

To: Boothbay Planning Board  
From: Mark Eyerman  
Subject: Shoreland overlay District  
Date: November 6, 2018

The state Shoreland Zoning law requires communities to adopt zoning provisions within 250' of coastal wetlands, non-forested freshwater wetlands, rivers, and great ponds and within 75' of streams. The local provisions must provide a level of protection for these resources that is equal to or greater than the protection provided by the state's model shoreland zoning ordinance.

The state model ordinance is set up to be essentially a free-standing ordinance that can be adopted by towns that do not have town-wide zoning. Some communities that have town-wide zoning adopt a separate shoreland zoning ordinance that applies only in the areas subject to the state law. Boothbay's current ordinance integrates the shoreland provisions into the town-wide ordinance. The Comprehensive Plan proposed that the updated ordinance continue to integrate the shoreland provisions into the overall ordinance.

The state model mimics a typical zoning ordinance somewhat in that it sets up different districts, sets out the uses allowed in each district, establishes basic development standards such as setbacks, lot sizes, height, etc. and then has a long list of performance standards that apply within the shoreland area.

Under the draft of Section 7 we have basically integrated the shoreland requirements into the various town-wide districts plus the Resource Protection District. The district standards set up the basic development standards including shoreland setbacks and the table of land uses establishes what uses are allowed where with what review. These provisions address much of what the state requires except for the performance standards. The question then is which of the "required" shoreland performance standards should apply only in the designated shoreland area versus town-wide. This was the idea behind creating a Shoreland Overlay District – it would be a district where any additional shoreland performance standards would apply. As we do this we need to look at the table of uses to see if the activities subject to the shoreland performance standards are included in the table. If they are, then the performance standards dealing with that use need to apply town-wide. Here is rundown of the topics covered in the shoreland model ordinance along with an indication as to whether that standard needs to apply town-wide:

- Piers, Docks, etc. –Shoreland only
- Campgrounds – Town-wide

- Individual private campsites – Town-wide
- Prohibited Commercial and Industrial Uses – Shoreland
- Parking Areas – Some provisions apply only to shoreland areas
- Roads and Driveways – Some provisions apply only to shoreland and RP
- Signs – Town-wide
- Stormwater – Town-wide
- Septic disposal – Shoreland
- Essential services – Town-wide
- Mineral extraction – Town – wide
- Agriculture – Town-wide
- Timber harvesting -- ???
- Clearing or Removal of Vegetation – Shoreland?
- Hazard Trees – Town-wide?
- Exemption to Clearing Requirements -- Shoreland
- Revegetation – Shoreland
- Erosion – Town-wide
- Soils – Town-wide
- Water Quality -- Town-wide
- Archeological Sites – Town-wide

Using this as a guide, the SO District would say that all uses and activities within the overlay district would have to conform to the following district specific performance standards in addition to the various town-wide standards. I have put together the following draft of the SO District provisions. I have set this up so the SO District applies to the state required areas as well as the entire WRP-27 and WRP Districts. This makes the performance standards consistent throughout those zones and provides an additional level of protection. It also eliminates the need to address the same topic in both the SO District and the WRP Districts. I have not inserted the draft of the SO District into Section 7. Once we review and finalize it, I will then insert it into that draft.

## **7.5.17 Shoreland Overlay District (SO)**

### **7.5.17.1 PURPOSE**

The Shoreland Overlay District is intended to assure that land use activities and development in close proximity to water bodies and wetlands including the entire areas within the WRP-27 and WRP Districts are carried out in a manner that protects the quality of those resources. To this end, the standards of the district apply an additional set of performance standards to these activities and development.

### **7.5.17.2 ALLOWED USES**

The uses, review requirements and size limitations for the underlying zoning districts shall apply unless the use is specifically prohibited by the following provisions.

### **7.5.17.3 SPACE AND BULK STANDARDS**

The space and bulk standards of the underlying zoning district shall apply to land use activities and development within that district.

### **7.5.17.4 ZONE SPECIFIC DEVELOPMENT STANDARDS**

Land use activities and development within the Shoreland Overlay (SO) District shall conform to the following additional standards unless the standards of the underlying zoning district and/or the performance standards of Sections 8, 9, 10, and 11 are more restrictive:

#### **7.5.17.4.1 Piers, Docks, Wharves, Bridges and Other Structures and Uses Extending Over or Below the Normal High-Water Line of a Water Body or Within a Wetland, and Shoreline Stabilization**

**7.5.17.4.1.1** No more than one pier, dock, wharf or similar structure extending or located below the normal high-water line of a water body or within a wetland is allowed on a single lot; except that when a single lot contains at least twice the minimum shore frontage required for the district in which it is located, a second structure may be allowed and may remain as long as the lot is not further divided.

