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Design and Construction Guidelines for Shoreline Facilities

The long-term goal of the plan is to have all docks and other shoreline facilities designed and constructed to ensure the intrinsic values of Canyon Ferry Reservoir are protected equally and fairly for everyone who utilizes the reservoir.

Prior to making improvements or any new installation or alteration of existing facilities that occupy shoreline property, private landowners are required to secure authorization from the following managing agencies: Bureau of Reclamation, Army Corps of Engineers, and Lewis & Clark County Conservation District. Failure to obtain these approvals may mean that the structure will have to be removed at your expense.

Private landowners are encouraged to design and construct docks and bank stabilization improvements using the following guidelines.

Boat Dock Guidelines

These guidelines were developed by the Bureau of Reclamation to provide residents and landowners with suggested guidelines for boat docks. Approvals from Reclamation and the agencies listed on the construction request must be secured prior to any work being done. Failure to obtain these approvals may mean that the structure will have to be removed at your expense.

1. Number of Docks Allowed
   a. Noncommercial situations
      i) House or cabin on land adjoining the reservoir - maximum of one dock for each cabin;
      ii) PL 105-277 as amended; Title X - Canyon Ferry Reservoir, Montana Act
      iii) Please note attached permit process with Reclamation, Army Corps of Engineers and the Lewis & Clark County Conservation District.
   b. Community docks, a single dock having one or more slips that serve several houses or cabin owners is encouraged and recommended.
   c. All docks should be identified with a cabin number on the dock in plan view.
   d. Commercial operations may need many docks for their business. Commercial operations are limited and are guided by Reclamation and Army Corps of Engineers designs.

2. Dock Locations
   a. Boat dock should be located within 100 feet of the boundary marker of the landowner who owns the dock.
   b. When possible, boat docks should be located between the boundary markers of the landowner's property.

3. Boat Dock Design
   a. Standard Boat Docks
      i) All new docks and replacement docks should be removable.
      ii) Docks should be designed to allow water to flow under and around them. Solid docks that do not allow water to flow under or around them should not be used.
   b. Temporary Boat Docks

   c. Boat Lifts
      i) No more than one boat lift shall be authorized per property.
      ii) No boat lift shall exceed a lift capacity of 3600 lbs.
      iii) No boat lift shall be constructed with solid side walls.
      iv) No extension or other structure or object may be attached to, or upon a boat lift; however, a boat lift may be attached to an authorized dock.

d. Mooring Buoys

i) Mooring lines of recreational vessels may not be placed in such a way as to block or hinder boating access to any part of the reservoir.

ii) No more than one vessel may be moored to a buoy.

4. Dock Sizes

a. To minimize visual and other impacts to shoreline uses, docks should be held to minimum functional dimensions of 2 to 3 boats. Community docks may require larger dimensions.

b. Docks shall not exceed sixty (60) feet in length if there is five (5) feet of water depth at the end of the dock when the lake is at its mean annual high water elevation. For a sixty (60) foot dock, where the depth of the water is less than five (5) feet, additional length may be allowed. However, no dock shall exceed one hundred (100) feet in length as measured from the mean annual high water line to the farthest extension of the dock into the lake. In such cases, these properties, because of the extreme shallow conditions of the adjacent lake, are not considered suitable for dock construction.

c. Non-community docks should not exceed 30 feet in total length if there is 10 feet of water depth at the end farthest from shore when reservoir is at its full pool level. When the depth is less than 10 feet at that point, additional dock length should only be used to the point of reaching the 10-foot depth level at full pool. Dock length should be measured from the shoreline at the full pool level to the furthermost extension of the dock into the reservoir.

d. Maximum width of a dock should be 10 feet.

e. On a T or C shaped dock the maximum width across the head of the T or C should not exceed ***30*** feet. (See illustration below)

f. On an L shaped dock, the maximum length of the wing section should not exceed 30 feet. This creates a maximum of 40 feet across the head of the L. (See illustration below.)

