

Erosion Protection and Restoration



South Broward Drainage District

954-680-3337
www.sbdd.org



EROSION PROTECTION AND RESTORATION

Erosion is a naturally occurring process where sediments, soils, rocks, etc. are weathered and transported from their current location to another location. In South Florida, erosion normally occurs along lake and canal banks due to transport by wind and water (wave actions). Over extended periods of time, it is not unusual for the land areas along lakes and canals to begin showing signs of erosion. The rate and severity of erosion varies from location to location and is dependent on a wide variety of factors, including:

- Type of ground cover – a reinforced or hardened ground is less prone to erosion than barren soil.
- The slope of the ground – a steeper slope promotes a higher velocity of stormwater runoff which increase the rate and severity of erosion.
- Types and depths of underlying soils – certain types soils, such as sands and silts, are more susceptible to erosion; likewise, areas with highly fractured or weathered rock are also more susceptible to erosion; porosity and permeability of the soils are also factors in erosion, as the more water gets absorbed into the ground, the less runoff that is generated.
- The amount and intensity of rainfall - higher intensity rainfalls tend to create higher rates of erosion.
- Wind speed and storm frequency
- Burrowing animals can also cause or exasperate erosion.



PREVENTING EROSION AND RESTORING LAKE/CANAL BANKS

There are several products and methods that are designed to help prevent erosion and/or to restore eroded soils along lakes and canals. Examples of some of these products and methods are attached and include:

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|-------------------------------|--------------------------------------|
| Sheet Piling (aka: Bulkhead) | Gabion Basket |
| Rip-rap | Filter Fabric/Geo-Synthetic Material |
| Rubble Rip-rap | Geo-Tube (a.k.a. Filter Tubes) |
| Fabriform (aka: Concrete Mat) | Re-grading and Re-sodding |



This list is not intended to include all of the products and methods that are available to address erosion protection and/or restoration, but rather, is intended to provide a sample of products and methods that are available and have been used successfully within South Broward Drainage District (SBDD). It is incumbent upon each individual property owner or business to perform their own independent research on this subject.

The cost for each of the methods listed above varies depending on several factors. Generally speaking, the higher the degree of protection, the higher the cost. For example, a bulkhead will be more expensive per lineal foot, than re-grading and re-sodding; but will provide a much higher degree of protection.

Aesthetics and/or use of property may also be a factor in any decisions regarding erosion protection and restoration. Certain products may be more applicable depending on the intended use of the property or on the aesthetic appeal of the property owner. This is especially true where decks or docks are involved.



Finally, local regulations and permitting requirements also need to be considered. There may be restrictions on the type of erosion protection/restoration that is allowed and very likely, there will be permitting requirements. Any erosion protection work or erosion restoration work within the jurisdictional boundaries of SBDD will require a permit from the District. It is incumbent upon the property owner to research and determine what, if any, permits/approvals are required (i.e. city, environmental, HOA).

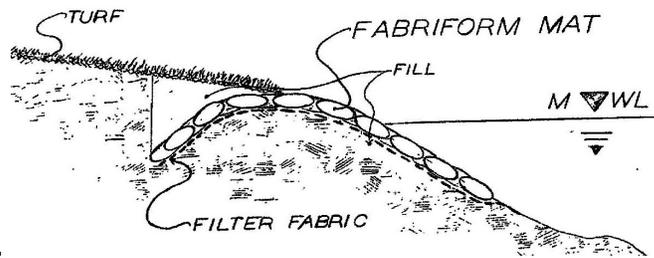
PROCESS

SBDD recommends that the following process be followed for a homeowner or business that is interested in restoring an eroded shoreline or in protecting their existing shoreline from future erosion:

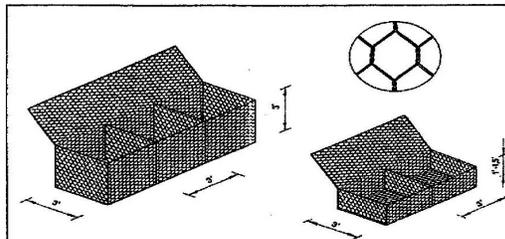
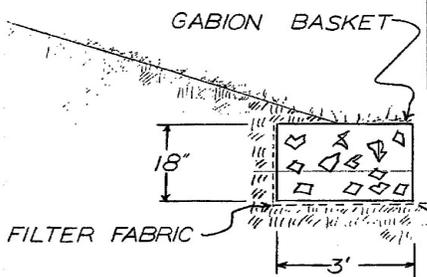
- Educate yourself on the different methods and materials that are available.
- Contact your local drainage district or building department to find out about permitting requirements and to get additional information and answer any other questions.

- Hire a professional engineer to assist you in evaluating options, preparing permit plans, and submitting for any required permits.
- Solicit input and obtain pricing from licensed, insured and qualified Contractors for the type of restoration/protection that best fits your needs.
- If possible, you should try and physically observe examples of the products you are considering to assist in the decision making process.
- Select the best qualified Contractor to perform the work, taking into account pricing, experience, competence, etc.
- Enter into a signed contract/agreement for the work. Use the services of an attorney, if needed.
- Make sure that the Contractor is licensed, insured and qualified to perform the work. Check references, if applicable.
- Verify that the Contractor has obtained all required permits before starting the work.
- Make sure that the work is completed to your satisfaction, and accepted by all permitting authorities before you make final payment to the Contractor.
- If possible, get a written warranty on the work.

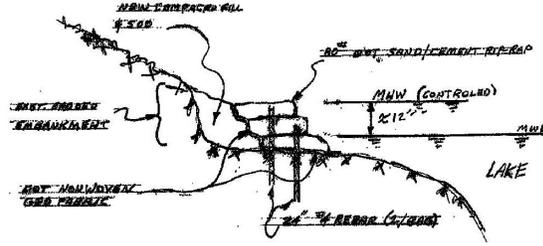
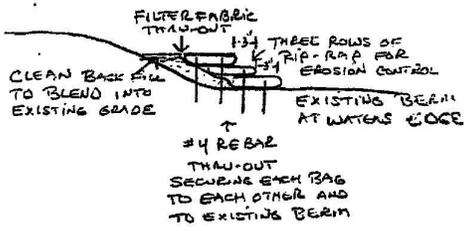




FABRIFORM



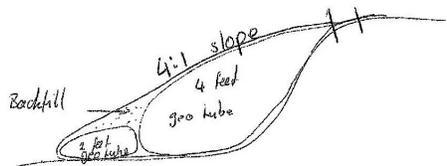
GABION BASKET



RIP-RAP



GEO-TUBE







For additional information, call SBDD at 954-680-3337 or visit SBDD web page at www.sbdd.org.





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