PROPOSED AMENDMENT TO AVON SUBDIVISION REGULATIONS 8/3/11
LID - LOW IMPACT DEVELOPMENT

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AMEND SECTION V – DESIGN STANDARDS, as follows:

5.04 Lot grading and drainage.
Where substantial regrading of the lot is required in order to provide a buildable site, grading plans shall be submitted for Commission approval. Such plans shall demonstrate practical methods for controlling potential erosion and stabilizing areas of cuts and fills on individual lots. The plan shall employ standards and methods equal to, or exceeding, those set forth in Connecticut Guidelines for Soil Erosion and Sediment Control by the Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection, DEP Bulletin 34 2002, and as amended.

5.04.01 ***General.*** Lots shall be laid out so as to provide positive drainage away from all buildings and individual lot drainage shall be coordinated with the general storm drainage pattern for the area. Drainage shall be designed so as to avoid concentration of storm drainage water from each lot to adjacent lots. Lots shall be graded such that finished slopes do not exceed 3:1 unless the Commission determines that steeper slopes will result in less environmental impact.

5.04.02 *Water bodies and watercourses.* If a tract being subdivided contains a water body, or portion thereof, lot lines shall be so drawn as to distribute the entire ownership of the water body among the fees of adjacent lots. The Commission may approve an alternative plan whereby responsibility for safe maintenance of the water body is assured.

5.04.03 *Recommended best management practices for site disturbance and earthwork.* The following recommended best management practices shall be incorporated into subdivision design wherever practicable.

5.04.03.1 Site disturbance should be minimized. Vegetation outside of development disturbance areas should be maintained wherever feasible. All development disturbance areas shall be depicted on site plans submitted as part of the site plan review process. The development disturbance areas should include only the area necessary to reasonably accommodate construction activities. The applicant may be required to install construction fencing around the perimeter of the proposed development disturbance areas prior to commencing land disturbance activities.

5.04.03.2 Soil compaction on-site should be minimized by using the smallest (lightest) equipment possible and minimizing travel over areas that will be revegetated (e.g., lawn areas) or used to infiltrate stormwater (e.g., bioretention areas).

5.04.03.3 Development should follow the natural contours of the landscape to the maximum extent possible. A grading plan shall be submitted as part of the site plan review process showing both existing and finished grade for the proposed development.

5.04.03.4 Cut and fill should be minimized. The maximum height of any fill or depth of any cut area, as measured from the natural grade, generally should not be greater than 10 feet. This recommended maximum height may be exceeded if the Commission, in consultation with the Town Engineer, determines that the doing so would result in development that would better serve the public good. If large cuts are unavoidable, the applicant shall have test pits or borings conducted in the area of such large cuts during the design of the development. Test pit and boring data shall be provided to the Commission as part of the application.

5.04.04 *Construction Traffic Areas.* Areas where temporary construction traffic is permitted shall be clearly delineated and limited as much as possible in their extent. These areas should be restored as pervious areas following site development through soil restoration and soil amendments, as required by the Commission.

5.04.05 *Stockpiling and Storage Areas.* All areas used for materials storage during construction and site development activities shall be clearly delineated and appropriately maintained. The soil under such areas shall be return to pre-development permeability levels through soil restoration and soil amendments following site development.

5.05~~.~~ Streets; generally.

No subdivision shall be approved unless the area to be subdivided shall have frontage on, and access from, another existing public street which is suitably improved and paved; or a street shown upon a map approved by the Commission and recorded in the Town Clerk's office. Such street or highway must be suitably improved as required by the appropriate regulations and specifications, or be secured by a performance bond.

5.05.01 *Street grading and improvement.* Streets shall be graded and improved and conform to ~~the~~ Town of Avon construction standards and specifications and shall be approved as to design and specifications by the Town Engineer.

