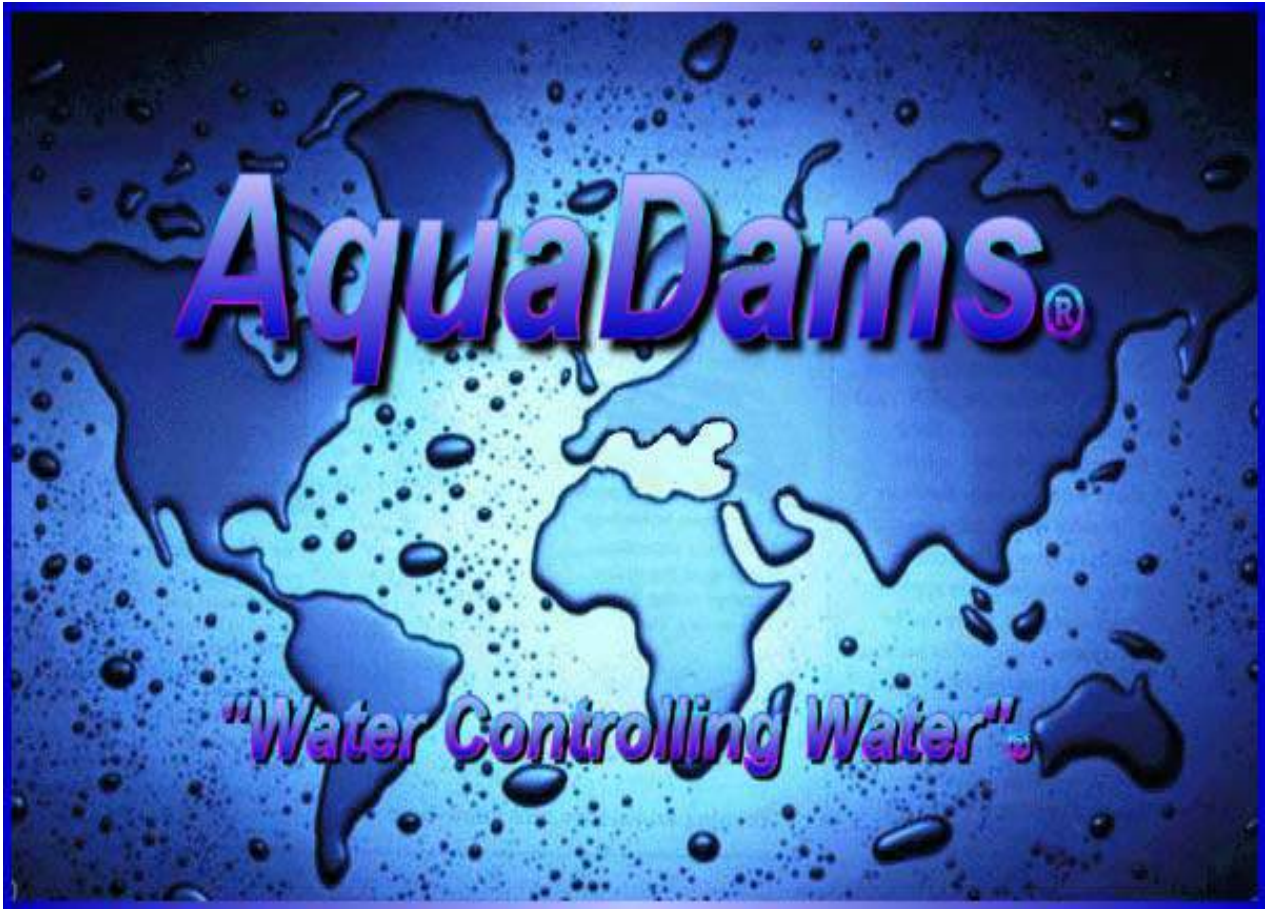


AquaDam Applications

(Includes Material Specifications)



Water Filled Cofferdams

LOW-IMPACT, ENVIRONMENTALLY FRIENDLY WATER FILLED COFFERDAMS FOR WATER DIVERSIONS, DEWATERING, FLOOD CONTROL, REMEDIATION, HAZ-MAT CONTAINMENT, AND WATER STORAGE

Aqua Dam, Inc.® AquaDams® are water filled barriers that can be used as dams or cofferdams for stream diversions and dewatering boat ramps, boat docks, and pond liners for repairs. Also excellent for flood protection, they are more effective than sandbags and other water control devices.

