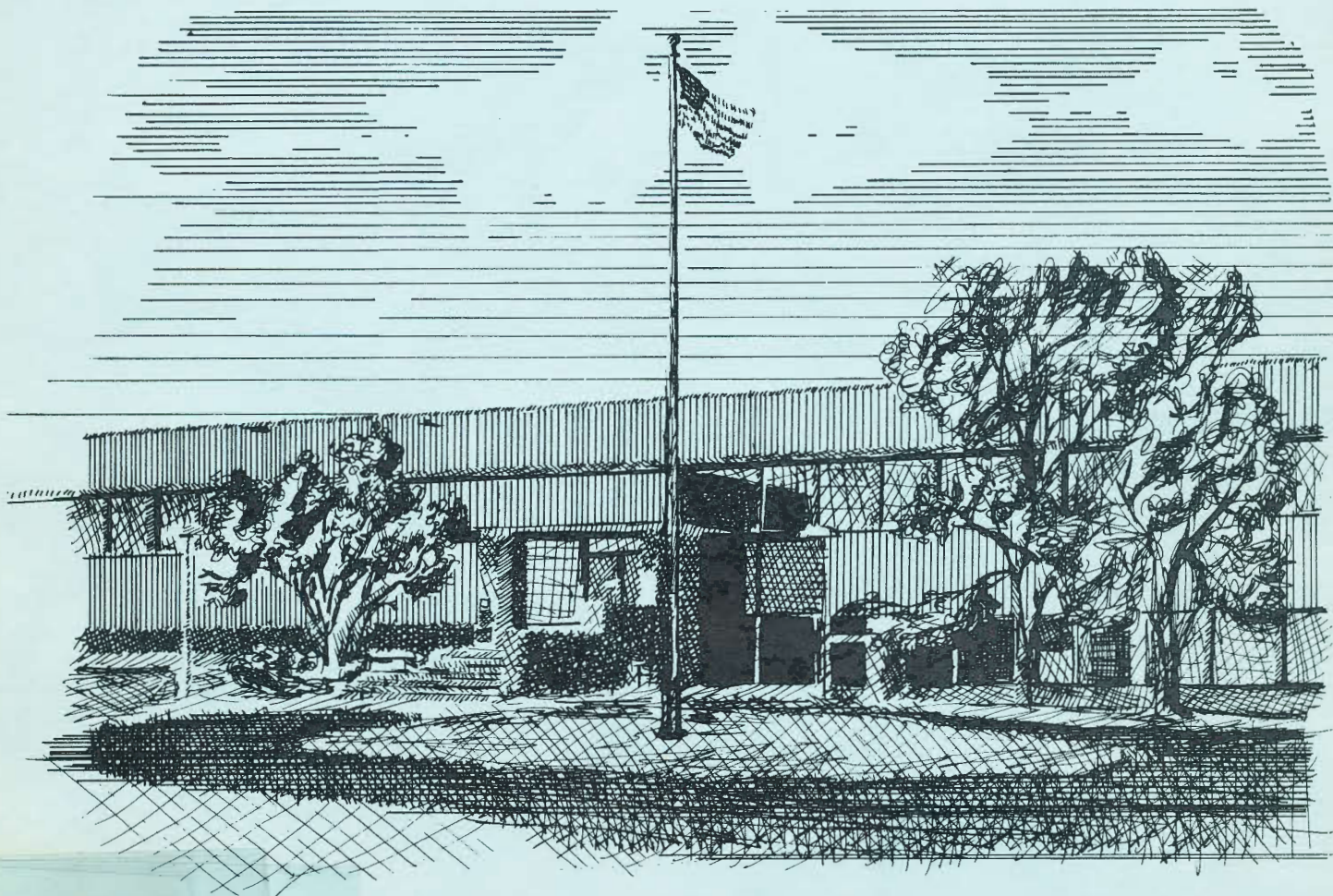


# 1987 ANNUAL REPORT



**GEORGE W. KUHN**  
DRAIN COMMISSIONER  
OAKLAND COUNTY, MICHIGAN

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**OF THE**  
**OAKLAND COUNTY DRAIN COMMISSIONER**

