



King County

Water and Land Resources Division

Department of Natural Resources and Parks

King Street Center

201 South Jackson Street, Suite 600

Seattle, WA 98104-3855

206-477-4800 Fax 206-296-0192

TTY Relay: 711

March 13, 2015

TO: Molly Johnson, Development Engineer, Department of Permitting and Environmental Review (DPER)

FM: Curt W. Crawford, Manager, Stormwater Services Section, Water and Land Resources (WLR) Division, Department of Natural Resources and Parks (DNRP)

RE: Blanket Adjustment #1 for Farm Pads Regarding Water Quality, Direct Discharge, and Flow Control Best Management Practice (BMP) Requirements

Background

- King County has strong land use policies and programs to protect agriculture soils and to encourage a thriving agriculture industry. The King County Food Economy Initiative, started by Dow Constantine in 2014, calls for increased food production, and recommends actions, including regulatory changes, to facilitate the success of agricultural operations.
- King County supports the construction of farm pads (earthen embankments/platforms placed within the 100-year floodplain of major rivers) because they are essential to protect farm animals, equipment, and other infrastructure. The King County River and Floodplain Management Section provides technical assistance to farmers to ensure that the farm pads comply with floodplain, critical areas, and stormwater standards.
- Farm pads are primarily located within Agriculture Production Districts (APD), which are the County's designation of agriculture lands of long-term commercial significance, required under the Washington Growth Management Act. In order to protect the agriculture land resource, the APD zoning is very low density (35-acre lot minimum) and the percent impervious surface is limited (maximum 10 percent). Note that some APD land has a 10-acre lot size minimum with 15 percent maximum impervious allowed. Some properties with potential farm pads are part of the Farmland Preservation Program (FPP), which has even more strict limits on impervious area (5 percent of the property).
- According to KCC 21A.24.240.K2, farm pads must be constructed to the standards in an approved farm management plan. Addressing pollution typical of agricultural operations through farm management plan recommended BMPs (heavy use areas, covered manure areas, etc.) can be much more effective in overall protection of water quality when compared to the treatment required for farm pad impervious surfaces via the Surface Water Design Manual (SWDM). This is because the pollutant-generating potential and water quality risk of the typical agricultural operation is more widespread and greater than that inferred to other

pollution-generating surfaces (as defined in the SWDM) on the farm. Moreso, the farm pad surface's pollution-generating potential, is less than that of most SWDM-defined pollution-generating surfaces due to infrequent or light use by vehicles and minimal storage of leachable materials. Additionally, farm pads act as water quality BMPs during major flood events by allowing pollution-generating farm vehicles, equipment, and animals to be stored out of the water.

- Application of standard flow control and water quality facilities and flow control BMPs is often incompatible on agricultural operations where preserving arable land is paramount. Within floodplains, the effectiveness of flow control facilities and flow control BMPs is limited to only smaller storm events, and inundation of water quality treatment facilities in frequently flooded areas can be counterproductive.
- Allowing water quality treatment and flow control BMPs integral to farm pads (placed on side slopes) helps to solve some of the problems described above in that no additional arable land is removed from farming and by keeping greater portions of the treatment/flow control BMPs out of inundation zones.

List of Specific Adjustment Items

Use of farm pad side slopes for water quality treatment (basic filter strip):

1. Allow basic filter strips on 2H:1V side slopes that are greater than the maximum 15 percent proscribed in Section 6.3.4.2, "Filter Strip Geometry and Flow Resistance," #1, of the 2009 SWDM.
2. Allow tributary surface to the filter strip to exceed the maximum allowed in Section 6.3.4.2, "Drainage Area Restrictions," #1, of 2009 SWDM.
3. Allow ratios of impervious surface to filter strip slope area of 2.68:1 that results in achieving 70 percent of the 9-minute residence time otherwise required in Section 6.3.4.1, "Methods of Analysis" of the 2009 SWDM.

Use of farm pad side slopes for Basic Dispersion:

4. Allow basic dispersion on 2H:1V side slopes that are greater than the maximum 15 percent proscribed in Section C.2.4.1, #2, part (c) of the 2009 SWDM.
5. Allow a flow path length less than that required for sheet flow Basic Dispersion than required in Section C.2.4.5, #4.

