

# Summit County Nonstructural Post Construction BMP Manual



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## Introduction

As described in Appendix A, Section 4, Summit County requires that proposed developments utilize nonstructural stormwater control BMPs to the maximum extent practicable in order to meet the required criteria for long-term runoff control. This appendix provides a list and description of appropriate nonstructural BMPs that a permit applicant could choose to utilize in their design. This list is not intended to be comprehensive, and alternative nonstructural controls may be selected subject to approval by Summit County. A nonstructural BMP checklist is included in this Appendix. This checklist is intended for planners, designers and/or developers to utilize during the site planning, design, and construction phases of all developments. Additional information and detailed examples of nonstructural controls and environmentally-sensitive design principles can be obtained online at :

[http://www.cwp.org/better\\_site\\_design.htm](http://www.cwp.org/better_site_design.htm)

<http://www.georgiastormwater.com/vol2/1-4.pdf>

<http://www.stormwatercenter.net/>

<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/post.cfm>

## BMP 1: Preservation of Undisturbed Natural Areas

This BMP involves formally designating appropriate undisturbed natural areas within the site as preservation areas. These areas must be specified in the maintenance covenant and recorded by the County in the land record to ensure they remain undeveloped in perpetuity. These areas must be clearly marked and remain undisturbed (i.e., no clearing, grubbing, or construction traffic) during construction. Areas that provide the greatest stormwater benefits through their preservation include:

- wetlands & meadows
- riparian buffers
- forested areas
- areas with high infiltration rates (e.g., hydrologic group A and B soils)
- groundwater recharge zones
- streams and natural drainageways

## BMP 2: Minimization of Disturbance

This BMP involves using careful construction sequencing, well-designated limits of disturbance, and well-defined construction entrances/exits to minimize the total area of disturbance (e.g., excavation, grading, clearing, grubbing) and reduce soil compaction from construction traffic. Clearing and grading of forests and native vegetation at a site should be limited to the minimum amount needed to build lots, allow access, and provide fire protection. Site layouts and roadway patterns should be designed to conform with or “fit” the natural landforms and topography of a site. This helps to preserve the natural hydrology and drainageways on the site, as well as reduce the need for grading and disturbance of vegetation and soils.

### BMP 3: Reduction of Impervious Cover

This BMP involves modifying the designs of permanent structures to reduce the overall area of impervious surfaces while still achieving development objectives. Specific modifications may include:

- reducing roadway lengths and widths to the minimum size needed to meet traffic and safety needs
- reducing building footprints (e.g., build up rather than out)
- reducing the parking footprint (build underground parking or multi-level parking decks; size a proportion of stalls for compact vehicles; use grass or alternative paving for overflow parking areas)
- reducing lot setbacks and frontages
- using fewer or alternative cul-de-sacs (e.g., install pervious vegetated islands in cul-de-sacs; reduce radius of cul-de-sacs; use alternatives such as T-shaped turnarounds)
- integrating porous areas such as landscaped islands, swales, filter strips, and bioretention areas into parking lot designs
- using alternative paving techniques (e.g., use loose gravel, coarse sand, wood or bark chips, or disconnected pavers for all or parts of driveways and walkways)
- using vegetated swales instead of curb and gutter to convey road runoff

### BMP 4: Routing of Runoff to Pervious Areas/disconnection of Runoff

This BMP involves routing the runoff from impervious areas to pervious areas such as natural areas, buffers, lawns, landscaping, filter strips and vegetated channels. In this way, the runoff is “disconnected” from other impervious areas and paved collection/conveyance systems (e.g., curb and gutter) that do not allow for groundwater recharge or uptake of pollutants. Some of the methods for disconnecting impervious areas include:

- designing roof drains to flow to vegetated areas
- directing flow from paved areas such as driveways to stabilized vegetated areas
- breaking up flow directions from large paved surfaces and rooftops
- carefully locating and grading impervious areas and landscaped areas to achieve sheet flow runoff to the vegetated pervious areas

### BMP 5: Pollution Prevention/Source Reduction

This BMP involves implementing measures to reduce or contain potential sources of contamination at a site. Specific measures include:

- controlling litter (providing adequate numbers of trash receptacles, emptying receptacles regularly, keeping dumpster lids closed, etc.)
- sweeping streets and paved areas rather than hosing them down or using pressurized washers
- reducing rainfall contact with potential pollution sources by installing roofs/canopies over gas station fueling areas, salt/sand piles, hazardous material storage areas, etc.
- providing secondary spill containment (e.g., berms) for hazardous liquid storage containers
- clearly marking storm drains “No Dumping- Drains to Live Stream”

## Checklist for Nonstructural BMPs

Project name:  
 Project location:  
 Contractor/builder information:  
 name:  
 address:  
 email:  
 phone/fax:

Site area (total acres):  
 Temporarily disturbed area (acres):  
 Permanently disturbed area (acres):  
 Undisturbed natural areas or preservation areas  
 (acres):

Best Management Practices (BMPs)	Yes/ No	Comments (If applicable, describe actions taken or give explanation of no action)
<b>Preservation of Undisturbed Natural Areas</b>		
Specification of natural areas in maintenance covenant.		
Preservation is recorded in the land record.		
Clear demarcation of undisturbed areas during construction.		
<b>Minimization of disturbance</b>		
Construction sequence reduces the amount of land disturbed at one time.		
Well-defined construction access points.		
Limited site clearing.		
Site layout and roadway patterns conform to topography.		
<b>Reduction of impervious cover</b>		
Appropriate road sizing.		
Reduced building footprint.		
<b>Reduction of impervious cover (Cont.)</b>		
Reduced parking footprint.		

<b>Best Management Practices (BMPs)</b>	<b>Yes/ No</b>	<b>Comments (If applicable, describe actions taken or give explanation of no action)</b>
Reduced lot setbacks and frontages.		
Alternative cul-de-sac design.		
Integration of porous or infiltration areas (islands, swales etc.).		
Alternative paving.		
Use of vegetated swales in place of curb and gutter.		
<b>Routing of runoff to pervious areas/Disconnection of runoff</b>		
Drains and runoff are directed to vegetated areas.		
Runoff from large impervious surfaces (including pavement and rooftops) is broken into several flow paths.		
Design so that impervious areas direct runoff to vegetated areas.		
<b>Pollution prevention/Source reduction</b>		
Litter/trash control.		
Dry sweep rather than washing or hosing off areas.		
Provide secondary spill containment for hazardous liquid if stored on- site.		
Stencil storm drains.		