

CHAPTER X:

PORTAGES AROUND DAMS

A. General Description

Portages are land routes used by paddlers to transport their boats to and from a launch area or between access sites. Often located along water bodies where dams or other obstructions interrupt a paddling route, portages can provide direct access to areas of water beyond these obstacles. Portages can also serve as detours around difficult sections of water that paddlers choose not to run, and they may serve as navigable connections between lakes or other bodies of water, helping to create a continuous paddling route. While this chapter discusses designs for portages around dams, the information provided may be applicable to portages in each of these settings.

B. Materials

Portages can be simple routes, such as trails made of soil, gravel, or asphalt, or they may be built structures, such as staircases with chutes or slides. The materials used and amount of construction necessary will depend on circumstances at an individual site. These may include shoreline configurations, frequency of usage, dam ownership, and available funds.

Signage is crucial to making a portage visible to paddlers and to informing paddlers about potential hazardd on the water. Regardless of their visibility from the water, portages should be clearly marked in order to provide paddlers with sufficient time to reach the shore and take out. Having clear and appropriate signage can also help discourage paddlers from attempting to clear a low head dam or spillway. For guidance on developing appropriate signage along water trails, including details on sign specifications, a helpful resource is *Publishing Trail Guidance: Maps and Guides, Guidebooks and Signs* (North American Water Trails, 2002).

Some dam owners have installed signage to educate paddlers about potential dangers; however this is not always the case. Dams for hydropower use may be required to have signage. The Federal Energy Regulatory Commission (FERC) provides regulatory oversight to help develop and maintain safe hydro-power projects and considers designated and well-marked portages to be crucial measures enabling paddlers to travel safely from the top to the bottom of a dam.

Licensing requirements issued by FERC require hydropower applicants to review recreational needs in the areas around their facilities. Licensees may be required to supply public recreational facilities during the term of the license. For further information on the relationship between hydropower relicensing and recreational liability, see “Hydropower Relicensing and Recreational Liability” in *American Whitewater Journal* (May/June 2001).

Essential safety information that includes a discussion of signage may be found in *FERC Guidelines for Public Safety at Hydropower Projects*, available online at: [http://www.ferc.gov/industries/hydropower/safety/signage/Appendix_B/FERC%20Safety%20Guidelines%201992%20\(web%20version\).pdf](http://www.ferc.gov/industries/hydropower/safety/signage/Appendix_B/FERC%20Safety%20Guidelines%201992%20(web%20version).pdf)

The FERC website <http://www.ferc.gov/industries/hydropower/safety/signage/portages/web/portages.htm> also provides examples of effective signage.

C. Design specifications/variations

According to *FERC Guidelines for Public Safety at Hydropower Projects*, a portage should not be located within 300 feet of a dam, spillway, or powerhouse.

The following general recommendations for portage areas are gathered from several sources, including an April 2003 assessment of the Trinity River in Texas (see their website at http://www.trinityrivervision.org/Final%20Report/3_Recreation.PDF for more information).

An effective portage should include:

- Clear, well-marked signage allowing paddlers sufficient time to reach shore before take out
- A path at least 2' wide around the dam, with a slope no steeper than a 1:3
- *An ADA accessible portage cannot have a slope that exceeds 8.33% or 1:12*
- At least 8' overhead clearance on the path and 4' to 8' clearance on either side
- A vertical distance of 12" or less between the height of boat and shore
- A route that minimizes the distance that paddlers must carry their boats
- Access points located on inside bends or areas of calm water
- An escape path downstream from portage, when possible, giving paddlers an additional area to egress the water if they miss a take out or portage

D. Advantages

- Provides defined and safe routes around dams and other structures that can be obstacles for paddlers, as long as they are well located and clearly marked
- Enables paddlers to navigate a somewhat continuous route along a water trail
- Gives paddlers designated routes to transport their boats between parking areas and launch sites
- May prevent damage to riparian or other sensitive areas by directing paddlers to a designated route
- Offers paddlers an opportunity for additional exercise!