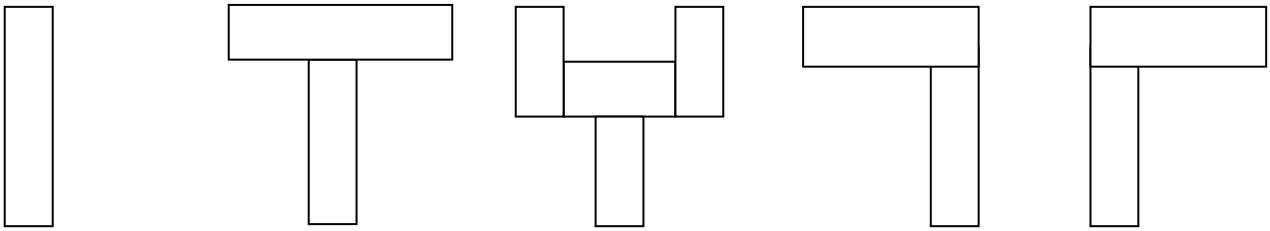
g. If docks exceed 100 feet the dock may be required to have a warning light on each section of dock beyond 50 feet in length as measured from the mean annual high water line.

5. Dock Construction Materials
    a. Docks should be constructed of wood, metal, plastic, fiberglass or other material standard to the industry.
    b. Factory pressure treated (non-toxic marine grade) wood, untreated wood or plywood are suitable materials.
    c. All field applied preservatives, wood treatment, carpet, glue, paint, varnish and other such materials must meet state and federal standards for marine applications.
    d. When applying an approved preservative, take precautions to avoid letting the preservative drip, spill or otherwise enter the water.
    e. When molded foam or other floating material is used, it must be enclosed or sealed to avoid breakup and/or scattering of loose material. If floatation material becomes scattered the source should be repaired immediately and the loose material must be removed from the reservoir.
    f. Wood, metal, metal pipe, axles and wheels or other durable material should be used for skids on docks to prevent shoreline damage and dock damage when removing and installing docks unless the dock is lifted in and out of the water.
    g. Natural, non-contrasting exterior finishes or colors such as natural wood, earth tones, or other colors found in the area should be used for all visible surfaces.
    h. Anchor materials should be of pre-formed concrete, rocks, steel blocks, or driven pipe with adequate nylon or polypropylene rope, or non-corrosive metal cable.

6. Timeframe for Implementation of Dock Guidelines

a. Dock owners should consider taking steps to meet these guidelines when docks are replaced or when dock maintenance or upgrades are more than ¼ of original cost. Permits for construction of new docks must be reviewed and approved before a permit is issued.

Standard Dock Designs:



Bank Stabilization Guidelines

These guidelines were developed by the Bureau of Reclamation to provide residents and landowners with suggested techniques used in lakeshore bank stabilization. The suggested recommendation provides for shoreline protection, erosion control, and shoreline aesthetics. Approvals from Reclamation and the agencies listed on the construction request must be secured prior to any work being done. Failure to obtain these approvals may mean that the structure will have to be removed at your expense.

1. ***Permitting considerations/factors***
   - ***a. Protection of personal property***
   - ***b. Protection of private land***
   - ***c. Protection of Reclamation land***

2. ***Best practiced methods for bank stabilization:***
   - ***a. Bank stabilization should be re-vegetation with minimum impact to the natural environment.***
   - ***b. Riprap with vegetation***
   - ***c. Riprap without vegetation***
   - ***d. Professionally engineered retaining wall***
     - ***i) Alternative stabilization designs must meet current standards for acceptability and designed by a professional engineer.***

3. ***Riprap standards are as follows:***
   a. Riprap rock shall be angular and sized properly for the specific task. Cultured rock or concrete block covered to look like stones is allowed as riprap.
   b. All riprap materials shall be free of silts, sands or fines and acquired from a site outside of the Shoreline Protection Zone.
   c. Riprap rock shall be placed at the intended high water line and be placed at a maximum slope of 1 horizontal: 2 vertical (60 degrees); (1:1 or 45 degrees preferred.); (where practical, 2 horizontal: 1 vertical 30 degrees).
   d. Prior to the placement of riprap, filter fabric will be required to be placed along the shoreline and incorporated into the riprap design to inhibit erosion and the washing of fines through the riprap. Where the beach in front of the riprap is silt and clay soils, a filter fabric will be required with rock, gravel and geo grid in place.
   e. The lakebed in front of any structure when the soils are silts and clay will be covered with appropriate filter fabrics and rock, free of silts and fines.
   f. Material excavated for placement of the footings may be used as backfill behind the wall. It may also be deposited outside of the Shoreline Protection Zone on the landowner's property.

