GESC Manual Resource Guide Fact Sheet Series

#4.2: Drainageways

**Work in Drainageways**

Work in drainageways requires special care and attention. Drainageway corridors comprise an important natural resource with habitat, open space, and aesthetic value. It is critical that construction activities be designed to reduce any adverse impacts to drainageways and that SEMSWA, City, County, State, and Federal permitting processes be complied with. Limits of construction are clearly shown on a GESC Drawing to indicate the exact limits of grading adjacent to a drainageway and to delineate the limits of the undisturbed riparian corridor. No fill is allowed, within the limits of the 100-year floodplain or the existing top of banks of incised channels, whichever is more restrictive. Freeboard over the future development 100-year water surface elevation is to be provided as outlined in the *Stormwater Manual*, as amended.

It may be impossible, or undesirable, to avoid all construction in an existing drainageway. Most natural channels cannot be left alone in their predevelopment condition. Increased runoff from development can shift the natural balance of a stream over time, tending toward degradation and bank erosion as the stream tries to flatten its grade. Drop structures and other grade control features are usually necessary to reduce the channel slope to future equilibrium conditions and to control flow velocity. Bank or toe protection may also be necessary to reinforce weak, unstable channel banks. In addition to the construction of grade control and bank stabilization improvements, there may be other unavoidable instances where construction must occur in existing drainageways. Examples include bridges and culverts for road crossings, utility crossings, storm sewer outfalls, and temporary stream crossings for construction access. The GESC Plan indicates how and where the existing drainageway will be diverted during construction. However, it is critical that construction disturbance within drainageways be minimized and quickly restored.

Even after existing drainageways are identified and preserved, new development projects usually require an additional network of small drainageways, swales and storm sewer facilities. Upgradient properties will generate runoff that may need to be intercepted and conveyed through the site in drainageways that don’t necessarily correspond to existing stream channels. Off-site flows shall be conveyed through the site in stable drainageways. Off-site flow impacts the layout of perimeter drainage facilities and starts to set the location and size of the on site drainage network.

**Drainageway Disurbance BMPs**

When construction within a drainageway is unavoidable, the Design Engineer delineates construction limits that restrict activities to the smallest practical area possible. BMPs including Construction Fence (CF) or Construction Markers (CM) are indicated on the GESC Drawing within the channel corridor to indicate the allowable limits of disturbance. In the same manner, CF and CM are shown throughout the site to identify all limits of construction (along all perimeters of the site, along all stream corridors to be preserved, and around any other preservation zones). Coordinates or other information establish the location of the fence. If disturbance to a drainageway is significant, such that excessive amounts of sediment may be transported downstream, a Check Dam (CD), reinforced or nonreinforced, is installed immediately downstream of the disturbed area in the drainageway.

**Stream Disturbed Area BMPs**

As soon as possible after construction of facilities in drainageways, or after removal of a Temporary Stream Crossing (TSC), all disturbed areas within streams and drainage channels are topdressed with topsoil, seeded and mulched (SM), and, unless otherwise approved, protected with Erosion Control Blanket (ECB).

**New Drainageway Channels BMPs**

During grading operations for the additional network of small drainageways, swales and storm sewer facilities, and prior to the construction of these features, additional BMPs are needed. For example, Temporary Diversion Ditches (DD) or dikes may be necessary to control site stormwater runoff, until such time that permanent drainage facilities are constructed and stabilized according to the Stormwater Management Manual specifications.