**OAKLAND COUNTY**

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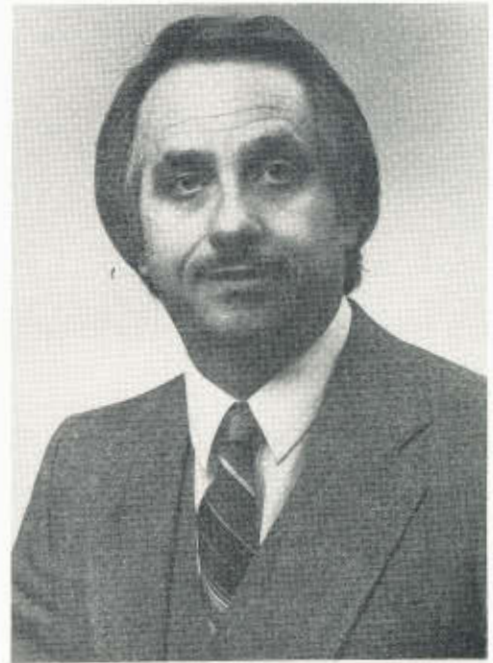
# Oakland County Drainage Board



George W. Kuhn  
*Drain Commissioner*



Roy Rewold  
*Chairman  
Board of Commissioners*



G. William Caddell  
*Chairman  
Finance Committee*



GEORGE W. KUHN  
OAKLAND COUNTY DRAIN COMMISSIONER  
PUBLIC WORKS DRIVE  
PONTIAC, MICHIGAN 48054  
858-0958

ROBERT H. FREDERICKS  
Chief Deputy Commissioner  
858-0970

DAVID J. SNYDER  
Deputy and Chief Engineer  
858-0976

April 1, 1988

Honorable Board of Commissioners  
County of Oakland  
1200 North Telegraph Road  
Pontiac, Michigan 48053

Mr. Chairman, Ladies & Gentlemen:

As required by the Michigan Drain Code, I enclose the Annual Report of the operations of the Drain Commissioner's Office during the period of January 1, 1987 through December 31, 1987.

The drain office continued to experience a significant increase in the number of new projects during 1987. New sewer and water facilities in the City of Auburn Hills, and the construction of two new dams were highlights of the many projects underway during the last year.

I wish to extend my thanks and appreciation to all of the members of the Board of Commissioners for the excellent cooperation and assistance extended to this office during the past year.

Most sincerely,

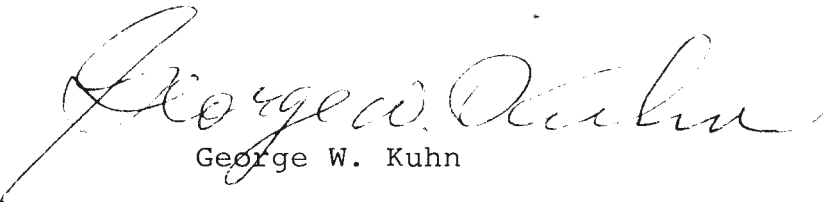
  
George W. Kuhn

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**ENGINEERING UNIT**

## THE COUNTY DRAIN COMMISSIONER

The County Drain Commissioner has broad powers and responsibilities under several state laws. His primary duties are described in the Michigan Drain Code, Act 40 of 1956. Additional powers and duties of the Drain Commissioner derive from the provisions of two public works acts, Act 342 of 1939 and Act 185 of 1957; the Inland Lake Level Control Act, Act 146 of 1961; the Inland Lake Improvement Act, Act 345 of 1966; the Subdivision Control Act, Act 288 of 1967; the Soil Erosion and Sedimentation Control Act, Act 347 of 1972; and various other statutes.

For purposes of organization, the functions of the Drain Commissioner as a part of Oakland County government are delegated to five operating units: Engineering, Right of Way, Inspection, Maintenance and S.O.C.S.D.S. The employees in each of these units perform the multitude of tasks necessary for the office of the County Drain Commissioner to construct and maintain a variety of public works facilities for the use of residents in all parts of Oakland County.