5.05.01.1 ***Topography.*** Roads shall be related appropriately to the topography. Local roads shall be curved wherever possible to avoid conformity of lot appearance. All streets shall be arranged so as to obtain as many as possible of the building sites at, or above, the grades of the streets. Grades of streets shall conform as closely as possible to the original topography. A combination of steep grades and curves shall be avoided. Specific standards are contained in the design standards of these regulations.

5.05.02 *Traffic Circulation Plan.* All streets shall be properly integrated with the existing and proposed system of thoroughfares and dedicated rights-of-way as established in the Traffic Circulation Plan of the Comprehensive Plan of Development. Additionally, all thoroughfares shall be properly related to specific traffic generators such as industries, business districts,

schools, churches, and shopping centers; to population densities; and to the pattern of existing and proposed land uses.

5.05.03 ***Subdivision Street System Layout and Design.*** **The arrangement of roads and streets within a subdivision should permit economical and practical patterns, shapes and sizes of residential lots. The overall subdivision design and street system layout should optimize the linear footage of roads and streets by serving the permitted number of lots within the subdivision with the least amount of roadway length feasible.**

5.05.04 ***Reduction of Cut and Fill.*** **Roads and streets within subdivisions shall be designed to avoid crossing steep slopes where significant cut and fill could be required, wherever feasible.**

5.05.0~~3~~**05** *Street extensions.* Where required by the Commission, rights-of-way shall be provided for extending streets to adjoining unsubdivided property. Land in such rights-of-way shall be deeded to the Town as part of the street right-of-way to ensure its availability for future street connections. The Commission may require these streets and improvements to be constructed as part of the subdivision.

5.05.0~~3~~05.1 Where a proposed subdivision abuts an approved subdivision containing a future street right-of-way, the developer of the proposed subdivision shall construct the street and all required improvements from the proposed subdivision street to the approved street in the existing subdivision.

5.05.0~~3~~**05**.2 New streets shall be extended to the boundaries of the subdivision to provide access to adjoining property, and shall intersect with other streets designated as such by the Commission or as shown on the Street Map of Avon, as amended, part of the Comprehensive Plan of Development.

5.05.0~~3~~**05**.3 Where a temporary turnaround is provided on a street that is to be extended in the future, the 50-foot street right-of-way to the subdivision boundary shall be deeded to the Town, and the segments of the turnaround outside the 50-foot street shall be deeded to the abutting lot owners subject to an easement to the Town for street purposes. When such street is extended beyond the turnaround, the subdivider constructing the extended street shall remove the road construction in the segments of the temporary turnaround, fill with earth and loam and seed in an appropriate manner.

5.05.0~~4~~ **06** *Street names.* All street names shall be shown on subdivision plans and shall be approved by the Commission. Proposed street names shall be substantially different from any present names, to avoid confusion in sound or spelling. Streets that become extensions of existing streets shall generally bear the same name.

5.05.0~~5~~**07** *Street lighting facilities.* The applicant shall be required to install one lighting pole at each intersection, together with any additional lighting poles as the Commission may require, to prevent hazard. The location of such poles shall be shown on the construction plans under Section 4. The cost of all lighting fixtures, poles, and installation shall be the responsibility of

the developer. The developer shall bond such lighting facilities with all other public improvements.

5.05.~~06~~ **08** *Street name signs.* The developer shall be responsible for the cost and installation of street name signs. Such signs shall be placed at each intersection with existing streets as well as at each intersection within the development. The location, type and size of such signs shall be subject to the approval of the Avon Traffic Authority and shall conform to the standards set forth in the Manual on Uniform Traffic Control Devices for Streets and Highways. The developer shall bond such street name signs with all other public improvements.

5.05.~~07~~**09** *Traffic control devices.* The developer shall be responsible for the cost and installation of any traffic control devices deemed necessary by the Traffic Authority. Such devices shall meet the appropriate standards set forth in the manual on Uniform Traffic Control Devices for Streets and Highways. The developer shall bond such traffic control devices with other public improvements. Necessary state permits for work related to state highways shall be the responsibility of the developer and shall be coordinated through the office of the Local Traffic Authority.

