewalks are required, there shall be provided between the curb or edge of the roadway a planted grass strip (see Typical Street Cross-Section).
2. The finished grade of such grass strips shall have a slope of ¼ inch per foot toward the roadway, unless unusual topographic characteristics exist wherein greater slopes may be approved by the Board.
3. Only those trees approved by the Tree Warden or signs or poles approved by the Town Engineer shall be permitted in the grass strip.
4. Where no sidewalk is constructed, the grass strip between the lot property line and the street line shall have a slope of ¼ inch per foot toward the roadway, unless unusual topographic characteristics exist wherein greater slopes may be approved by the Board.
5. All grass strips, side slopes, and unpaved areas within the right-of-way shall contain a top of at least six (6) inches of good quality loam spread over a suitable subgrade, screened, raked and rolled with a 100 pound roller. The loam shall be fertilized at a rate of twenty (20) pounds per one hundred (100) square yards and then seeded with lawn seed at the rate of three and six tenths (3.6) pounds per hundred (100) yards and rolled. Any area which fails to show a uniform growth of grass shall be reseeded until the entire area is covered with a uniform growth of grass.

#### **8.07 BRIDGES**

1. Bridges shall be designed in accordance with the design standards of the Massachusetts Department of Public Works.

#### **8.08 MONUMENTS AND MARKERS**

1. Monuments shall be installed and centered at all street intersections at all angle points and curvature of streets at other points as shown on the Definitive Plan. Such monuments shall also be installed at intervals of two hundred and fifty (250) feet on any straight portion of a street if such portion is five hundred (500) feet in length or longer.

2. Granite or reinforced concrete monuments shall be used, being not less than four (4) feet in length, dressed to six (6) inches at the top with a three eights (3/8) inch hole drilled in the center and flared at the bottom. The hole shall be filled with lead securely rammed in place.
3. Iron rods, “rifle barrels” or other markers suitable to the Planning Board shall be installed at every corner of each lot within the subdivision. Such markers shall be at least three (3) feet in length and their locations shall be noted on the Definitive Plan.
4. Monuments and markers shall be set vertically and suitable material thoroughly compacted around each bound, with the tops of the monuments and markers set flush with the finished grade.
5. No permanent monument or marker shall be installed until all construction which would disturb or destroy the monument or marker is completed.
6. All monuments and markers shall be installed before bond or covenant is released.

## **8.09 INSTALLATION OF UTILITIES**

### **1. General Standards**

The installation of utilities and underground structures shall conform to the following general standards:

- a. All public and private sewers, surface water drains, water and gas pipes, electric, telephone and cable T.V. lines, together with their appropriate underground structures, within the street right-of-way, shall be placed underground.
- b. Underground utilities shall be installed after the street has been excavated to subgrade.
- c. The location of the utilities shall conform to the Definitive Plan and the Typical Street Cross-Section, with the minimum cover as shown on the Typical Street Cross-Section.
- d. Material used surrounding and supporting pipes and conduits in the utility trenches shall be screened gravel compacted at least six (6) inches in diameter around pipes, unless the trenches are in ledge, peat or heavy clay which requires twelve (12) inches of the compacted, screened gravel.

- e. Material used in back-filling utility trenches around underground structures shall be placed in six (6) inch layers and thoroughly compacted by pneumatic or vibratory tamps.
- f. Gravity sewer lines shall be true to line and grade with no horizontal or vertical curvature permitted.
- g. No footing drains, roof drains or storm water drains shall be connected to the sanitary sewer system.
- h. All lot connections shall be installed from the main structures in the street to the exterior right-of-way line for each lot regardless of whether there is a building thereon. In the case of a lot to be used for a park or playground or any other purpose for which the Planning Board deems lot connections are not necessary, installation of such connections may be waived by the Board.
- i. Private, on-site water supply wells shall be located a minimum of one hundred (100) feet from a leaching field, seepage pit or cesspool; ten (10) feet from a sewer line; and fifty (50) feet from a septic tank.
- j. All underground utilities shall be properly inspected, tested and approval given before the back-filling of trenches and placement of gravel base courses and pavement (see Section 9.00 for inspection procedures).