### ENGINEERING UNIT

The staff of engineers and other technical personnel in this unit are responsible for the design and construction of public works facilities of various kinds including storm drains, sanitary sewers, water mains and lake level control structures. The Chief Engineer, David J. Snyder, and the Assistant Chief Engineer, Herold J. Lueders, supervise the engineering functions of the unit. At the end of 1987 there were 17 employees in this unit. The following specific activities are performed in the Engineering Unit.

#### New Project Construction

Engineers and other support personnel administer the construction activity on new storm drains, sanitary sewers, water mains, and lake level control structures. This activity includes close cooperation with local units of government, state and federal agencies, consulting engineers, contractors and other interested parties. A summary of specific projects completed or under construction during 1987 is provided later in this report.

#### Plat Review

Under the provisions of the Subdivision Control Act, Act 288 of 1967, the Drain Commissioner reviews and approves all new subdivision plats in Oakland County. The review by the Drain Commissioner is made to ensure that adequate storm drainage facilities have been included in the engineering plans for the proposed plat. In addition, the Mobile Home Commission Act, Act 419 of 1976, requires the Drain Commissioner to review and approve the outlet drainage for new mobile home developments.



In 1987, 48 preliminary plats, 92 sets of subdivision construction plans, 98 final subdivision plats, and the outlet drainage for one mobile home development were reviewed by the engineering staff of the Drain Commissioner. A total of 23 Oakland County communities were represented in the projects reviewed. The final subdivision plats comprised 161 commercial lots, 4,019 residential lots, and 600 mobile home sites. The Drain Office engineer in charge of plat review is Joseph P. Kozma, P.E.

### Lake Level Program

Under the provisions of Act 146 of 1961, the Drain Commissioner's office participates in legal proceedings to establish and build lake level control structures for lakes in Oakland County.

Oakland County is approximately 30 miles from east to west, and 30 miles from north to south, with an area of approximately 900 square miles. For water management purposes, portions of the County are located within the basins of six rivers, the Clinton, Huron, Rouge, Flint, Shiawassee and Belle Rivers. There are 48 lakes in the County where levels have been established and assigned to the Drain Commissioner for control. The 48 lakes are in four river basins; 31 in the Clinton, 13 in the Huron, two in the Rouge, and two in the Shiawassee.

In some cases the level of more than one lake can be controlled from a single lake level control structure. A summary containing basic information about lakes under the jurisdiction of the Drain Commissioner in Oakland County appears on the two following pages of this report.

George Bondi, Civil Engineer III, was responsible for the lake level program which involves the operation and maintenance of 30 lake level control structures, and six lake level augmentation pumps.

Regular inspection of lake level control structures is made on a weekly basis, or more often as weather conditions may dictate. The level of each lake is read and recorded, and adjustments to the structures are made throughout the year. Every effort is made to maintain the established legal level. Regular inspection also assures that the structures are in good operating condition, and permits scheduled maintenance and repairs when needed.

Special assessment districts were established by the Circuit Court for each project and, as necessary, annual assessment rolls are prepared to reimburse the cost of necessary maintenance expenditures. During 1987, maintenance work was performed on 22 lake level projects, and the Board of Commissioners approved assessments in the amount of \$93,209.15 to assess property for the maintenance costs of 18 Lake Level Control Projects.

**SUMMARY OF OAKLAND COUNTY LAKES  
WITH COURT ESTABLISHED LEGAL LEVELS**

LAKE	AREA (IN ACRES)	YEAR ESTABLISHED	LOCATION	
<u>CLINTON RIVER BASIN</u>				
Lakeville Lake	Lakeville*	492	1961	Addison Twp.
Oxford Multi-Lakes	Mickelson	61	1973	Oxford Twp.
	Squaw	29		
	Clear	32		
	Long	33		
	Cedar	15		
	Tan	58		
	Mill Pond*	2		
Waterford Multi-Lakes	Cemetery	28	1966	Independence & Waterford Twps.
	Dollar*	6		
	Greens	101		
	Maceday	234		
	Lotus	169		
	Lester	22		
	Van Norman*	27		
	Upper Silver	41		
	Silver	108		
	Mohawk	35		
	Wormer	38		
	Schoolhouse	40		
	Loon*	265		
	Williams*	175		
Oakland-Woodhull Lakes	Woodhull	135	1958	Waterford Twp.
	Oakland*	235		
Watkins Lake	Watkins* (pump)	229	1960	Waterford Twp.
Cass Lake	Cass*	1280	1969	Waterford Twp. & Keego Harbor
Orchard Lake	Orchard* (pump)	850	1966	Orchard Lake & West Bloomfield Twp.