E. Disadvantages

- May not be easy for paddlers to manage while transporting their boats, if portages have a steep slope, uneven surface, or limited space
- May not provide paddlers with sufficient time or space to take out – especially if currents or winds are strong – if portage is located immediately upstream of a dam or other obstruction
- May be difficult to locate or access when not clearly marked

F. Case Examples, designs, photos

1) Little Quinnessec Falls Hydroelectric Dam, Menomonee River, Wisconsin

The Menomonee River serves here as the border between Wisconsin and Michigan. This site is a busy spot for local paddlers and whitewater guide services that offer trips down the river. Before the Menomonee River was dammed at this spot, Little Quinnessec Falls was a small waterfall. The existing dam now has a net head of approximately 67 feet.

The kayak and whitewater raft put-in is located about 1/8 mile downstream of the dam on the Wisconsin side. While there is no built launch structure, the area is designed to accommodate portaging. Restrooms, an asphalt path, and a parking area (with an overlook about 20' feet above the river) have also been installed. The portage trail, which is 10' to 12' wide, is composed of natural ground cover with wood chips added to reinforce problem areas. Its slope is steep, so the path curves to gradually reduce the grade. The asphalt path leading from the parking area to the river is 6' wide and has a slope of about 12%, which is the lowest grade that could be constructed at this site in attempt to meet ADA accessibility standards.

The access site has a medium size layer of fractured rock rip-rap from a local quarry and edges are protected with rip-rap and filter fabric, an impermeable mesh material that prevents both runoff and sediment from passing through. Smaller “pea gravel” rocks abut the asphalt path so that barefoot paddlers do not cut their feet

The shoreline adjacent to the put-in, which extends further into the river, protects the access area from direct flows coming from the hydroelectric plant. However, since the put-in sits immediately downstream of the dam, it can be inundated during periods of heavy rains or with dam releases, when water exceeds the normal range of river flows. Water below the dam can rise to about six feet in the area of the put-in, which can submerge the lower third of the asphalt path for short periods of time each year.

Photo 10A: Little Quinnessec Falls portage trail, made of natural ground cover with wood chips



Photo courtesy of Mark Anderson
Consolidated Water Power Company

Diagram 10A: Blueprint for Little Quinnesec Falls View of canoe launch area and portage trail