5.05.~~08~~**10** *Reserve strips.* The creation of reserve strips shall not be permitted adjacent to a proposed street in such a manner as to deny access from adjacent property to such street.

5.06~~.~~ Cul-de-sac or dead-end.

5.06.01 ***Temporary Cul-de-sacs.*** A temporary turnabout shall be provided on all temporary cul-de-sac streets, with the notation on the subdivision map that land outside the normal street right-of-way shall revert to abutters whenever the street is continued. The Commission may limit the length of temporary dead-end streets in accordance with the design standards of these regulations.

5.06.~~01~~ **02** *Permanent cul-de-sacs.* Permanent cul-de-sacs shall not exceed the following design standards:

i. 1,500 feet in length or 20 lots, whichever is the more restrictive requirement;
ii. 1,500--2,000 feet in length or 15 lots, whichever is the more restrictive requirement; or
iii. 2,000--2,500 feet in length or ten lots, whichever is the more restrictive requirement;

~~However, where an applicant can demonstrate that he or she can adhere to these design standards but that an alternate plan better protects the health, safety or welfare of the community, the Commission may waive these standards using the provisions of Section 1.05.4 of these regulations. The Commission may base its decision in part on the recommendations of the Traffic Authority and Fire Marshal.~~

and shall adhere to the following additional standards.

5.06.02.1 All required permanent cul-de-sacs shall have a minimum right-of-way radius of fifty-five (45) feet. Within such right-of-way, there shall be a 14-foot wide

paved circular roadway constructed to a centerline radius of twenty-seven (27) feet, and a planted island at the center of the cul-de-sac right-of-way with a minimum radius of twenty (20) feet. Maximum roadway gradient along the circular roadway shall be six percent (6%).

5.06.02.2 Planted center islands shall be sunken or depressed, and shall be designed to include bioretention features generally consistent with the Connecticut Stormwater Quality Manual. The circumference of a planted center island shall be bounded by a flat modified curb apron that permits stormwater runoff from the paved circular roadway to drain into the center island.

5.06.02.3 The maintenance of planted center islands shall be the responsibility of one of the following:

(a) Homeowners' association, if one is instituted in the subdivision;
(b) Condominium association, if applicable; or
(c) In instances where neither (a) nor (b) above exist, the joint responsibility of all owners of residential lots abutting the cul-de-sac terminus.

Maintenance agreements for planted center islands shall be submitted to the Town of Avon for approval, and shall be filed in the Town of Avon Land Records.

5.06.03 ***Alternative Plans and Standards.*** **In instances where** an applicant can demonstrate that he **or she** can adhere to these design standards but **that** an alternate plan better protects the health, safety or welfare of the community, the Commission may waive these standards using the provisions of Section 1.05.4 of these regulations. The Commission may base its decision in part on the recommendations of the Traffic Authority and Fire Marshal.

5.07~~.~~ Design ~~s~~Standards. In order to provide for roads of suitable location**~~,~~ and** width,**~~ and~~ to provide** improvement**s ~~to~~ that will** accommodate prospective traffic and afford satisfactory access to police, fire-fighting, snow removal, sanitation, and road-maintenance equipment, and to coordinate roads so as to compose a convenient system and avoid undue hardships to adjoining properties, the following design standards for roads shall be adhered to:

5.07.01 ***Table~~s I.~~ for Road Design Standards.***

Table I - Road Design Standards

Road Class	ROW Width	Pavement Width	Maximum Grade	Minimum Grade	Design Speed	Cross Slope
Collector	60 feet	32 feet	12%	1%	30 mph	3/8 inches per foot
Local	50 feet	26 feet	12%	1%	25 mph	3/8 inches per foot

Limited Local	50 feet	22 feet	12%	1%	20 mph	3/8 inches per foot

Table II - Cul-de-sac Design Standards

Cul-de-sac Type	Right-of-Way	Pavement
Temporary	**45** ~~50~~-foot radius	45-foot radius
Permanent	**45** ~~55~~-foot radius	45-foot radius

5.07.01.1 Road classification may be indicated on the plan of development; otherwise it shall be determined by the Commission. Streets of a higher classification, i.e., primary and secondary arterial, shall, at the minimum, meet collector street standards.