LAKE		AREA (IN ACRES)	YEAR ESTABLISHED	LOCATION
<u>CLINTON RIVER BASIN</u> (Continued)				
Indianwood	Indianwood*	122	1986	Orion Twp.
Sylvan-Otter	Otter	81	1986	Waterford Twp., Pontiac, Sylvan Lake & Keego Harbor
	Sylvan	458		
	Dawson Mill Pond*	8		
<u>HURON RIVER BASIN</u>				
Big Lake	Big*	220	1967	Springfield Twp.
White Lake	White* (pump)	540	1965	White Lake & Highland Twps.
Duck Lake	Duck* (pump)	307	1962	Highland Twp.
Pontiac Lake	Pontiac*	615	1944	White Lake Twp.
Oxbow Lake	Oxbow*	286	1963	White Lake Twp.
Cedar Island Lake	Cedar Island*	169	1964	White Lake Twp.
Fox Lake	Fox*	39	1963	Commerce Twp.
Union Lake	Union*	465	1949	Commerce Twp.
Long Lake	Long* (pump)	175	1964	Commerce Twp.
Upper Straits Lake	Upper Straits*	378	1964	West Bloomfield Twp.
Middle & Lower Straits Lake	Middle Straits	194	1963	Commerce Twp.
	Lower Straits* (pump)	220		
Commerce Lake	Commerce*	262	1964	Commerce Twp.
<u>ROUGE RIVER BASIN</u>				
Walled & Shawood Lakes	Shawood	45	1984	Novi & Walled Lake
	Walled*	670		
<u>SHIAWASSEE RIVER BASIN</u>				
Bevins Lake	Bevins*	31	1964	Holly Twp.
Tipsico Lake	Tipsico*	301	1954	Rose Twp.

\*Lake level structure located at the outlet  
of the lakes marked with an asterisk.

## Soil Erosion and Sedimentation Control

The Drain Commissioner's Office is the designated enforcing agency in Oakland County for the Soil Erosion and Sedimentation Control Act, Act 347 of 1972.

In 1987, 788 applications for soil erosion permits were received as compared to 725 received in 1986, an 8.7% increase. The total revenue collected in 1987 from soil erosion permit fees was \$154,426.83 which exceeded the direct payroll cost for the employees assigned to the soil erosion program. The Board of Commissioners authorized three additional inspectors for the soil erosion program for 1988 and also approved an increase in the permit fee schedule to fund the staff increase.

As in the past, the Drain Commissioner continued informal instructional meetings with builders, developers, engineers, architects, and property owners to improve soil erosion mitigation efforts in Oakland County.

Jack Portman was in charge of the Drain Commissioner's Soil Erosion and Sedimentation Control program in 1987 until August when he retired. From that time until the end of the year, Ronald Karttunen, P.E. was in charge of the program.

### Construction Permits

The Drain Commissioner, under provisions of the Drain Code, requires that a permit be obtained before making connections to, or doing work affecting, a County drain. The permit program is under the direction of Robert F. Smith, an Engineering Technician.

During 1987 a total of 86 permits were issued for work items affecting County and Inter-County Drains. The number of permits does not directly reflect the extent of construction or modification of the affected drains. A single permit may involve only a single connection to a drain or many different direct points of connection or other involvements.

In most cases before a permit is issued, two sets of construction plans are submitted for review. Requests for a connection to a drain may be submitted by public agencies, engineering firms, private property owners or contractors retained by others to construct particular facilities. All plans submitted for review must conform to the engineering design standards which have been developed by the Drain Commissioner's office to protect the integrity and usefulness of existing facilities.