**7.5.17.4.1.2** Access from shore shall be developed on soils appropriate for such use and constructed so as to control erosion.

**7.5.17.4.1.3** The location shall not interfere with existing developed or natural beach areas.

**7.5.17.4.1.4** The facility shall be located so as to minimize adverse effects on fisheries.

**7.5.17.4.1.5** The facility shall be no larger in dimension than necessary to carry on the activity and be consistent with the surrounding character and uses of the area. A temporary pier, dock or wharf in non-tidal waters shall not be wider than six feet for non-commercial uses.

**7.5.17.4.1.6** No new structure shall be built on, over or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line of a water body or within a wetland unless the structure requires direct access to the water body or wetland as an operational necessity.

**7.5.17.4.1.7** New permanent piers and docks on non-tidal waters shall not be permitted unless it is clearly demonstrated to the Planning Board that a temporary pier or dock is not feasible, and a permit has been obtained from the Department of Environmental Protection, pursuant to the *Natural Resources Protection Act*.

**7.5.17.4.1.8** No existing structures built on, over or abutting a pier, dock, wharf or other structure extending beyond the normal high-water line of a water body or within a wetland shall be converted to residential dwelling units in any district.

**7.5.17.4.1.9** Except for structures that are part of Maritime Activities, Marinas, or functionally water-dependent uses, structures built on, over or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line of a water body or within a wetland shall not exceed twenty (20) feet in height above the pier, wharf, dock or other structure.

**7.5.17.4.1.10** Vegetation may be removed in excess of the standards in **7.5.17.4.6** of this ordinance in order to conduct shoreline stabilization of an eroding shoreline, provided that a permit is obtained from the Planning Board. Construction equipment must access the shoreline by barge when feasible as determined by the Planning Board.

**7.5.17.4.1.10.1** When necessary, the removal of trees and other vegetation to allow for construction equipment access to the stabilization site via land must be limited to no more than 12 feet in width. When the stabilization project is complete the construction equipment accessway must be restored.

**7.5.17.4.1.10.2** Revegetation must occur in accordance with **7.5.17.4.8**.

**7.5.17.4.2 Prohibited Commercial and Industrial Uses.** The following new commercial and industrial uses are prohibited within the SO District adjacent to great ponds classified GPA, and rivers and streams which flow to great ponds classified GPA:

**7.5.17.4.2.1** Auto washing facilities

**7.5.17.4.2.2** Auto or other vehicle service and/or repair operations, including body shops

**7.5.17.4.2.3** Chemical and bacteriological laboratories

**7.5.17.4.2.4** Storage of chemicals, including herbicides, pesticides or fertilizers, other than amounts normally associated with individual households or farms

**7.5.17.4.2.5** Commercial painting, wood preserving, and furniture stripping

**7.5.17.4.2.6** Dry cleaning establishments

**7.5.17.4.2.7** Electronic circuit assembly

**7.5.17.4.2.8** Laundromats, unless connected to a sanitary sewer

**7.5.17.4.2.9** Metal plating, finishing, or polishing

**7.5.17.4.2.10** Petroleum or petroleum product storage and/or sale except storage on same property as use occurs and except for storage and sales associated with marinas

**7.5.17.4.2.11** Photographic processing

**7.5.17.4.2.12** Printing

**7.5.17.4.3 Parking Areas.** Parking areas shall meet the shoreline and tributary stream setback requirements for structures for the district in which such areas are located, except that parking areas that serve Maritime Activities, Marinas, or functionally water-dependent uses, shall be set back at least twenty-five (25) feet, horizontal distance, from the shoreline. The setback requirement for parking areas serving public boat launching facilities shall be no less than fifty (50) feet, horizontal distance, from the shoreline or tributary stream if the Planning Board finds that no other reasonable alternative exists further from the shoreline or tributary stream.

**7.5.17.4.4 Roads and Driveways.** The following standards shall apply to the construction of roads and/or driveways and drainage systems, culverts and other related features within the SO District unless there are more restrictive requirements in the underlying district or the performance standards of Sections 8, 9, 10 and 11.

