



DWR – NPDES-SOP – G – 16 –Erosion Prevention and Sediment Control Handbook-01092026

Erosion Prevention and Sediment Control Handbook

4.2.1 Diversion Berm or Dike



Source: TNWRRRC

Definition and Purpose

Diversion berms are compacted ridges of soil, sometimes paired with a ditch or swale, designed to direct runoff around or through the active areas of construction. They help prevent erosion by routing stormwater around disturbed areas and slopes. They can also promote sediment control by routing sediment laden runoff towards other measures such as sediment basins or traps. These structures are more commonly installed as temporary measures but can remain effective as permanent measures if they are properly stabilized.

Appropriate Applications

Diversion berms are appropriate for construction sites where managing/redirecting stormwater runoff is necessary to prevent erosion, sedimentation, and ponded water. They can be placed above disturbed slopes to redirect runoff away from vulnerable areas, across unprotected slopes to break up flow and reduce erosion potential, or at the base of slopes to capture sediment laden water and direct it to a sediment control measure (ARDOT, 2016; NCDEQ, 2013). When positioned at the perimeter of a site to protect adjacent properties, diversion berms help keep sediment from leaving the construction area (GSWCC, 2016).

These structures are particularly useful for protecting downslope or downgradient areas and maintaining stable working conditions by diverting stormwater before it can cause saturated conditions, erosion, or hinder vegetation establishment in low areas. They are often a cost-



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effective solution, as they utilize onsite materials and can be built with standard grading equipment. When used in conjunction with sediment basins, silt fences, or slope drains, diversion berms can significantly reduce the required volume of sediment control measures (City of Albany, 2024; VDEQ, 2024).

Limitations and Maintenance

Diversion berms require proper stabilization to prevent erosion and sediment loss. Without adequate vegetation or structural reinforcement, they can become a source of sediment rather than an EPSC measure. Diversion berms are not suitable in streams. Regular maintenance is necessary, including sediment removal to prevent overtopping and to ensure the berm has the capacity to convey peak flows and velocities.

Planning and Design Considerations

Diversion berms should be sized based on the drainage area that it will receive, the recommended berm dimensions are a minimum top width of two feet and maximum side slope steepness of 2H:1V that are machine compacted and stable (City of Albany, 2024; TDOT). Prior to the start of construction activities, stabilize the berm with seeding and mulch, RECPs, or conventional riprap (ALSWCC, 2018; TDOT). The height of the berm should be able to hold the design storm of 2-year, 24-hour or 5-year, 24-hour with an additional freeboard of 0.3-0.5 feet to prevent overtopping. Account for settling in the berm; this is typically estimated to be 10% (Figure 4.2.1-A). When a berm is installed in conjunction with a slope drain, the top of the berm should be at least six inches above the top of the pipe. Lastly, any trees, brush, stumps or other material which would interfere with the function of the berm should be removed from its alignment and disposed of properly.

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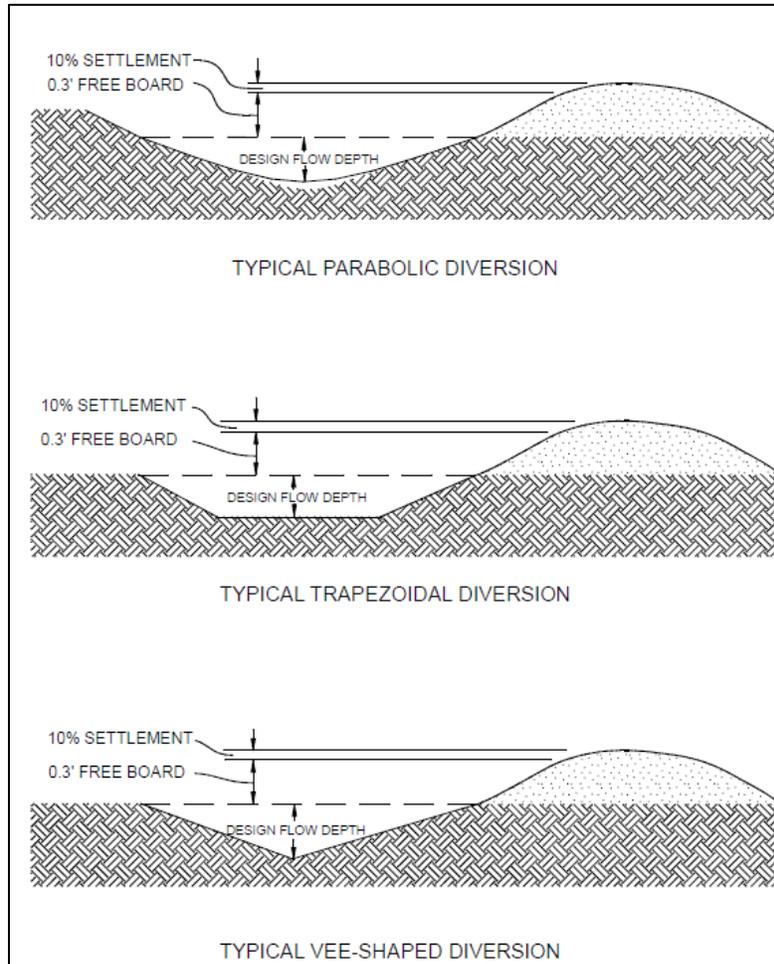


Figure 4.2.1-A: Diversion berm details for various shapes. Adapted from VDEQ (2024).

Diversion berm outlets must be protected and not contribute to erosion. Acceptable outlets include practices such as grassed swales, riprap-lined swales, sediment basins, detention basins, etc. Diversions may also outlet to waterbodies if design flows are not anticipated to cause ecological degradation.

Example Application

Refer to Section 4.3.2.

References

- ALSWCC. (2018). *Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas*.
- ARDOT. (2016). *Erosion and Sediment Control Design and Construction Manual*.
- City of Albany. (2024). *Erosion Prevention and Sediment Control Manual*.



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GSWCC. (2016). *Manual for Erosion and Sediment Control in Georgia.*

NCDEQ. (2013). *Erosion and Sediment Control Planning and Design Manual.*

TDOT. *Drainage Manual Ch10.*

VDEQ. (2024). *Virginia Stormwater Management Handbook.*