Direct Discharge Exemption:

6. Allow conveyance elements other than "manmade" conveyance elements between the site and ordinary high water mark (OHWM) of the major receiving water (Section 1.2.3, Direct Discharge Exemption, part b).
7. Allow conveyance elements not in public right-of-way (ROW) or a private or public easement between the site and OHWM of major receiving water (Section 1.2.3, Direct Discharge Exemption, part b).

Findings/Justification

Basic filter strips on 2:1 slopes:

Analysis (Attachment A) shows that 70 percent of required 9-minute residence time for filter strips is achieved based on a ratio of 2.68:1 tributary area/filter strip slope area assuming 2:1 slopes. This is based on the conservative assumption that the entire pad is impervious and behaves as such. Typical pads are placed in pastures that often will provide additional water quality treatment. Farm pads and water quality BMPs instituted through farm plans provide compensating benefits to water quality during flood events and non- flood events respectively.

Basic Dispersion on 2:1 slopes and less than required flow path length:

Additional opportunities for infiltration, storage, and evapotranspiration are provided by the gravel spreader that is required and provided in meeting the basic filter strip design. Typically, flows from these farm pad side slopes will be directed through fields that allow opportunities for dispersion and infiltration during low flow/unflooded conditions. Using the side slopes of farm pads for the flow control BMPs provides some flow control that would not be provided during flood events where the toe of the pad will be inundated.

Direct Discharge:

The criteria for Direct Discharge Exemption did not anticipate conditions faced by agricultural projects located in the floodplain where, during flooding events, conveyance systems are engulfed. The intent of direct discharge requirements is to ensure no harm to downstream systems including natural systems. Item (e) in Direct Discharge Exemption already covers the concern regarding harm to existing stream/wetland by requiring the following: "*The direct discharge proposal will not divert flows from or increase flows to an existing wetland or stream sufficient to cause a significant adverse impact.*" Therefore, the concern addressed by "manmade only" conveyance elements of part (b) is met elsewhere.

Based on the preceding discussion of fact and mathematical analyses included in Attachment A, we are hereby approving blanket adjustments described with the following conditions:

Conditions

Use of farm pad side slopes for water quality treatment (basic filter strip) and basic dispersion (items 1-5):


1. Farm pad side slopes used for water quality treatment and basic dispersion must be no steeper than 2H:1V.
2. The ratio of tributary top farm pad area to slope area used for filter strip and dispersion must be no greater than 2.68:1.
3. All other requirements specified in Section 6.3.4.2 for basic filter strips must be met.
4. A covenant per the SWDM is required to ensure maintenance and inspection access unless an alternative is approved by King County DNRP.
5. The property to which this blanket adjustment applies must be in agricultural operation.

Direct Discharge Exemption (Items 6 and 7):

6. Exemption Item 6: Conveyance elements other than “manmade” conveyance elements between the site and OHWM of major receiving water are only allowed where located on applicant property.
7. Exemption Item 7: Conveyance elements not in public ROW or private or public easement between the site and OHWM of major receiving water are only allowed if located on owner/applicant’s property. If a conveyance exists downstream of the owner’s property that is part of direct discharge system, the requirement for easement or ROW must be adhered to for the downstream conveyance. Downstream conveyance elements of the direct discharge system to the OHWM that are not within public ROW or private or public easement require release from the affected downstream property owner.
8. All other elements of direct discharge must be met.

Please note that approval of this adjustment does not relieve applicants from other county, state, or federal requirements, including any requirements imposed through the SEPA process. Individual designs proposing use of this adjustment will be reviewed and approved during plan review to ensure that compliance with the conditions stated herein are achieved. If you have any questions, please call Mark Wilgus, Senior Engineer with the Stormwater Services Section, at 206-477-4848.

Approved by the WLR Division and DPER as follows:


Curt W. Crawford, Manager
Stormwater Services Section
King County WLR Division

3/13/15
Date


Molly Johnson, Development Engineer
King County DPER

3-16-15
Date

CC:MW:bgD07

- cc: Randy Sandin, Product Line Manager – Resource, Department of Permitting and Environmental Review
John Taylor, Assistant Division Director, Water and Land Resources (WLR) Division, Department of Natural Resources and Parks (DNRP)
Kathy Creahan, Agriculture/Forestry Program Manager, Rural and Regional Services Section, WLR Division, DNRP
Richelle Rose, Program Manager, River and Floodplain Management Section, WLR Division, DNRP
Mark Wilgus, Senior Engineer, Stormwater Services Section, WLR Division, DNRP