**7.5.17.4.4.1** Roads and driveways shall be set back at least one-hundred (100) feet, horizontal distance, from the normal high-water line of Adams Pond, Knickerbocker Lakes or any great pond classified GPA or a river that flows to a great pond classified GPA, and seventy-five (75) feet, horizontal distance from the normal high-water line of other water bodies, tributary streams, or the upland edge of a wetland unless no reasonable alternative exists as determined by the Planning Board. If no other reasonable alternative exists, the road and/or driveway setback requirement shall be no less than fifty (50) feet, horizontal distance, upon clear showing by the applicant that appropriate techniques will be used to prevent sedimentation of the water body, tributary stream, or wetland. Such techniques may include, but are not limited to, the installation of settling basins, and/or the effective use of additional ditch relief culverts and turnouts placed so as to avoid sedimentation of the water body, tributary stream, or wetland.

**7.5.17.4.4.1.1** On slopes of greater than twenty (20) percent the road and/or driveway setback shall be increased by ten (10) feet, horizontal distance, for each five (5) percent increase in slope above twenty (20) percent.

**7.5.17.4.4.1.2** Section **7.5.17.4.4.1** does not apply to approaches to water crossings or to roads or driveways that provide access to permitted structures and facilities located nearer to the shoreline or tributary stream due to an operational necessity, excluding temporary docks for recreational uses. Roads and driveways providing access to permitted structures

within the setback area shall comply fully with the requirements of **7.5.17.4.4.1** except for that portion of the road or driveway necessary for direct access to the structure.

**7.5.17.4.4.1.2** Existing public roads may be expanded within the legal road right of way regardless of their setback from a water body, tributary stream or wetland.

**7.5.17.4.4.1.3** New roads and driveways are prohibited in a Resource Protection District except that the Planning Board may grant a permit to construct a road or driveway to provide access to permitted uses within the district. A road or driveway may also be approved by the Planning Board in a Resource Protection District, upon a finding that no reasonable alternative route or location is available outside the district. When a road or driveway is permitted in a Resource Protection District the road and/or driveway shall be set back as far as practicable from the normal high-water line of a water body, tributary stream, or upland edge of a wetland.

**7.5.17.4.4.1.4** Road and driveway banks shall be no steeper than a slope of two (2) horizontal to one (1) vertical, and shall be graded and stabilized in accordance with the provisions for the erosion and sedimentation control performance standard.

**7.5.17.4.4.1.5** Road and driveway grades shall be no greater than ten (10) percent except for segments of less than two hundred (200) feet.

**7.5.17.4.4.1.6** In order to prevent road and driveway surface drainage from directly entering water bodies, tributary streams or wetlands, roads and driveways shall be designed, constructed, and maintained to empty onto an unscarified buffer strip at least (50) feet plus two times the average slope, in width between the outflow point of the ditch or culvert and the normal high-water line of a water body, tributary stream, or upland edge of a wetland. Surface drainage which is directed to an unscarified buffer strip shall be diffused or spread out to promote infiltration of the runoff and to minimize channelized flow of the drainage through the buffer strip.

**7.5.17.4.4.1.7** Ditch relief (cross drainage) culverts, drainage dips and water turnouts shall be installed in a manner effective in directing drainage onto unscarified buffer strips before the flow gains sufficient volume or head to erode the road, driveway, or ditch. To accomplish this, the following shall apply:

**7.5.17.4.4.1.7.1** Ditch relief culverts, drainage dips and associated water turnouts shall be spaced along the road, or driveway at intervals no greater than indicated in the following table:

<b>Grade (Percent)</b>	<b>Spacing (Feet)</b>
0-2	250
3-5	200-135
6-10	100-80

11-15	80-60
16-20	60-45
21 +	40

**7.5.17.4.4.1.7.2** Drainage dips may be used in place of ditch relief culverts only where the grade is ten (10) percent or less.

**7.5.17.4.4.1.7.3** On sections having slopes greater than ten (10) percent, ditch relief culverts shall be placed at approximately a thirty (30) degree angle downslope from a line perpendicular to the centerline of the road or driveway.

**7.5.17.4.4.1.7.4** Ditch relief culverts shall be sufficiently sized and properly installed in order to allow for effective functioning, and their inlet and outlet ends shall be stabilized with appropriate materials.

