

Technical Memorandum #14



700 Washington St.
Suite 401
Vancouver, WA 98660
Phone (360) 737-9613
Fax (360) 737-9651

To: Robin Krause, PE
From: Tim Kraft, PE; Andrew Stoeckinger, EIT
Copies: File
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Subject: Applying the 2005 Stormwater Management Manual for Western Washington in the Rural Area
Project No.: 14505

Introduction

Clark County's proposed new stormwater regulations can be complex and will apply in some situations that previously were exempt, particularly in the rural area. Part of the county's ongoing public outreach is to show rural property owners how the new rules might affect them. The following scenarios demonstrate how the new stormwater regulations would apply in the rural area of Clark County in four hypothetical situations.

Each scenario assumes that the guidelines in the 2005 Stormwater Management Manual for Western Washington are met.

The Site

Each scenario is based on a rural 2.5 acre site with a stream running through the northwest corner, which requires a 50-foot habitat buffer under a separate regulation. The habitat buffer will require 0.2 acres to be set aside and retained as native vegetation. The property has an existing house with a footprint of 2,000 square feet and a 200-foot long gravel driveway that is 10 feet wide.

Scenario #1

The land owner builds a 500-square foot addition to the house. While the addition is defined as new impervious surface, it is less than the 2,000-square foot threshold that triggers some stormwater management requirements. Therefore, the owner is only required to control erosion during the construction process, which is a requirement for development activities of any size. The owner submits an erosion control plan to Clark County.

Scenario #2

The land owner paves the existing gravel driveway with asphalt and builds a 500-square foot addition to the house. The site is less than 35% impervious, so the activity is defined as new development. Since paving a gravel surface is defined as creating new impervious surface, the project exceeds the 2,000-square foot threshold that triggers some stormwater management requirements. Therefore, the owner must meet Minimum Requirements 1 through 5 of the 2005 Stormwater Management Manual for Western Washington, involving the following:

- Submit an abbreviated or simplified stormwater management plan to Clark County.
- Control erosion where construction activities occur. Any runoff pathways from the construction area need erosion control strategies to prevent sediment from leaving the site.
- Maintain the natural drainage patterns of the site. In other words, wherever the area of the addition drained to before construction, it must continue to drain to after construction.
- Provide water quality treatment and flow control using onsite stormwater management techniques. This can be achieved by amending the site soil, dispersing runoff through vegetation, and infiltrating stormwater where feasible.

Scenario #3

The land owner builds a workshop next to the house in addition to the activities in Scenario #2. The workshop's footprint is 2,500 square feet, and a new 500-square foot asphalt driveway provides access from the existing driveway. These total 5,500 square feet of new impervious surface. Since the project exceeds 5,000 square feet of new impervious surface, the owner must meet Minimum Requirements 1 through 10, involving the following:

- Submit a stormwater management plan to Clark County. Due to the size of the site, an abbreviated plan may be appropriate.
- Control erosion where construction activities occur. Any runoff pathways from the construction area need erosion control strategies to prevent sediment from exiting the site.
- Maintain the natural drainage patterns of the site. In other words, wherever the area of the workshop drained to before construction, it must continue to drain to after construction.
- Provide water quality treatment using onsite stormwater management techniques. Water quality treatment is required for pollution-generating surfaces that are 5,000 square feet or greater. The driveways are defined as pollution-generating surfaces, but their total surface area is only 2,500 square feet. Therefore, water quality can be achieved with onsite stormwater management techniques such as dispersing runoff through vegetation, rather than a treatment facility. The roof areas are not considered pollution-generating surfaces.
- Detention is not required for projects that create less than 10,000 square feet of impervious or increase the 100-year flows offsite by less than 0.1 cfs, but onsite stormwater management is still required. The dispersion used to meet onsite stormwater management requirements can also achieve flow control for many sites.

Scenario #4

The land owner builds a riding arena in addition to the activities in Scenario #3. The riding arena is large enough to host horse events and provide parking. It creates 15,000 square feet of rooftop and 11,500 square feet of parking. Several paddocks require the conversion of 5,000 square feet of native vegetation to pasture grasses. These total 32,000 square feet of new impervious surface and 5,000 square feet of land conversion. Since the project exceeds 5,000 square feet of new impervious surface, the owner must meet Minimum Requirements 1 through 10, involving the following:

- Submit a stormwater management plan to Clark County. The plan will be more detailed, and designs for controlling runoff from the site will require consultation of a professional engineer.
- Control erosion where the construction activities occur, and submit a stormwater pollution prevention plan (SWPPP). Any runoff pathways from the construction area need erosion control strategies to prevent sediment from exiting the site.
- Implement source control Best Management Practices (BMP) to prevent manure and other pollutants from combining with stormwater runoff from the site. The stormwater management plan must include a strategy for properly cleaning up and disposing of animal waste and other potential contaminants.
- Maintain the natural drainage patterns of the site. In other words, wherever the areas that have been developed or converted drained to before construction, they must continue to drain to after construction.
- Water quality treatment is required for the pollution-generating surfaces that are 5,000 square feet or greater in area. The parking lot, driveways, and paddock areas are considering pollution-generating surfaces and total 14,000 square feet; therefore, water quality treatment is required for runoff from these areas. The roof areas are not considered pollution-generating surfaces, so runoff from the rooftops of the arena, workshop, and house addition do not require water quality treatment. Water quality treatment can be achieved by full dispersion of stormwater, rain gardens, vegetated swales, vegetated filter strips, or wet ponds.
- The rooftop areas, parking lot, and driveways add up to 32,000 square feet of new impervious surface. Flow control of runoff is required for all new and replaced impervious surfaces exceeding a total area of 10,000 square feet. Flow control can be achieved by full dispersion of stormwater, rain gardens, or wet ponds. The size of the flow control facilities may be reduced through the application of certain onsite stormwater BMPs. The runoff from the house and workshop can be dispersed over a flow path of at least 50 feet through native vegetation, which is plausible for this 2.5-acre site. The arena and parking area may also be dispersed through native vegetation if the site soils and slopes are appropriate. Dispersion can either reduce flow control requirements or, in some cases, eliminate it completely.
- Optional: if site conditions allow, use low impact development techniques (LID) such as pervious pavement or pavers, rain barrels, or green roofs to reduce or, in some cases, eliminate, the detention requirement.

Conclusion

Under the proposed new stormwater regulations, many typical rural development practices will require some degree of stormwater management to prevent degradation of surface waters.

Actual site conditions including soil properties, topography, and ground cover vary from site to site and will affect the requirements and options available.