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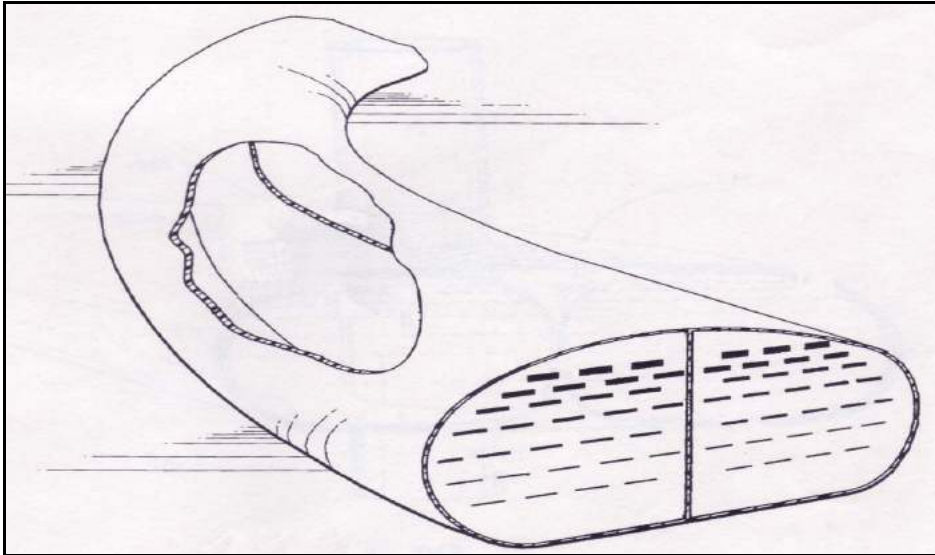
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THE CONCEPT:

AquaDams® are portable dams filled with onsite water that can be installed wherever needed to control, contain, or divert the flow of water. AquaDams® consist of two basic components: two watertight inner polyethylene tubes which contain the water, and an outer or "master tube" made of a heavy duty geotextile woven polypropylene which holds the two inner tubes in contact when filled. The outer and inner tubes combine to form an AquaDam. This picture shows a cut away section illustrating the relationship between the inner and outer tubes of a typical filled AquaDam®.



To inflate an AquaDam®, water is pumped into the two inner tubes. The durable woven outer tube confines the water-inflated inner tubes and prevents them from moving away from each other. The counter friction / hydraulic pressure between the inner tube and the outer tube, along with the mass and weight of the water, creates pressure and stabilizes the AquaDam®, even when lateral water pressure is exerted against it. Due to the inherent flexibility of the materials used in their construction, AquaDams® will conform to most surfaces, providing an excellent seal and keeping water seepage to a minimum.

AquaDams® come in a variety of sizes, ranging from 1 to 16 feet in height when inflated. AquaDams® come in standard lengths of 50 or 100 feet, and these are available for immediate shipment. However, any length can be fabricated, and shorter, longer, or irregular lengths are available with notice. Using attachment collars, two or more AquaDams® can be joined together to form a continuous dam of any necessary length. AquaDams® are joined together by a patented coupling collar connection (standard with each AquaDam®). Large and small AquaDams® can be used in conjunction with each other, making the possible configurations almost endless. They can be used in a straight line, to form an arc, or to encircle an area. AquaDams® can also be connected at angles to each other, as necessitated by the job requirements. AquaDams® are usually assembled at the factory and shipped rolled and ready for use at the job site. However, it is not unusual to assemble larger AquaDams® on site. A typical AquaDam® consists of the "master tube" and a pair of inner tubes rolled up on a wooden or metal core. In many instances, the core also plays an important part in the installation, rerolling, and transportation of AquaDams®.

COMMON APPLICATIONS:

- | | |
|---|--|
| <ul style="list-style-type: none">• Cofferdams for dewatering construction sites• Water diversion in rivers and wetlands• Water containment• Flood control• Erosion control through diversion or containment of flowing water• Water storage• Boat ramp dewatering• Pond liner repair dewatering• Bridge pier repair• Pipeline crossings | <ul style="list-style-type: none">• Water intake structures for municipalities• Water discharge structures• Fish habitat improvement• Silt containment, sediment collection, or settling ponds• Levees, levee toppings• Hazardous material or chemical spills (containment)• Temporary foot causeway through environmentally sensitive areas• Wetlands management |
|---|--|

The old ways of earthen fill discharges and expensive sheet piling have been the historic ways of working in waterways. These methods are environmentally detrimental, time consuming, and expensive because of their reliance on heavy equipment.