g. If an existing wall has to be replaced, it shall be completely removed from the Shoreline Protection Zone and the replacement wall shall be constructed in essentially the same location as the existing wall.
h. Retaining walls can only be constructed where active erosion is occurring.
i. Bank stabilization work should consider using riprap as the primary option.
j. Incorporate vegetation and shrubs in retaining wall whenever possible.
k. Recommended slope of retaining wall is 2:1 or flatter (30 degree slope).
l. Slope of retaining walls must follow natural contour of land.
m. Concrete retaining walls should be the last option considered and used. These walls must be faced to within six inches of the water surface with rock.
n. Lost property by erosion can only be reclaimed for what was lost in the last 12 months. Landowner must prove where property boundaries are. (For example, do they extend to the high or low water mark?)
o. No chemically treated materials are allowed as retaining wall material.
p. Any concrete retaining walls should be back-filled with drain rock. Weep or drain holes should be provided through retaining walls.

Definitions:

BOAT RAIL SYSTEM: A facility consisting of tracks extending from or across the lakeshore protection zone into the lake which is designed to facilitate launching or retrieving boats.

BOAT RAMP: A facility consisting of a pad, driveway or roadway extending from or across the lakeshore protection zone into the lake which is designed to facilitate launching or retrieving boats.

CRIB DOCK: A type of permanent dock consisting of solid wood cribs filled with ballast material such as rock on which a deck is constructed.

DOCK: A platform, either non-floating or floating, which extends into, over or across the water to provide for boat moorage, access to a moorage area, swimming facilities, or other related activities.

DOCK LENGTH: Dock length is the length of that portion of the dock which extends lakeward at any time over water and is measured from the current water level to the farthest waterward end of the dock.

DOCK WING: That portion of a dock and deck which lies generally parallel to the shoreline with its main function as a wave break or to provide a boat slip or sheltered area as opposed to primarily provides access out to deep water.

DREDGING: The process of excavating material from the lake bottom and thereby lowering the bottom of lake elevation of the lake bottom. The term shall include the process of extending the lake area landward by excavating material from the lakeshore protection zone and thereby lowering the elevation of that portion of that zone.

RETAINING WALL: Any structure built essentially parallel and contiguous to the shoreline of a lake which is designed to protect the land mass inland from the structure, from erosion or wave action and protect the lake from situation.

RECONSTRUCTION: To rebuild an existing facility such that at the time of reconstruction in excess of 50% of the value or size of the facility excluding foundation is replaced.

RETAINING WALL: Any structure built essentially parallel and contiguous to the shoreline of a lake which is designed to protect the land mass inland from the structure, from erosion or wave action and protect the lake from situation.

RIPRAP: A layer, facing, or protective mound of stones, or rock or other materials randomly placed to prevent erosion, scour, or sloughing of a structure or embankment.

LAKESHORE PROTECTION ZONE: The land area which is within twenty (20) horizontal feet of the perimeter of the lake and adjacent wetlands when the lake is at the mean annual high water elevation. Where a shoreline is irregular or erratic or a channel or gorge of a lake juts landward, the lakeshore protection zone shall correspondingly follow these irregularities.

MEAN ANNUAL HIGH WATER ELEVATION: The mean average of the highest elevation of a lake in each of at least five (5) consecutive years, excluding any high levels caused by erratic or unusual weather or hydrologic conditions. A highest elevation caused by operation of a dam or other impoundment counts towards the establishment of the mean annual high water elevation.

PERMIT: A document issued by the governing body verifying compliance with the requirements and provisions of these requirements.