

Topics covered in this Development Information Bulletin (DIB) include:

- Do I really want a bulkhead?
- SDP or Exemption?

Note: Thanks to King County Department of Development and Environmental Services for some of the material contained in this DIB.

DO I REALLY WANT A BULKHEAD?

Bulkheads are expensive to build and don't always solve the problem. A professional engineering assessment may help you understand if a bulkhead is right for the site and may save you time, money, and trouble by identifying the problem and recommending appropriate solutions.

The following questions and concerns can be addressed in such an assessment:

1. Determine what is eroding, the beach, the bluff, or both. Look at the surface drainage. Are open drainpipes, sewers, streams, or lawn and garden watering causing surface run-off problems?
2. Estimate how far back horizontally your house (or the closest building) is from the Ordinary High Water Mark (low bank) or top of the bluff (high bank). What is the vertical elevation between your house and the Ordinary High Water Mark?

What is the approximate rate of erosion? (You can keep track of the rate by periodically measuring the distance from a fixed object [corner of a building, for example] to the high water line or the top of the bluff.)

The distance from the eroding beach or bluff to your house and the rate of erosion are important in assessing the immediacy of the problem. Evaluate the problem carefully before the house is threatened by erosion.

3. Determine whether the erosion is more or less continuous and at a constant rate, or is it sudden and severe (such as during a bad storm).

Continuous beach erosion is different from beach erosion that occurs all at once during a severe storm. In some cases, beaches "heal" themselves after a bad storm; the sand may return in a few months building the beach back to its former shape.
4. Define the character of the beach surface. For example, does it consist of sand, gravel, or hardpan (clay) materials? A wide sandy beach with lots of driftwood and vegetation usually depicts a low-energy environment, meaning that erosion along that stretch of beach is minimal. A gravel or cobble beach with little driftwood and vegetation usually depicts a high-energy environment, meaning that erosion along that stretch of beach is relatively high.
5. Define the composition of the bluff. For example, does it consist of sand or clay or dense glacial till? One or more of these may be present in layers visible where vegetation is absent from the bluff.

Different types of soil materials found in bluffs erode differently.

Unconsolidated sand in a bluff, especially exposed at the water line, can be easily eroded. A clay layer, especially when combined with excess groundwater, can cause potential landslide problems that require special engineering consideration.

6. Determine the type of vegetation present on the beach and the bluff (trees, brush, vines, seaweed, beach grass, etc.). Evaluate whether or not any landslides have occurred on your property or on nearby properties by looking for areas on the bluff that are steep and completely bare of vegetation.

Vegetation has a stabilizing influence on beaches and bluffs. Large, straight, mature trees may indicate that a slope has not moved much recently. The absence of vegetation may mean that erosion or movement has occurred recently.

7. Look at the surface drainage. Are open drainpipes, sewers, streams, or lawn and garden watering causing surface water runoff problems? Has surface water runoff eroded gullies in the top or face of the bluff?

Think about groundwater inside the bluff. Subsurface water from an offsite perched aquifer, or from the infiltration of onsite surface water, can cause problems along the bluff face. Often subsurface groundwater filters down through sand and gravel materials to a clay layer, where it then flows horizontally to the face of the bluff, causing seepage on the face of the bluff. This seepage can cause erosion of overlying materials as well as possible slippage of materials along the clay or hardpan layers.

Surface water runoff and subsurface groundwater commonly cause erosional problems in bluffs which a bulkhead alone often cannot alleviate.

8. Determine whether there is direct evidence of ongoing erosion such as: cracks or fissures in the slope, piles of debris (rocks, sand, gravel, etc.) at the base of a bluff, leaning trees or exposed roots, cracked foundations, retaining walls or pavement, or wave-cut notches at the base of the bluff. Such evidence of on-going erosion can help determine the nature and immediacy of the problem.

A properly designed and constructed bulkhead may help control a shoreline erosion problem, but it can have some undesirable effects. On Puget Sound, most of the sand making up local beaches comes from the gradual erosion of nearby bluffs. Bulkheads alter or restrict the natural supply of sand to the beaches. Without a continuing supply of sand, other beaches in the area may be eroded by waves, and deposits of sand such as spits and bars, which also depend on a continuing sand supply, may be endangered. Because you might create other erosion problems for your neighbors by blocking natural sand supplies to a beach, consider non-structural alternatives to a bulkhead that will not block sand supplies.

SHORELINE DEVELOPMENT PERMIT (SDP) OR SHORELINE EXEMPTION (SHE)?

A Shoreline Substantial Development Permit (SDP) is required for any activity not specifically exempted. Some exemptions include:

- Construction of a bulkhead when demonstrated to be necessary for protection of an existing single-family residence and substantial appurtenances such as utilities, garages, decks, and septic systems.
- Repair or replacement of existing functional bulkheads, or other existing and functional shoreline protection structures.

- Drainage improvements to existing single-family residences.

Construction of a new bulkhead on a vacant lot or parcel, or on a developed lot or parcel where there is no evidence that significant erosion is threatening an existing single-family residence, requires completion of a Shoreline Development Permit application.

SOFT-SHORE PROTECTION

Lower impact alternatives (soft-shore protection) to hard armoring (e.g. concrete, rip-rap rock, timber) are available and often times can be permitted more easily than hardened structures. Information regarding alternative shoreline stabilization designs is available online or may be obtained from the County shoreline planner.

This is a partial summary of relevant regulations. The regulations regarding shorelines are complex, and if there is any question, the actual text of the controlling ordinance or statute should be consulted.

IMPORTANT NOTE - "Development Information Bulletins" (DIBs) are intended to assist the general public in understanding the effect of codes and regulations. DIBs are not complete statements of the laws and rules and should not be used as a substitute for them. If conflicts and questions arise, the code and regulations are the final authority. Because these regulations may be revised or amended at any time, consult Island County staff to be sure you understand all current requirements before beginning any work. It is the responsibility of the applicant to ensure that the project meets requirements of all current codes and regulations.

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