**7.5.17.4.4.1.8** Ditches, culverts, bridges, dips, water turnouts and other storm water runoff control installations associated with roads and driveways shall be maintained on a regular basis to assure effective functioning

**7.5.17.4.5 Septic Waste Disposal.** All subsurface sewage disposal systems shall be installed in conformance with the State of Maine Subsurface Wastewater Disposal Rules, and the following: a) clearing or removal of woody vegetation necessary to site a new system and any associated fill extensions, shall not extend closer than seventy-five (75) feet, horizontal distance, from the normal high-water line of a water body or the upland edge of a wetland and b) a holding tank is not allowed for a first-time residential use in the shoreland zone.

**7.5.17.4.6 Clearing or Removal of Vegetation for Activities Other Than Timber Harvesting**

**7.5.17.4.6.1** In a Resource Protection District abutting a great pond, there shall be no cutting of vegetation within the strip of land extending 75 feet, horizontal distance, inland from the normal high-water line, except to remove hazard trees.

Elsewhere, in any Resource Protection District the cutting or removal of vegetation shall be limited to that which is necessary for uses expressly authorized in that district.

**7.5.17.4.6.2** Except in areas as described in **7.5.17.4.6.1**, above, within a strip of land extending one-hundred (100) feet, horizontal distance, inland from the normal high-water line of a Adams Pond, Knickerbocker Lakes or any great pond classified GPA or a river flowing to a great pond classified GPA, or within a strip extending seventy-five (75) feet, horizontal distance, from any other water body, tributary stream, or the upland edge of a wetland, a buffer strip of vegetation shall be preserved as follows:

**7.5.17.4.6.2.1** There shall be no cleared opening greater than 250 square feet in the forest canopy (or other existing woody vegetation if a forested canopy is not present) as measured from the outer limits of the tree or shrub crown. However, a single footpath not to exceed six (6) feet in width as measured between tree trunks and/or shrub stems is allowed for accessing the shoreline provided that a cleared line of sight to the water through the buffer strip is not created.

**7.5.17.4.6.2.2** Selective cutting of trees within the buffer strip is allowed provided that a well-distributed stand of trees and other natural vegetation is maintained. For the purposes of this section, a "well-distributed stand of trees" adjacent to a Adams Pond, Knickerbocker Lakes or any great pond classified GPA or a river or stream flowing to a great pond classified GPA, shall be defined as maintaining a rating score of 24 or more in each 25-foot by 50-foot rectangular (1250 square feet) area as determined by the following rating system.

<b>Diameter of Tree at 4-1/2 feet Above Ground Level (inches)</b>	<b>Points</b>
2 - < 4 in.	1
4 – <8 in.	2
8-< 12 in.	4
12 in. or greater	8

Adjacent to other water bodies, tributary streams, and wetlands, a "well-distributed stand of trees" is defined as maintaining a minimum rating score of 16 per 25-foot by 50-foot rectangular area.

The following shall govern in applying this point system:

**7.5.17.4.6.2.2.1** The 25-foot by 50-foot rectangular plots must be established where the landowner or lessee proposes clearing within the required buffer;

**7.5.17.4.6.2.2.2** Each successive plot must be adjacent to, but not overlap a previous plot;

**7.5.17.4.6.2.2.3** Any plot not containing the required points must have no vegetation removed except as otherwise allowed by this Ordinance;

**7.5.17.4.6.2.2.4** Any plot containing the required points may have vegetation removed down to the minimum points required or as otherwise allowed by is Ordinance;

**7.5.17.4.6.2.2.5** Where conditions permit, no more than 50% of the points on any 25-foot by 50-foot rectangular area may consist of trees greater than 12 inches in diameter.

For the purposes of **7.5.17.4.6.2.2** “other natural vegetation” is defined as retaining existing vegetation under three (3) feet in height and other ground cover and retaining at least five (5) saplings less than two (2) inches in diameter at four and one half (4 ½) feet above ground level for each 25-foot by 50-foot rectangle area. If five saplings do not exist, no woody stems less than two (2) inches in diameter can be removed until 5 saplings have been recruited into the plot.



Notwithstanding the above provisions, no more than 40% of the total volume of trees four (4) inches or more in diameter, measured at 4 1/2 feet above ground level may be removed in any ten (10) year period.