Blueprint courtesy of Mark Anderson, Consolidated Water Power Company

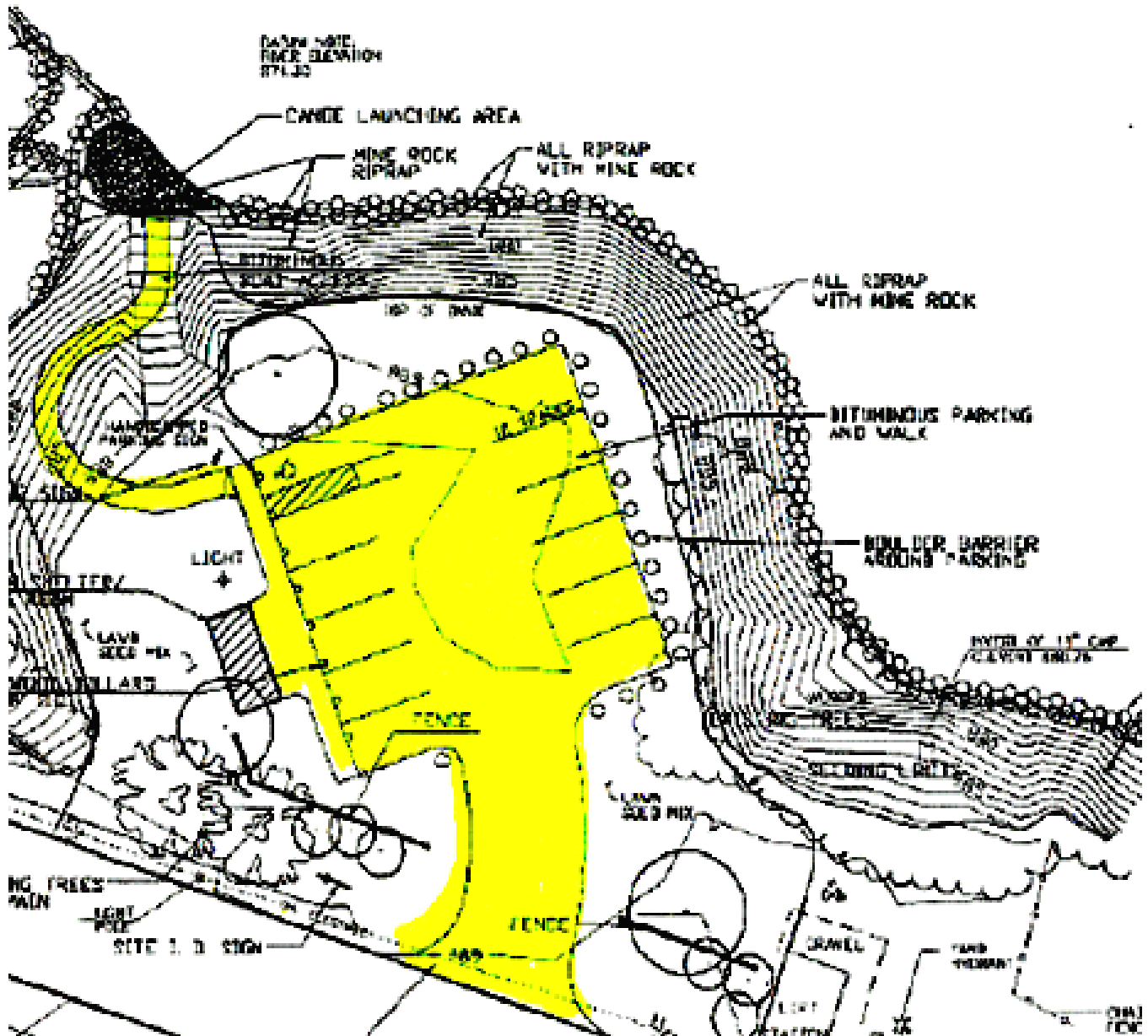


Photo 10B, 10C: Asphalt path leading to launch area below Little Quinnessec Falls Dam



Photo 10D: Little Quinnessec Falls launch area, reinforced with fractured rock riprap



All photos courtesy of Mark Anderson
Consolidated Water Power Company

2) **Pejepscot River Access, Androscoggin River, Lisbon Falls-Brunswick, Maine**

One of the largest rivers in Maine, the Androscoggin hosts 28 dams along its 170 river miles. Not all of the dams have navigable routes around them; some require excessively long portages or do not provide access at all. Other dams have portage trails that provide access both upstream and downstream. Most portage trails are marked with signs, however dam warnings are not easily visible on all sections of the river.

The Pejepscot River Access, downstream of Lisbon Falls, offers a solution to launching from a steep, rocky, and unstable shoreline where boulders, rock fragments, and fallen tree limbs make river access a challenge. Take-out occurs just above the dam, and a short portage through the woods connects paddlers with access just below the dam. A metal staircase, with a handrail on one side and a carpet-covered wooden slide on the other, enables paddlers to easily maneuver their boats down to the water. The carpet provides traction and helps to protect boat bottoms from damage. The staircase leads to a rocky, but sturdy and level launch area at the water's edge.



Photo courtesy of Julie Isbill

Photo 10E: Metal staircase with boat slide facilitates river access from a steep, rocky shoreline



Photo 10F: Detail of metal staircase, wooden boat slide, and handrail



Photo 10G: View of launch area from top of staircase

Photos courtesy of Julie Isbill



Photo courtesy of Julie Isbill

Photo 10H: Signage identifies portage trail on the Androscoggin River

- 3) Boat slide, portage to White Salmon River, Washington



Photo courtesy of Thomas O'Keefe

Photo 10I: Parallel metal bars serve as a boatslide while designating the portage trail

4) **Low-head dam, Arkansas River, Salida, Colorado**

Problem: A six-foot, low-head dam posed danger to paddlers and prevented upstream passage.

Solution: A chute was created on the river, just east of the dam. The six-foot drop was leveled into three separate two-foot drops, creating a navigable whitewater hole and enabling fish to travel upstream. Pad-



Photo 10J: Low-head dam poses an obstacle to paddlers



Photo 10K: Whitewater chute, installed just east of dam, offers paddlers rapids on three 2' drops

Photos by Caroline Wolf

5) Niobrara River, Nebraska



Photo by Tim Palmer

Photo 10L: Take-out is situated in dangerous proximity to the dam