2. Drainage System

- a. The storm drainage system shall be so designed to intercept storm water runoff from the entire portion of the drainage basin that drains to or across the proposed subdivision, and provisions shall be made for proper and adequate storm lines, structures, and channels to accommodate up stream properties as well as affording protection from flooding and erosion to adjacent and down stream properties.
- b. In determining quantities of storm water for system design, the rational method should be used, unless another method is shown to be more appropriate in specific cases, but in any event, the system should be designed for a minimum of twenty-five (25) year storm frequency.
- c. Discharge of storm water shall be either into an existing, adequate storm system or the nearest natural water course. Where necessary, the developer shall obtain and convey to the Town drainage easements on adjacent properties, and be responsible for installation of pipe and structures or channels at his expense.

- d. Storm water shall not be permitted to cross over the roadway on the surface, and must be piped underneath the roadway.
- e. The minimum diameter of storm drains in Type “A” Subdivisions shall be twelve (12) inches and Type “B” fifteen (15) inches, excluding footing drains and subsurface connection pipes.
- f. Catchbasins shall be located on both sides of the roadway at intervals of not more than three hundred (300) feet on continuous grades, and at low points and sags in the roadway and near the corners of the roadway at intersecting streets.
- g. Maximum distance for surface runoff to flow upon the road surfaces shall be three-hundred (300) feet.
- h. The methods of construction, and type of materials used shall conform to the Massachusetts Department of Public Works Standards and Specifications, or the DPW Superintendent where applicable.
- i. Where storm water discharges into an open stream or channel, provisions shall be made for proper stabilization of the stream channel.
- j. As construction progresses, unforeseen groundwater conditions may be encountered which require additional subdrains, curtain drains and/or footing drains. These conditions include potential problems if construction is in progress at a time of low water table or other dry conditions. The Board, acting on the advice of the Department of Public Works, reserves the right to require appropriate systems, including stubs, to accommodate the problems.
- k. The owner will be responsible for the maintenance and upkeep of any detention ponds.
- l. Through every phase of construction no surface run-off will drain onto the abutting public way or abutting private property.

### 3. Sanitary Sewer System

- a. Wherever, in the opinion of the Planning Board, the public sewerage system is reasonably accessible and where connection to it is feasible, the applicant shall properly connect all lots in the subdivision to the public sewerage system.
- b. The minimum diameter of public sewer pipes shall be eight (8) inches, unless a smaller size is recommended by the DPW Superintendent.

- c. The methods of construction and type of materials used shall conform to the Massachusetts Department of Public Works Standards and Specifications, or the DPW Superintendent where applicable.
- d. A sewer extension permit application shall be filed by the applicant (see Section 5.04-2 for further details).
- e. Where a public sewerage system connection is infeasible or inaccessible, a private on-site sewerage system shall be designed and constructed in conformity with Article XI of the Sanitary Code of the Massachusetts Department of Public Health, and subject to approval and in conformity with the rules and regulations of the South Hadley Board of Health.
- f. If a subdivision is to be located in an area where a public sewerage system connection is infeasible, but within five (5) years from date of submission of the Definitive Plan a public sewerage system is planned to be installed by the Town, as confirmed by the Selectmen, the applicant may be required, at the request of the Planning Board, to install at his expense street sewers, structures and laterals (i.e., dry sewers).
- g. Sewer connection fees, in accordance with the Sewer Department's fee schedule, shall be paid prior to issuance of a building permit(s) for individual lot(s).

#### 4. Water Systems

- a. Where available and feasible, all lots in a subdivision shall connect to the appropriate water service system: Water Department, Fire Districts Nos. 1 and 2.
- b. All water mains, fittings, gates and hydrants shall be installed in conformity with the specifications of the respective Water Departments, and in accordance with the Definitive Plan as approved by the Planning Board.
- c. Where connection to a water district system is infeasible, the applicant shall make provisions to serve every lot with an adequate supply of potable water approved by the Board of Health.
- d. A laboratory test of the water quality shall be required and submitted to the Board of Health for all private, on-site systems.