Water filled cofferdams make the ideal water control structure for construction sites. Onsite water is pumped into an AquaDam®, which unrolls due to the water pressure inside it and can be installed in hours in most applications, without causing damage to the aquatic environment. Complete dewatering of the work site can be achieved to form and pour concrete, remove sediments, and install geotextiles.

When used for flood control and augmenting levees, for example, AquaDams® are much more effective than sandbags. They can be installed far quicker, at a fraction of the cost, without all the foot traffic associated with labor-intensive sandbagging, and best of all AquaDams® are reusable.

The amount of water that can be stored in a standard 4 foot AquaDam®, with a width of 10 feet and a length of 100 feet (filled to capacity), is about 25,000 gallons. AquaDams® are durable, long lasting, and with proper installation and removal can be stored and used again and again. Should an inner tube develop a leak, patching tape is available. If necessary, replacement tubes are available from Aqua Dam Inc.®. AquaDams® are relatively easy to install, requiring only a couple of portable pumps, an onsite water supply, and two or more laborers depending on the size of the AquaDam®.

FLOOD CONTROL:



3' high AquaDams® being used for homeowner flood protection in Clear Lake, CA.



3' high

AquaDams® used to protect a home from floodwaters in Sun Valley, ID.

FLOOD CONTROL (CONT.):



4' high AquaDams® used for flood protection of the Skylark Hotel in Clear Lake, CA.



More 3' and 4' high AquaDams® used for flood protection in Sun Valley, ID.



BOAT RAMP CONSTRUCTION & REPAIR:



16' high AquaDam® at Little Creek Naval Amphibious Base, Norfolk, VA



6' high AquaDam® in Lake Havasu, CA, along the Colorado River.

BOAT RAMP CONSTRUCTION & REPAIR (CONT.):



12' high AquaDam® in Chattanooga, TN, along the Tennessee River.



AquaDams®, used to dewater for boat ramp repair on Lake Erie, OH.



AquaDams® used to dewater for boat ramp construction on Gold Lake, CA.



high AquaDam® used for boat ramp construction in Bullhead City, CA.

9'

BRIDGE / PIER / CANAL / FOOTINGS:



14' high AquaDam® used to dewater a tidal canal in Fremont, CA.



AquaDams® used to dewater a canal bank on the Salt River Project, Phoenix, AZ.



8' high AquaDam® used to isolate a work area for pier construction in Philadelphia, PA.

BRIDGE / PIER / CANAL / FOOTINGS (CONT.):



Several 6' high AquaDams® used to dewater a bridge pier for retrofitting in Bear Creek, Medford, OR.



8' and 5' high AquaDams®, used to dewater a canal for pump station repair, Antioch, CA.



8' and 4' high AquaDams® used to dewater for "open cut" pipeline repair in Parker, AZ.



10' high AquaDam® used to dewater for bridge pier construction, Sacramento, California.

PIPELINE CROSSINGS:



8', 6' and 4' high AquaDams® used to contain sediments during a Williams Transco natural gas pipeline repair project on the Bogue Chitto River, McComb, Mississippi.



4' high AquaDam® in Eureka, CA



AquaDam® blocks canal in Denver, CO



Natural gas pipeline crossings in Alberta, Canada and Ft. St. John, B.C.

PIPELINE CROSSINGS (CONT.):



4' high AquaDams® were used upstream and downstream of this trench to contain sediments during a Williams Transco gas pipeline installation in Pine Creek, Williamsport, PA.



1.5' high AquaDams® in Oakland, CA.



6' high AquaDams in the Pitt River, CA. The river passed through the pipes.



8' and 6' high AquaDams® abut into the sides of a flume near Grand Forks, BC.

STREAM DIVERSIONS:



5' high AquaDam® used to divert water for installation of an irrigation check dam in Apple Creek, OR.



Mad River, Arcata, CA.



Eagle River, Vail, CO



Fish habitat construction on the Eel River, Redcrest, CA.

POND LINER REPAIR:



6', 4' & 1.5' high AquaDams® near Kingman, AZ.



1,300 linear feet of AquaDams® in an arsenic pond, Northern WA.



Nevada Cogeneration Associates Power Plant #1

REMEDATION / HAZARDOUS MATERIALS (HAZ-MAT):



AquaDam® being used to isolate the Vermilion River from contaminants, Pontiac, IL.



Containing a chemical spill on the Columbia River, The Dalles, OR



AquaDams® at an oil refinery in Martinez, CA.



7' high AquaDam® used to split a sanitation pond in Yolo County, CA.

WATER STORAGE:



4' and 5' high AquaDams® used for salt water storage during cleaning and renovation of Shamu the killer whale's tank at Sea World Ohio.