At the time of construction of any work for which a permit has been issued, an inspection is made to assure that the job is done properly and in accordance with the approved engineering plans. A fee or fee and deposit is charged to offset the cost of this inspection.

## Review of Lateral Connections to the S.O.C.S.D.S.

All connections into any sewer that is tributary to the Southeastern Oakland County Sewage Disposal System are required to be first reviewed by the Drain Commissioner prior to being submitted to the Michigan Department of Natural Resources.

This review helps protect established Drainage Districts and allows a record to be kept of all facilities outletting into County trunk lines, as well as assuring that proper and approved construction standards are used on new connections.

The Drain Commissioner works closely with local units of government. All plans sent to the Drain Office for review are transmitted through the municipality's engineer or Engineering Department. This is done to assure that sewer lines conform to the local community master plan for sewerage development.

During 1987 the Engineering Unit received and reviewed 27 sets of sanitary and combined sewer plans for facilities that will outlet into the Southeastern Oakland County Sewage Disposal System.

Upon completion of review by Drain Office staff, each set of plans, with the recommendation that a construction permit be issued, is forwarded to the Water Quality Division of the Michigan Department of Natural Resources.

**RIGHT OF WAY UNIT**

## RIGHT OF WAY UNIT

The Oakland County Drain Commissioner employs a trained and experienced staff of six people in this unit supervised by James W. Isaacs, Jr., R.L.S. The primary purpose of this unit is the acquisition of easements for the construction of storm drains, sanitary sewer systems and water supply systems. Necessary easements for these projects are obtained, or purchased in fee from the owner(s). Easements are either permanent (land upon which facilities are located) or temporary (land required for use during construction only). Upon completion of a project, temporary easements revert back to the owner, while permanent easements remain under the control of the County.

The Right of Way staff becomes involved early in the planning stage of projects. It is necessary to accommodate possible route changes, land and soil conditions, landscaping, and the desires of the public. Any or all of these factors may affect the cost of a project. Staff members work closely with the engineer assigned to each project and make recommendations to help control or reduce costs.

Once the route and basic design of a project are determined, easement documents must be prepared to cover the area required for construction. A title search is necessary to determine the legal owners of record and all parties having an interest in the land, i.e., mortgage holders, land contract purchasers, etc. In many cases old records have to be researched, which can be both difficult and time consuming.

The easement description is written by calculating the exact location of the facility which will be constructed on private land. The description must be precise as it will become part of a recorded title document. After the easement documents are prepared, they are assigned to a Right of Way Field Agent who will contact the property owner. All signed easement documents are recorded at the Oakland County Register of Deeds.

In order to obtain an easement, it is often necessary to negotiate an acceptable agreement with the property owner. This process can be slow and difficult. It may be necessary to make several contacts with each owner, or in some cases with multiple owners.

During 1987, approximately 600 easement parcels were title searched, written and appraised by the Right of Way Staff. A total of 284 easement parcels were acquired. In addition to new construction projects, easements for county drains in many new subdivision and condominium projects throughout Oakland County are prepared or reviewed. As an example, West Bloomfield Township alone has 36 new projects in various stages of development.

When an easement cannot be obtained from a property owner, it is necessary to file a condemnation action in Circuit Court under the Uniform Condemnation Act, Act 87 of 1980. Right of Way staff works closely with the Oakland County Corporation Counsel or outside legal counsel in filing a condemnation action. In a condemnation proceeding, the Court awards the requested easement to the County and, with the assistance of expert appraisers, awards the property owners a sum of money deemed to represent the diminution in value to the property caused by the easement. During 1987, there was a significant increase in the number of condemnation actions filed, with 15 parcels in various stages of condemnation.



**INSPECTION UNIT**

## INSPECTION UNIT

The Oakland County Drain Commissioner employs trained inspection personnel to inspect drain, sewer and water projects. During 1987 there were nine employees in the Inspection Unit.

The supervisor of the Inspection Unit is Garie M. Vorpapel who schedules and coordinates all activities of the unit, and provides in-the-field assistance to individual inspectors. During each project assignment the individual inspector reports directly to the engineer responsible for the project.