5. Electrical, Telephone and Other Wires

- a. All electrical, telephone, fire alarm, cable T.V. and other wires and cables shall be installed underground, unless in the opinion of the Planning Board and the appropriate utility company, such installation is impractical or not in the best interest of the Town. Installation of the underground electrical distribution system shall be in accordance with the specifications and regulations of the South Hadley Electric Light Department.

**8.10 STREET TREES AND PLANTING**

Planting operations and requirements for trees and plantings contained herein shall be in accordance with the standards and specifications of the American Nurseryman Association and the Associated Landscape Contractors of Massachusetts.

1. Street Trees

- a. There shall be two trees, which may be existing or newly planted, for each lot in the subdivision.
- b. If they are existing trees, they must be approved as to health and suitability by the Tree Warden, and if newly planted they must be approved by the Tree Warden as to their species, size and location.
- c. No dead, damaged or diseased tree existing as such at the time of approval of the plan, and no tree injured in the course of work shall be permitted to stand on any lot within a subdivision, and upon orders from the Tree Warden, the subdivider shall remove the same at his own expense, together with the stump and roots thereof.
- d. A partial list of acceptable types of street trees is included in the Appendix, and categorized according to growth size.
- e. Large-growing trees should be spaced at intervals of fifty (50) to sixty (60) feet, medium-growing trees at intervals of thirty (30) to forty (40) feet, and small-growing, at intervals of twenty (20) to thirty (30) feet. On the side of the street where overhead wires are present, large and medium growing trees should be planted within the front yard of the individual property owner, away from such wires.
- f. Where possible, and with the approval of the Tree Warden, the street trees should be of different varieties. Said location of trees shall be at least ten (10) feet from any underground utilities.

2. Cul-de-sac Plantings

With the approval of the Planning Board, the central radius of a cul-de-sac may be planted with perennial grass (sod or seed), ornamental shrubs, or retention of existing vegetation. Suitable mulch shall be used between plants for weed control.

3. Bank Plantings

a. All cut and filled bankings, or portions thereof, that are susceptible to eroding or any building lots where fill or excavation has changed the contours such that drainage to adjoining parcels will be affected, shall be planted with low or very low growing plantings, herbaceous plants or sod grass (see list in Appendix).

b. Suitable mulch shall be spread liberally for weed and erosion control.

4. Intersection Plantings

No small trees, shrubs or herbaceous plants that tend to obstruct visibility at street intersections shall be permitted within one hundred (100) feet of the point of intersection of the curb or exterior roadway lines along both sides of the corner lot at the intersection.

**8.11 STREET LIGHTING**

Street lighting shall be installed along all streets in accordance with the Electric Light Department's specifications.

**8.12 STREET SIGNS**

Street name signs shall be the standard street name signs made by the South Hadley Highway Department at the applicant's expense. Such signs shall be erected by the applicant at each street intersection near the inside edge of the curb, subject to approval by the DPW Superintendent. The posts of these signs shall be buried in concrete blocks ten (10) inches in diameter and twenty-four (24) in length.

**8.13 AS-BUILT PLANS**

After final approval of all the improvements in the subdivision and before final release of the performance guarantee, the applicant shall furnish the Board with two copies (one copy for the Board and the other for the DPW Superintendent) of "As-Built Plan" showing location and grades of road as built, as well as all utilities as installed including inverts of drainage and sewerage systems, and swing ties at 60 degrees and 120 degrees apart for all ends and intersections of

pipes that are buried. Such plans may be mylar or linen copies of the complete set of Definitive Plans revised into “As-Built Plans”.

#### **8.14 CLEANING UP**

After completion of construction and before release of the performance guarantee, the subdivider shall remove all temporary structures, debris, surplus materials and rubbish, and shall otherwise leave the area in a neat and orderly appearance.