

SECTION X
SPECIAL PROBLEMS

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10-01 SEWAGE TREATMENT SYSTEMS - COLES CREEK AND BOULDER

The existing Coles Creek Sewage Treatment Plant is being replaced with a land treatment system. Replacement was recommended in a 1990 Letter Report, Carlyle Lake, Wastewater Feasibility Study. The purpose of the study was to examine alternative wastewater treatment systems that would comply with water quality standards and reduce treatment costs, as well as reduce operation and maintenance costs. The existing sewage treatment plant required a National Pollutant Discharge Elimination System (NPDES) permit from the Illinois Environmental Protection Agency (IEPA). The permit identifies effluent contamination limitations, monitoring, and reporting requirements that must be met by the treatment systems and plant operators. Since the promulgation of the NPDES permit, IEPA has made numerous revisions resulting in more stringent treatment requirements. Consequently, costly upgrades to the existing treatment facility would have been necessary, in order to comply. The 1990 study concluded that the wastewater land treatment system, is a favorable treatment to implement because these systems meet engineering, water quality and cost objectives. An IEPA Water Pollution Control Permit to construct and operate was issued February 23, 1996 (Permit No.: 1996-GA-0246). Construction is scheduled for completion in June 1997.

The letter report mentioned above recommended that the Boulder Sewage Treatment Plant be eliminated and that wastewater from the Boulder Recreation Area be hauled via septic truck to the Land Treatment System at Coles Creek. Since 1990, the wastewater flows experienced at the Boulder sewage treatment plant have increased four-fold. In addition, Clinton County imposes additional fees on trucks hauling over their roads. Considering both of these factors, the feasibility of hauling wastewater from Boulder to the land treatment system was questioned and a Wastewater Feasibility Study for the Boulder Recreation Area which considered both of the above factors was completed in December of 1995. Other alternatives examined were a land treatment system, piping the wastewater to the Coles Creek Land Treatment System and hauling the wastewater to the Coles Creek Land Treatment System. The recommendation of the study was in-kind replacement of the existing sewage treatment plant because it has the lowest total project cost for a 50 year design life. In addition, no real estate acquisition will be required and design and construction could proceed quickly. With a 15 year design life, the packaged sewage treatment plant will require replacement 3 times, over a 50 year period. Construction will begin in FY 97 or FY 98.

10-02 ADMINISTRATION AND MAINTENANCE FACILITIES

The existing office facilities at Carlyle Lake consist of an administration building, a trailer, a converted portion of an old maintenance/garage building and a smaller, older prefabricated structure referred to as a necessary building. The administration building was constructed in 1962 as a resident engineer's office and has since served as a permanent administration office for the lake management staff. The original office building was, in recent years, supplemented with a rehabilitated trailer and a rehabilitated portion of the old maintenance/garage building. The necessary building has served as a lunch room, change area and impromptu meeting room.

The existing office facilities are inadequate as a project headquarters. Over the years a number of changes have been made to the facilities in an attempt to accommodate the changing functions and responsibilities of the lake

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management staff. Nevertheless, the complex is deficient as the lake headquarters because of inadequate office space for staff, inefficiencies regarding staff meeting together or with the public, lack of a conference area, inaccessibility for persons with disabilities, inefficient utility systems, inefficient heating/cooling systems, leaky roofs and windows, inadequate insulation and a termite problem. The plan proposes that the administration office headquarters at Carlyle Lake, which now consists of four separate structures, be consolidated into one building. A special report on the replacement of the Carlyle Lake administration building is located in Appendix III.

The replacement building will be administratively and economically efficient, meet current accessibility standards and plumbing and electrical codes. The design will be consistent with the aesthetic qualities of the project area.

10-03 PUMP STATIONS

The Keyesport Levee and Saddle Dams 2 & 3 prevent flood waters from inundating adjacent lands bordering Carlyle Lake. A system of electrical pumps are required at each structure to move impounded water into the lake. These pumps require manual activation and when in operation must be continually monitored by lake personnel. During times of heavy precipitation and run-off, these pumps require 24 hour monitoring, resulting in high operation costs.

A major problem with these pumps is the expense of their operation and maintenance. A study to determine methods to reduce pumping time and increase efficiency will be completed in FY-97. Options which will be analyzed are as follows: 1) reduce electrical cost and eliminate pumping (diversion of water to another watershed) 2) automated pump operation 3) improved forecasting and monitoring. After completion of the study, steps will be taken to initiate recommendations to improve efficiency and reduce operations and maintenance costs of the three pump stations.