The inspector insures that each facility is constructed in accordance with the plans and specifications, with particular attention paid to backfill material, proper compaction, and workmanship. Careful observation of the quality and proper placement of construction materials such as pipe, concrete and reinforcing steel in underground lines, pump stations and other structures are also important duties of the inspector.

The Drain Commissioner also strives to maintain good public relations with members of the public affected by the construction of various projects. Necessary services, such as mail delivery and garbage collection, and prompt restoration of access to private property during and after construction are expedited to reduce the inconvenience to the public.

Inspectors use radio and telephone communication with the office and local communities during working hours so that any complaints or inquiries or construction-related problems can be handled as quickly as possible.

Daily inspection reports and a log of the progress of construction are maintained by the inspector on each project. Daily records permit proper restoration of the construction site, and also assure that correct payment will be made to the contractors on the project.

Inspection staff also videotape future construction sites and routes. Particular care is taken with easement areas where possible problems can be anticipated or where difficult types of restoration work will be needed. After construction, the video tapes are available as needed during restoration work, and can be used to resolve differences regarding the actual conditions which existed before construction. The video record is valuable to discourage litigation because a visual review of the prior condition of all property is possible.

An important responsibility of the inspector on each project is the preparation of an "as-built" plan, which is a plan that shows exactly how the project was constructed in the field, with dimensions identifying the location of all underground structures. Future surface access for additional installations or service is thereby enhanced at a lower cost with a minimum of disturbance to the existing facility.

The Inspection Unit is responsible for the field inspection portion of the Soil Erosion and Sedimentation Control program, and meets with municipalities and private citizens to promote a reasonable and effective soil erosion policy in an effort to reduce the pollution of lakes and streams in Oakland County. The soil erosion inspection program is supervised by Dan MacLennan.

Inspection Staff is also responsible for inspecting connections and other involvements with county drains throughout Oakland County. The inspector is present to insure that the integrity of the existing system is maintained, and that proper compliance with state and local regulations is observed. In addition, the Inspection Staff inspects new drainage facilities that will become county drains which are being built by private developers in conjunction with the construction of new condominium, apartment, or commercial and office complexes.

**MAINTENANCE UNIT**

## MAINTENANCE UNIT

The Oakland County Drain Commissioner is responsible for the regular maintenance of established county storm drains located throughout Oakland County. The Drain Office engineer in charge of the Maintenance Unit is George Bondi. There were eight employees in this unit during 1987. Maintenance personnel provide a wide variety of maintenance and repair services. Primary work includes the inspection and maintenance of approximately 600 miles of established county drainage and combined storm and sanitary systems. In addition, lake level control structures used in the regulation, operation and control of the legal levels of 48 Oakland County lakes are maintained by this unit.

In the performance of these functions, personnel use various types of vehicles and construction equipment, including basic and specialized hand and power tools and certain necessary safety equipment. Inventory, repair and proper care of these tools and equipment is a function of the Maintenance Unit.

### Drain Inspection and Maintenance

Drains constructed prior to 1956 were financed by special assessment against the property served by the drain. Inspection and Maintenance charges for these drains are assessed against the special assessment district established when the drain was constructed.

Routine inspections are made periodically on all drainage systems. Once inspected the necessary repairs are performed. This preventive maintenance system assures reliable drainage to the residents of Oakland County and avoids costly drain failures. During 1987 the Maintenance Unit inspected 52 Chapter 20 drains, one Chapter 21 drain, one Chapter 18 drain and 13 Chapter 4 drains.

Periodic maintenance activities include removing roots, silt and other debris from enclosed drains; repairing structures that have failed or have been damaged; rehabilitating open drains by removing brush, debris, shoals and silt; cleaning and maintaining manholes and catch basins; and inspection and cleaning of diversion gates, meter chambers and outfall structures. During 1987 general drain maintenance was performed on 46 Chapter 20 drains, one Chapter 21 drain and 42 Chapter 4 drains. In 1987, the Board of Commissioners approved assessments in the amount of \$10,534.24 to assess property for the inspection and maintenance costs of Chapter 4 Drains.

### Maintenance of Lake Level Structures

The Maintenance Unit also maintains lake level control structures including dike repair, painting and repair of structures, and repair of gates and landscape maintenance. During 1987 maintenance was performed at 26 lake level control locations.