**7.5.17.4.6.2.3** In order to protect water quality and wildlife habitat, existing vegetation under three (3) feet in height and other ground cover, including leaf litter and the forest duff layer, shall not be cut, covered, or removed, except to provide for a footpath or other permitted uses as described in **7.5.17.4.6.2**.

**7.5.17.4.6.2.4** Pruning of tree branches, on the bottom 1/3 of the tree is allowed.

**7.5.17.4.6.2.5** In order to maintain a buffer strip of vegetation, when the removal of storm-damaged, dead or hazard trees results in the creation of cleared openings, these openings shall be replanted with native tree species, unless existing new tree growth is present.

**7.5.17.4.6.2.6** In order to maintain the vegetation in the shoreline buffer, clearing or removal of vegetation for allowed activities, including associated construction and related equipment operation, within or outside the shoreline buffer, must comply with the requirements of **7.5.17.4.6 2**.

**7.5.17.4.6.3** At distances greater than one hundred (100) feet, horizontal distance, from Adams Pond, Knickerbocker Lakes or any a great pond classified GPA or a river flowing to a great pond classified GPA, and seventy-five (75) feet, horizontal distance, from the normal high-water line of any other water body, tributary stream, or the upland edge of a wetland, there shall be allowed on any lot, in any ten (10) year period, selective cutting of not more than forty (40) percent of the volume of trees four (4) inches or more in diameter, measured 4 1/2 feet above ground level. Tree removal in conjunction with the development of permitted uses shall be included in the forty (40) percent calculation. For the purposes of these standards volume may be considered to be equivalent to basal area.

In no event shall cleared openings for any purpose, including but not limited to, principal and accessory structures, driveways, lawns and sewage disposal areas, exceed in the aggregate, 25% of the lot area within the shoreland zone or ten thousand (10,000) square feet, whichever is greater, including land previously cleared. This provision applies to the portion of a lot within the shoreland zone, including the buffer area, but shall not apply to the General Development or Commercial Fisheries/Maritime Activities Districts.

**7.5.17.4.6.4** Legally existing nonconforming cleared openings may be maintained, but shall not be enlarged, except as allowed by this Ordinance.

**7.5.17.4.6.5** Fields and other cleared openings which have reverted to primarily shrubs, trees, or other woody vegetation shall be regulated under the provisions of **7.5.17.4.6**.

**7.5.17.4.7 Exemptions to Clearing and Vegetation Removal Requirements** The following activities are exempt from the clearing and vegetation removal standards set forth in **7.5.17.4.6**, provided that all other applicable requirements of this chapter are complied with, and the removal of vegetation is limited to that which is necessary:

**7.5.17.4.7.1** The removal of vegetation that occurs at least once every two (2) years for the maintenance of legally existing areas that do not comply with the vegetation standards in this chapter, such as but not limited to cleared openings in the canopy or fields. Such areas shall not be enlarged, except as allowed by this section. If any of these areas, due to lack of removal of vegetation every two (2) years, reverts back to primarily woody vegetation, the requirements of **7.5.17.4.6** apply;

**7.5.17.4.7.2** The removal of vegetation from the location of allowed structures or allowed uses, when the shoreline setback requirements are not applicable;

**7.5.17.4.7.3** The removal of vegetation from the location of public swimming areas associated with an allowed public recreational facility;

**7.5.17.4.7.4** The removal of vegetation associated with allowed agricultural uses, provided best management practices are utilized, and provided all agricultural performance standards of **11.1** are complied with;

**7.5.17.4.7.5** The removal of vegetation associated with brownfields or voluntary response action program (VRAP) projects provided that the removal of vegetation is necessary for remediation activities to clean-up contamination on a site in a general development district, commercial fisheries and maritime activities district or other equivalent zoning district approved by the Commissioner that is part of a state or federal brownfields program or a voluntary response action program pursuant 38 M.R.S.A section 343-E, and that is located along:

**7.5.17.4.7.5.1** A coastal wetland; or

**7.5.17.4.7.5.2** A river that does not flow to a great pond classified as GPA pursuant to 38 M.R.S.A section 465-A.

**7.5.17.4.7.6** The removal of non-native invasive vegetation species, provided the following minimum requirements are met:

**7.5.17.4.7.6.1** If removal of vegetation occurs via wheeled or tracked motorized equipment, the wheeled or tracked motorized equipment is operated and stored at least twenty-five (25) feet, horizontal distance, from the shoreline, except that wheeled or tracked equipment may be operated or stored on existing structural surfaces, such as pavement or gravel;

**7.5.17.4.7.6.2** Removal of vegetation within twenty-five (25) feet, horizontal distance, from the shoreline occurs via hand tools; and

**7.5.17.4.7.6.3** If applicable clearing and vegetation removal standards are exceeded due to the removal of non-native invasive species vegetation, the area shall be revegetated with native species to achieve compliance.