10-04 HIGH WATER AND LOW ELEVATION OF FACILITIES

Carlyle Lake fluctuates throughout each year, depending on rainfall and water control operations. During periods when the lake is above 450.0 referenced to the National Geodetic Vertical Datum (NGVD), public use of many of the lake's recreation facilities including boat ramps, campgrounds and day use areas is severely restricted or closed entirely. With the loss of these recreational facilities for an extended time, a significant negative economic impact may be experienced. A great number of customer complaints were received after recent high water events that led Congress to direct the Corps to conduct an economic study in FY-96 to gather baseline economic information. The study examined economic losses which occur at various pool elevations, upstream, and at various flow rates, downstream. A model was developed that will be used in making future decisions when a deviation from the Master Reservoir Regulation Manual is necessary.

The Carlyle Lake Maintenance and Repair Plan, outlines flood repair projects which will allow more facilities to be functional at pool elevations between 450.0 NGVD and 455.0 NGVD, which will reduce the negative impacts to users and the local economy.

The plan proposes renovation of the Coles Creek Recreation Area, including shoreline revetment, raising low areas of roads within the recreation area, relocating low campsites to a higher location, replacing

campground electrical to allow for the electrical shutoff on specific campsites based on elevation, and constructing impact sites for easier cleanup on sites which may become inundated. Other repairs include repairing damaged campsites in the Boulder Recreation Area and constructing impact sites adjacent to those sites which become inundated, replacing campground electrical to allow for electrical shutoff on specific campsites based on elevation in the Boulder and Dam West Campground, rebuilding eroding campsites and reveting a portion of the shoreline in the Dam West Campground, and completing repairs/revetment to numerous areas around the lake where erosion has occurred. Also proposed is the repair and heightening of the Keyesport Marina breakwater to provide additional protection to the marina harbor during future high water events.

Carlyle Sailing Association is essentially unusable at 450 NGVD because the electrically operated jib cranes used for boat launching are under water. The high water projects (up to 455 NGVD) consist of riprapping along a portion of Peppenhorst Branch to preserve the harbor closure and delay harbor silting, providing a rock road to a high water ramp for cabin boats, regrading and elevating the catamaran field to permit use up to 455 NGVD, installing a new two-ton jib crane, waterproofing the electrical system of existing cranes for one-design boats, and adding a parking area for boat trailers.

Currently, there are only two high water boat launching ramps which are usable when the pool elevation exceeds 450 NGVD. These are located at the Horseshoe Island Access which is north of Keyesport and in the Dam East Recreation Area. The existing high water ramps are not large enough to handle the large volume of users when the other ramps are out of service. Additional high water accesses are in demand by our customers and are also needed for lake management operations, to reduce congestion of the existing high water facilities and to eliminate the hazard of users attempting to use lower ramps during high water conditions. High water service ramps have been approved for Dam West, Boulder, and Coles Creek Recreation Areas and in Eldon Hazlet State Park at the Apache Boat Ramp. A high water ramp for the Dam East area is proposed in this plan. The ramps will consist of the placement of a concrete slab at a suitable elevation/location adjacent to existing parking/roadway infrastructure. Each of the service ramps will be usable when the pool elevation is above 450 NGVD and below 455 NGVD. These are not considered new ramps, but will permit continued boater access to the lake during times of high lake elevations.

10-05 FISHERIES

At Carlyle Lake, more visitors participate in fishing than in any other activity and maintaining a good fishery is essential. However, the lake has few coves and there is limited habitat to support the natural reproduction of largemouth bass and other game fish. At times, water level management causes fluctuating pool levels that may prevent a successful spawn. The combination of limited spawning sites and fluctuating water levels at spawning time necessitates the addition of fish to maintain the Carlyle Lake fishery. The proposed solution is to stock the lake from local rearing ponds.

The Illinois Department of Natural Resources (IDNR) and the U.S. Army Corps of Engineers recognize the need for an intervention strategy to enhance the fish population. The IDNR is developing a complex of three nursery ponds, totaling 30 acres, in Eldon Hazlet State Park to address fish management needs in Carlyle Lake. Included in the construction project is a raw water intake in Carlyle Lake, a screen to remove contaminating fish, a water distribution and drainage system, and harvest facilities. The project is slated for completion in 1997, with the first crops of fish to be reared in 1998.

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Five-inch largemouth bass fingerlings will be the primary species reared. Double-cropping in one pond may allow additional production of two inch fingerlings of white crappie or hybrid striped bass or walleye. Fish will be reared extensively; that is, on a diet of zooplankton, followed by forage minnows (in the case of the largemouth bass).

The IDNR will seek monies to mark fingerlings and to evaluate stocking success and the cost versus benefit of stocking various sizes of largemouth bass.

10-06 ARCHAEOLOGICAL AND HISTORICAL RESOURCES

Shoreline erosion represents a problem in managing archaeological and historical resources. As discussed in SECTION III, paragraph 3-02, a cultural resource management plan has been established to enhance identification, evaluation and management of these resources. In part, the plan is designed to address and provide for solutions to this management problem area.