5.07.01.2 (Deleted effective February 17, 2000)

5.07.01.3 Where a subdivision of four or less lots is proposed on a private road, the design standards contained herein may be modified by the Commission when, in the judgment of the Commission, the best use and subdivision of land is assured.

5.07.02 *Curbs*. ~~**Curbs** shall be required on all new streets and shall conform to construction and design standards as required in Appendix B of these regulations~~. **Where required by the Town or the Commission, and where necessary for drainage and retention of adjacent slope, curbs shall be installed by the developer along collector and arterial road rights-of-way. However, the Commission may waive the requirement for curbs at the recommendation of the Town Engineer.**

5.07.02.1 Curbs shall conform to construction and design standards as provided in Appendix B of these regulations. In general, curbs shall be installed along all roadways exceeding a 6% slope.

5.07.02.2 Along roadways or portions of a roadway where the slope is 3% or less, and along which sufficient right-of-way area exists to support natural stormwater drainage elements, the Commission may require curb breaks to allow for stormwater drainage and to reduce the need for stormwater infrastructure construction.

5.07.02.3 Curb breaks shall be twelve (12) inches in width and shall be designed to connect roadway stormwater runoff with landscaped bioretention areas.

5.07.02.4 In instances where curbs are not required, the Commission may require the use of curbless catch basins to drain low points in roadways where stormwater might otherwise collect.

5.07.03 *Guide rails.* Guide rails shall be provided where the side slope on fill is steeper than one vertical to four horizontal. Such rails shall conform to the standards and specifications adopted by the Town of Avon.

5.07.04 *Road pavement.* All road pavement, shoulders, drainage, improvements and structures, curbs, turnarounds, and sidewalks shall conform to all construction standards and specifications adopted by the Town of Avon, **hereby incorporated by reference as Appendix C of these regulations**.

5.07.05 *Right-of-way.* The full width of the road right-of-way shall be graded in accordance with the cross section shown in Appendix A. This requirement may be modified where, in the opinion of the Commission and upon recommendation of the Town Engineer, the existing character of the land creates unusual difficulty or hardship or will require removal of desirable natural growth, or where the location and kind of street appears not to require sidewalks in the future.

5.09 Drainage and storm sewers.

5.09.01 General requirements. The ~~Developer~~ **applicant** shall be fully responsible for constructing adequate facilities for the control, collection, conveyance and acceptable disposal of stormwater, other surface water and subsurface water, whether originating within the subdivision area or in a tributary drainage area. All drainage facilities shall be designed by a registered professional engineer and be subject to the approval and final acceptance of the Town Engineer. **Low Impact Development (LID) design strategies are encouraged for use as a primary means of stormwater management. Where LID design is not practical due to site constraints or other factors, the applicant shall document the reasons why LID was not utilized and explain why the proposed stormwater management approach is advantageous.**

5.09.01.1 *Stormwater drainage system.* The stormwater drainage system shall be separate and independent of any sanitary sewer system. Storm sewers, where required, shall be designed by methods as approved by the Town Engineer.

5.09.02 *Location of stormwater facilities.* Drainage facilities shall be located in the road right-of-way where feasible, or in perpetual unobstructed easements, where necessary. Such easements shall be at least **twenty** (20) ~~ft.~~ **feet** in width.

5.09.02.1 When a ~~P~~**p**roposed ~~D~~**d**rainage ~~S~~**s**ystem will carry water across private land outside the subdivision, appropriate drainage rights must be secured and indicated on the map.

5.09.02.2 The applicant may be required to dedicate either in fee or by drainage or conservation easement, land on both sides of existing watercourses to a distance to be determined by the Commission.

