water problems? use a portable dredge

by JOSEPH P. MC BRIDE

The Chick Evans GC used a portable dredge to increase their water storage capacity, reduce chances of flooding, eradicate weeds and eliminate stagnation

A new tool for cleaning small lakes reservoirs and streams has greatly improved the appearance of one of our district's golf courses, the Chick Evans GC, Morton Grove, Ill.

Working where other equipment could not, a small, portable, shallow-draft dredge provided such benefits as increasing the course's water storage capacity, reducing the chances of flooding, eradicating weeds, and eliminating stagnation and odor.

The project, contracted with Mobile Dredging and Pumping Div. of National Power Rodding Corp., Chicago, involved cleaning and deepening a 1½-acre riverbed reservoir on the golf course. Not only did Mobile Dredging's small, trailer-transported, eight-inch dredge complete the 150 by 500-foot job quickly, but its use eliminated much of the ground destruction and all the highway spillage problems common to dragline excavation and truck hauling.

Pumping out 2,600 cubic yards of silt restored the reservoir to its original five-foot depth, thereby creating ample water supply to keep the golf course green even during extreme droughts. Cost for the entire job totaled just under $23,000.

In studying the basic problem, water supply, Forest Preserve District engineers recorded an average flow of the river of six to seven cubic feet per second. In July and August, however, almost annually, the flow dropped to a seven day average of two cubic feet per second and sometimes to only 0.7 cubic feet per second. Other ways studied proved too expensive, so, dredging the lagoon or reservoir area back to its original depth behind its low sheet-piling dam was the only reasonable alternative.

The area was also an eyesore. Once a clean, free-flowing body of water it now resembled a mud flat. Ugly weeds thrived in water only 12 to 22 inches deep. Lily pads covered the water.

Although dredging won't overcome pollution, it can eliminate many of the effects of pollution:

☐ Weeds, muck and slime are removed, and water moves freely;

☐ Algae diminishes;

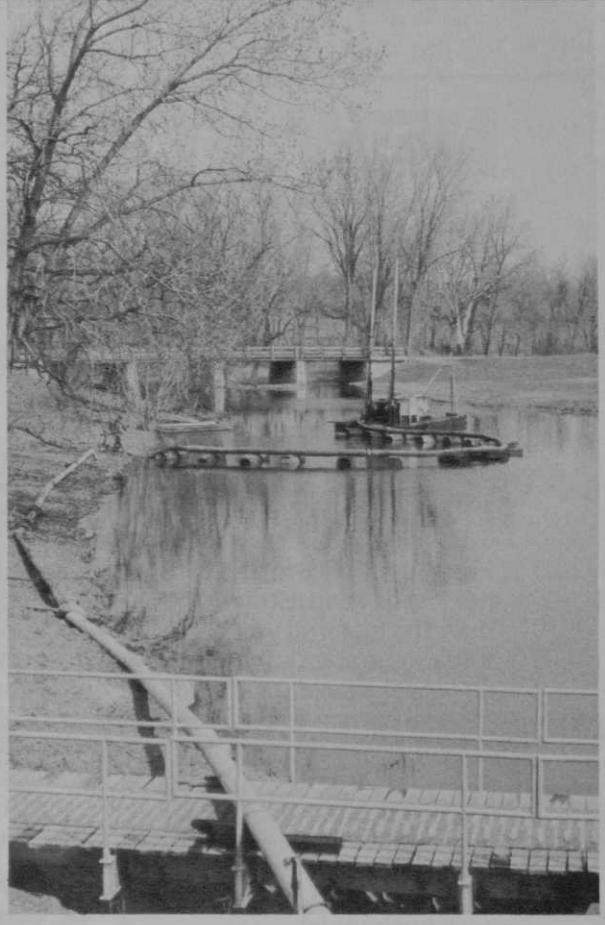
☐ Odors caused by decaying material are reduced;

☐ Mosquitos lose their breeding grounds.

Dredging the lagoon not only solved a pollution problem, it improved the appearance of the area to the golfers and the public. We also now have an assured supply of 300,000 gallons of water a day for golf course irrigation. About 150,000 gallons are used each night with no problem, and flood conditions are completely unaffected.

In the case of this golf course, dredging provided another major advantage—very little disruption to the grounds. Fairways were left untouched for the most part. No ugly mud roads were needed to move the dredge and supporting equipment in and out. The transport path was only 12 feet wide. The path, quickly reseeded and landscaped after the job was finished, was not noticeable. Moreover, material disposal was simple.

Mobile Dredging's method of pumping the material out by pipe and placing it in low areas adjacent to the river preserved the surrounding landscape. Our engineers also felt that pumping the hydraulic fill



The portable dredge lies in the 1½-acre reservoir (top left). Cutting in a semi-circle, the dredge took out 2,600 cubic yards of silt and weeds working in as little as two feet of water (top center). Over 1,500 feet of pipe was used to carry the discharge material (top right).

material next to the river would not affect the flood retention capacity of the area. Deposits from this hydraulic dredging method, already well distributed when dumped, leveled out even further than they anticipated and filled only those low spots that normally hold water or are flooded during the initial part of a storm when the river is still within its banks, and did not really provide the flood storage or retention space. This method of filling spreads material only a few inches deep over a very large area, in this case, over 10 acres, so it is hardly noticeable.

Dredging requires specialized equipment and qualified personnel. It's both cheaper and simpler to contract the job to experts than to try to do it yourself. We put the job on public bid and awarded the contract to Mobile Dredging.

Their equipment included a hydraulic dredge of the proper size and portability to handle this small, shallow lagoon. The particular unit used, an eight-inch dredge, is able to float in two feet of water.

The job began with the arrival of the dredge, disassembled, in four trailer loads. A 40-ton mobile crane hired locally unloaded the trailers and helped the contractor's three-man crew assemble the 25 by eight-foot hull, pontoons, ladder and cutterhead on the ground. Equipment preparation took one day. The crane then lifted the entire dredge and launched it in the water.

Crews laid seven-inch aluminum pipe on flats and land blocks from the lagoon to the spoil area where we would dump the silt. Two swing lines were attached from the ladder to the shore to control semi-circular cuts, and the dredge moved into position in the water.

Work began with the operator lowering the suction pipe-cutterhead assembly into the silt. The cutter turns slowly, breaking up the deposits and homogenizing the material with water to create a pumpable mix. Power from the rig's main diesel engine moved the silt up through the suction head pump into the discharge pipe, where it went to spoil areas. Guided by a depth rod at the end of the rig's ladder, the operator raised the cutter to follow the natural bankside slope of the riverbed to avoid creating sharp dropoffs and prevent the sides from caving in. Production in a day ranged from 125 to 175 yards of material.

When the job was completed, the dredge was brought close to shore to be lifted out by the same crane that launched it. All gear, including pipe, was then disassembled and trailer-loaded. The job was completed by a local landscape contractor, who leveled and reseeded the small crane work area and re-installed cyclone fencing.

In 30 days the dredging crew was in and out and the entire job was done.

This project was so successful that we are considering dredging out some of our 70 other lakes and sloughs which range in size from one-half to 175 acres. Lakes scheduled for rehabilitation through dredging fall in the five to 30-acre range. Their current three-foot maximum depth will be excavated to 10 feet. □

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