10-07 SHORELINE EROSION

The lake level is expected to exceed elevation 450 NGVD approximately 10 percent of the time based on analysis of pool elevations from 1968 to 1996. The maximum pool elevation to date is 457.4 feet NGVD. During periods of high water, serious erosion has occurred as a result of wave action.

Shoreline erosion at Carlyle Lake is caused by a combination of factors: high water, normal and occasional high winds and glacial clay till soils that are eroded easily by wave action. With the lake at or above 450 feet NGVD and wind fetch reaches of up to 8 miles, wave action has caused severe bank caving and erosion on both fee and easement lands.

Authorization was granted in 1973 to acquire 26 tracts of easement lands totaling 310 acres due to extensive erosion. In addition, many miles of shoreline were riprapped to help correct the problem.

In 1980, additional shoreline erosion problems were identified and studied. This investigation resulted in a plan that authorized further revetment, and acquisition of eroded easement lands amounting to approximately 39 acres in four different areas. These acquisition areas are North Boulder and South Boulder, Lakeside Camping Area and Lake Villa subdivision.

As a result of further studies and analysis, it was determined that nine additional areas were endangered by continued erosion. In 1989, the District submitted a letter report to LMVD, outlining erosion in these nine areas. In six of these areas, the bank has eroded past the present property boundary. Supplement No. 9 to Real Estate Design Memorandum 3B, approved March of 1991 recommended acquisition of 22 tracts of land, encompassing approximately 60 acres. To date, five tracts have been acquired, 3.79 acres in fee. The primary factors that determined whether to revet, or purchase additional land to correct erosion problems were the extent of the erosion in relationship to the existing fee boundary, and economic feasibility analysis between the two alternatives.

These remedial measures were intended to resolve all future erosion problems for the remainder of the project's life. However, erosion is a problem along the shorelines of the Dam West, Coles Creek, Boulder, and McNair Recreation Areas and the eastern shoreline of Peppenhorst Branch. Bank stabilization will be required in these locations to prevent loss of recreation facilities. An erosion monitoring and stabilization program is

ongoing and future action such as acquisition, and/or revetment, may be still be necessary as addressed in Section 8.

10-8 RECREATION CARRYING CAPACITY

The Dam West Recreation Area regularly reaches its carrying capacity and other recreation areas are expected to reach this capacity within the next five years. As visitation continues to increase and facilities become over used, the problem of land for the location of additional facilities arises. Since developed areas with capitol investment require land above flood pool elevations, virtually no land is available for future development or rotation of Corps managed recreation areas. The affects of this situation have been very noticeable the last several years and are continuing to get worse. In an effort to promote efficient use of developed facilities, dispersement of park visitors to all recreation areas is encouraged through public relations channels.

10-9 DAM WEST RECREATION AREA - FUTURE DAM WEST RECREATION AREA DESIGN

The Dam West Recreation Area receives approximately 40 percent of the total Carlyle Lake visitation. This has resulted in congestion, user conflicts and safety concerns on occasion. Access Road "A" is a through road which runs from the city limits to Co. Highway 20. It is heavily used by beach visitors, boat ramp users, picnickers and sightseers. Conflicts between pedestrians and vehicular traffic arise when picnickers and swimmers who park along Access "A" have to cross this roadway to get to the picnic area and the beach. The lack of control for vehicular access to the Dam West day-use area compounds this problem. Once the boat ramp parking lot is full on weekends it becomes necessary to station a ranger at the boat ramp entrance to direct traffic. The adjacent picnic area and beach can become overcrowded under these circumstances.

The current problems with the Dam West day-use area indicate that the area may need to be re-designed to eliminate user conflicts, create a safer recreation area and allow for better control of vehicular access. Rerouting of through traffic or only allowing one-way traffic in the Dam West Area are two possible alternatives. These alternatives may also aid in the collection of day use fees.

Considering the problems associated with the present design of the day-use recreation area, a bypass road is proposed for future development to the west of the area. A concept plan may be developed in concert with partners in the future.

10-10 RESORT CONCESSION DEVELOPMENT

In the previous Master Plan, South Shore State Park was designated as a site for a future concession resort development. A request for proposals was prepared by the Illinois Department of Natural Resources (IDNR). No interest was shown for that site. However, interest was expressed in the future concession expansion area in the Dam West Recreation Area and it was leased to the IDNR who, in turn, have sub-leased it to the City of Carlyle for resort development. Resort type facilities require less land, minimize the requirements for extensive roads and utilities, and offer a complementary alternative to full-service campsites over large areas.

In 1995, the City of Carlyle requested proposals for resort development in the Dam West area and received three. Developers presented packages that

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included a lodge, recreation facilities and cabins or camping areas. At the present time, the City of Carlyle is still seeking a developer.