5.09.02.3 Low-lying lands along watercourses subject to flooding or overflowing during storm periods shall be preserved and retained in their natural state as drainage ways.

5.09.03 *Drainage discharge*. The discharge of all stormwater from a subdivision shall be into suitable streams or other acceptable and suitable stormwater drainage facilities having adequate capacity to carry the additional water. Where the discharge will be into private property, proper easements and discharge rights shall be secured for the Town by the applicant from all affected property owners. Such easements must be acceptably executed before acceptance of drainage plan and approval of the subdivision map.

5.09.03.1 Sufficient and adequate facilities shall be constructed on private lots wherever necessary to prevent the flow of surface drainage from the property on which it originates onto adjacent property in sufficient quantity, concentration or velocity to cause damage or create a nuisance on adjoining property.

5.09.03.2 Where a new street intercepts an existing street which has no underground drainage system or has a drainage system of insufficient capacity to carry the additional flow, appropriate facilities shall be installed by the ~~Developer~~ **applicant** to intercept and dispose of any drainage from the new street which would otherwise be discharged onto the surface of the existing street or into its drainage system.

5.10 Drainage design.

5.10.01 All **subdivision drainage** designs shall be based on the maximum ultimate development of the entire watershed as permitted by the Zoning Regulations. All bridges and culverts shall be designed such that the required head and water backwater produced by the structure shall not cause flooding of abutting property. **Low Impact Development (LID) design strategies are encouraged for use as a primary means of stormwater management. Where LID design is not practical due to site constraints or other factors, the designer shall document the reasons why LID was not utilized and explain why the proposed stormwater management approach is advantageous.**

5.10.01**.1** On watersheds one square mile or over, the design of culverts, bridges and through watercourses shall be based upon not less than a 100-year storm. On watersheds of less than one square mile, the design for the through drainage system shall be for not less than a 50-year storm.

5.10.0**1.**2 The drainage system for roads, including catch basins, inlets, pipe, underdrains, **swales,** and gutters, within or abutting the subdivision shall be designed for not less than a 10-year storm.

5.10.0**1**.3 Adequate underdrains shall be constructed whenever, in the opinion of the Town Engineer, drainage conditions require it. They may be required even though not shown on the approved construction plans. Design shall be as approved by the Town Engineer.

5.10.0**1**.4 Drainage ditches will, in general, not be permitted **immediately adjacent to the travelway.** ~~where it is feasible to install underground pipe.~~ **An appropriate**

shoulder width shall be provided based on the type of road and the local conditions of the area. All roadside swales shall have a maximum depth of 18" with a maximum side slope of 3:1. The bottom width shall be a minimum of two feet and designed to safely convey the peak design flow without overtopping. Lead-off culverts shall be extended to grade.

5.10.0**1.**5 Culverts under streets shall be extended at least to the edge of the right-of-way of the street. Headwalls, paving, flared-ends, and/or riprap, adequate to prevent erosion, shall be provided at the ends of all culverts.

5.10.02 *Peak Flow Control.* All subdivision drainage designs shall conform to the peak flow control requirements contained in Section 7.6 of the State of Connecticut Department of Environmental Protection's 2004 Stormwater Quality Manual, as amended.

5.10.03 *Volume Control.* The post-development total runoff volume shall be equal to 90 to 110 percent of the pre-development total runoff volume (based on a 2-year, 10-year, 25-year, and 50-year, 24-hour storms). Calculations shall include runoff from adjacent up-gradient properties.

5.10.04 *Operations and Maintenance Plan.* All subdivision applications shall include an operations and maintenance plan for stormwater drainage systems that addresses the following elements:

- **Detailed inspection and maintenance requirements/tasks**
- **Inspection and maintenance schedules**
- **Parties legally responsible for maintenance, including name, address, and telephone number(s)**
- **Provisions for financing of operations and maintenance activities**
- **As-built plans of completed structures**
- **Letter of compliance from designing engineer**
- **Post-construction documentation to demonstrate compliance with maintenance activities**

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