**7.5.17.4.7.7** The removal of vegetation associated with emergency response activities conducted by the Department, the U.S. Environmental Protection Agency, the U.S. Coast Guard, and their agents.

**7.5.17.4.8 Revegetation Requirements** When revegetation is required in response to violations of the vegetation standards set forth in **7.5.17.4.6**, to address the removal of non-native invasive species of vegetation, or as a mechanism to allow for development that may otherwise not be permissible due to the vegetation standards, including removal of vegetation in conjunction with a shoreline stabilization project, the revegetation must comply with the following requirements.

**7.5.17.4.8.1** The property owner must submit a revegetation plan, prepared with and signed by a qualified professional, that describes revegetation activities and maintenance. The plan must include a scaled site plan, depicting where vegetation was, or is to be removed, where existing vegetation is to remain, and where vegetation is to be planted, including a list of all vegetation to be planted.

**7.5.17.4.8.2** Revegetation must occur along the same segment of shoreline and in the same area where vegetation was removed and at a density comparable to the pre-existing vegetation, except where a shoreline stabilization activity does not allow revegetation to occur in the same area and at a density comparable to the pre-existing vegetation, in which case revegetation must occur along the same segment of shoreline and as close as possible to the area where vegetation was removed:

**7.5.17.4.8.3** If part of a permitted activity, revegetation shall occur before the expiration of the permit. If the activity or revegetation is not completed before the expiration of the permit, a new revegetation plan shall be submitted with any renewal or new permit application.

**7.5.17.4.8.4** Revegetation activities must meet the following requirements for trees and saplings:

- (a) All trees and saplings removed must be replaced with native noninvasive species;
- (b) Replacement vegetation must at a minimum consist of saplings;
- (c) If more than three (3) trees or saplings are planted, then at least three (3) different species shall be used;
- (d) No one species shall make up 50% or more of the number of trees and saplings planted;
- (e) If revegetation is required for a shoreline stabilization project, and it is not possible to plant trees and saplings in the same area where trees or saplings were removed, then trees or

sapling must be planted in a location that effectively reestablishes the screening between the shoreline and structures; and

(f) A survival rate of at least eighty (80) percent of planted trees or saplings is required for a minimum five (5) years period.

**7.5.17.4.8.5** Revegetation activities must meet the following requirements for woody vegetation and other vegetation under three (3) feet in height:

**7.5.17.4.8.5.1** All woody vegetation and vegetation under three (3) feet in height must be replaced with native noninvasive species of woody vegetation and vegetation under three (3) feet in height as applicable;

**7.5.17.4.8.5.2** Woody vegetation and vegetation under three (3) feet in height shall be planted in quantities and variety sufficient to prevent erosion and provide for effective infiltration of stormwater;

**7.5.17.4.8.5.3** If more than three (3) woody vegetation plants are to be planted, then at least three (3) different species shall be planted;

**7.5.17.4.8.5.4** No one species shall make up 50% or more of the number of planted woody vegetation plants; and

**7.5.17.4.8.5.5** Survival of planted woody vegetation and vegetation under three feet in height must be sufficient to remain in compliance with the standards contained within this chapter for minimum of five (5) years

**7.5.17.4.8.6** Revegetation activities must meet the following requirements for ground vegetation and ground cover:

**7.5.17.4.8.6.1** All ground vegetation and ground cover removed must be replaced with native herbaceous vegetation, in quantities and variety sufficient to prevent erosion and provide for effective infiltration of stormwater;

**7.5.17.4.8.6.2** Where necessary due to a lack of sufficient ground cover, an area must be supplemented with a minimum four (4) inch depth of leaf mulch and/or bark mulch to prevent erosion and provide for effective infiltration of stormwater; and

**7.5.17.4.8.6.3** Survival and functionality of ground vegetation and ground cover must be sufficient to remain in compliance with the standards contained within this chapter for minimum of five (5) years.