This AquaDam® has been used to convert a flatbed trailer into an instant water tank.



Another picture from Sea World Ohio.



6' high AquaDam® used to store low-level radioactive water for Westinghouse in Northern PA.

WETLAND RESTORATION / CONSTRUCTION PROJECTS:



4' high AquaDams® used to separate the Upper Truckee River from newly created wetlands to prevent erosion into Lake Tahoe, Lake Tahoe Keys, CA.



Low tide



High tide

4' high AquaDams® isolate a dredge spoil area from tidal flow to protect newly planted aquatic vegetation near Kingman Lake, Anacostia River, District of Columbia.



Years later, vegetation at Kingman Lake



Wetland construction, Great Salt Lake, UT

LAKE RESTORATION / CONSTRUCTION PROJECTS:



A combination of 8' and 14' high AquaDams® used to isolate and dewater one section of a lake separating two building complexes at the Broadmoor Hotel, Colorado Springs, CO



Woodlawn Lake, San Antonio, TX



Kissena Lake, Queens, NY



Dewatering for amphitheatre construction, Foster City, CA.

RECREATIONAL USE:



A 6' high AquaDam® installed for recreational use in Ruth Lake, CA.



The end of this AquaDam® was covered with slick plastic to create a giant slip-and-slide.



A 5' high AquaDam® installed in Larabie Creek, CA to contain water for a swimming hole.

AquaDam® Material Specifications

Inflated Dimensions	Specifications of Inner & Outer Tubes	Capacity in Gallons (per 100 ft.)	Empty Weight (per 100 ft.)
1' H x 2' W	10 mil polyethylene inside tubes LP300* woven outer tube	1,200	75 lbs.
1.5' H x 3' W	10 mil polyethylene inside tubes LP300* woven outer tube	2,500	95 lbs.
2' H x 4' W	10 mil polyethylene inside tubes LP300* woven outer tube	5,500	120 lbs.
3' H x 7' W	12 mil polyethylene inside tubes LP300* woven outer tube	12,000	250 lbs.
4' H x 10' W	12 mil polyethylene inside tubes LP300* woven outer tube	24,000	425 lbs.
5' H x 13' W	12 mil polyethylene inside tubes LP300* woven outer tube	30,000	500 lbs.
6' H x 15' W	12 mil polyethylene inside tubes LP300* woven outer tube	40,000	850 lbs.
8' H x 19' W	14 mil polyethylene inside tubes Doubled LP300* woven outer tube	50,000	1,300 lbs.
10' H 24' W**	Doubled 8 mil polyethylene inside tubes 2-ply LP300* woven outer tube	80,000	4,000 lbs.
12' H 20' W**	Doubled 8 mil polyethylene inside tubes LP300* woven inner tube Doubled 2-ply LP300* woven outer tube	90,000	5,000 lbs.
16' H x 28' W**	30 mil vinyl inside tubes LP300* woven inner tube Doubled 2-ply LP300* woven outer tube	125,000	8,000 lbs

Many different materials could have been used in the construction of the Aquadam but extruded film tubing was chosen for its superior strength, light weight, ease of manufacturing, and most importantly it contained NO WELDED SEAMS! This alone makes it the ideal tubing chosen to contain water. The inside tubing can be completely replaced to make your Aquadam new again. Replacement tubes cost 20% of the AquaDam's retail purchase price. This includes our services to do it for you. Freight charges may apply. You can also repair small holes by using butyl tape.

*LP 300 is a woven polypropylene fabric used in high survivability separation applications, supplied by Layfield Plastic, Inc. Equivalent products are also made by Linq Industrial Fabrics, Inc. (GTF-300) and by T C Marafi (Marafi 600-X). **NOTE: 1 gallon of water weighs 8.33 lbs!**

**The 8' and higher AquaDams are made from 70" plus laid flat width panels of 6.5 oz. circular woven material. Panel edges are overlapped and then triple-stitched together using an overlapping seam for maximum strength. This provides for a 4-ply seam running around the tube (these are called ribs). The material is folded over and then seamed laterally to form a tube. This lateral seam is reinforced by sewing in 3" wide heavy-duty seat belt strapping material on each side of the seam to give it added strength and durability. There are a total of 6 seams, three in one direction and three in the opposite direction. One of the triple-stitch seams uses high-tensile strength Kevlar thread. This makes an excellent 2-ply tube for the added pressures of these large water-filled cofferdams. For AquaDams 12' high and larger we use two 2-ply tubes, giving them a total of 4-ply thickness.