## Equipment

In order to increase efficiency while maintaining personnel at a constant level, the Maintenance Unit employs specialized power equipment.

The single most important piece of equipment is the Vactor Jet. The Vactor works with water pressure and vacuum to clean out storm and sanitary sewers. It is especially efficient in cleaning catch basins, manholes and sewer lines of 48-inch and lesser diameter pipe. By using the Vactor, more work can be done with a two-man crew than formerly could be done with hand equipment and substantially more manpower. It has enabled the Maintenance Unit to clean drains and sewers on a regular schedule. The result is decreased cost per job, and increased service to the public. In 1987, a new Ford Vactor with a 250 H.P. Caterpillar engine was purchased to replace a 1984 GMC Vactor. The new Vactor has improved suction and jetting power.

The Drain Commissioner employs the necessary safety equipment needed to meet OSHA and MIOSHA standards as well as the hazards of the particular drain maintenance work.

## Rain Gauge Operations

There are 25 rain gauges located throughout Oakland County. Drain maintenance personnel install, maintain and repair rain gauges in cooperation with the U. S. Department of Agriculture Weather Service Office. Supplies are distributed to the various stations and recorded data is collected and processed.

## Inter-Departmental Services

The Drain Commissioner also cooperates with other County departments to provide specialized personnel and/or equipment as required. By lending personnel and equipment at minimal rates, other County departments were able to reduce their costs to complete specific maintenance assignments. The Department of Facilities and Operations, Oakland-Pontiac Airport, Water and Sewer Engineering, and Parks and Recreation utilized these available maintenance services during 1987.

**SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM**

## SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM

### The District

The Southeastern Oakland County Sewage Disposal System (S.O.C.S.D.S.) serves a district of approximately 46,000 acres and provides sewer service to all of the areas within the Cities of Berkley, Clawson, Ferndale, Hazel Park, Huntington Woods, Madison Heights, Oak Park, Pleasant Ridge, Royal Oak, and the Township of Royal Oak. Part of the area within the Cities of Birmingham, Southfield, Troy, and the Village of Beverly Hills also receive sewer service from the S.O.C.S.D.S. Of the 46,000 acres served, approximately 24,385 acres are served by combined sewers, and the remaining 21,615 acres, primarily in the Cities of Troy and Madison Heights, are served by a separated sewer system.

### The Pollution Control Facility - Background

Prior to 1974 the Twelve Towns Relief Drains system collected combined sewage from the district and delivered it to the Dequindre Interceptor at the rate of 118 cubic feet per second. When the total flow exceeded 118 cubic feet per second, the excess was stored in the Twelve Towns system up to a retention capacity of 90 acre/feet. When a storm event occurred of such magnitude that the storage capacity of the Twelve Towns Relief system was exceeded, the excess combined sewage would spill into the Red Run Drain. Overflows occurred approximately 25 times every year and were causing pollution of the Red Run Drain. The Red Run Drain is a large, open inter-county Chapter 21 drain, approximately seven miles in length, flowing east from Twelve Mile and Stephenson Highway through Macomb County until it outlets into the Clinton River.

To mitigate this pollution of the Red Run Drain and the Clinton River, the Drain Commissioner as agent for the County of Oakland constructed the Pollution Control Facility, a storage facility 65 feet wide and approximately two miles long with a capacity of 190 acre/feet, which now receives overflows from the Twelve Towns Relief System. With this additional facility the storage capacity of the district has been increased to 280 acre/feet of combined sewage.

After a storm event flows of combined sewage retained in the storage basin are pumped into the Dequindre Interceptor up to a capacity of 260 cubic feet per second. Only when the storage capacity of both the Twelve Towns Drain and the Pollution Control Facility are exceeded, will a spill occur to the Red Run Drain. Operators of the Pollution Control Facility can anticipate when such a spill is going to occur. With this knowledge, chlorine is pumped into the combined sewage spilling into the Pollution Control Facility to kill bacteria so that the quality of effluent spilling into the Red Run Drain meets standards established by the Michigan Water Resources Commission.



## Operations - 1987

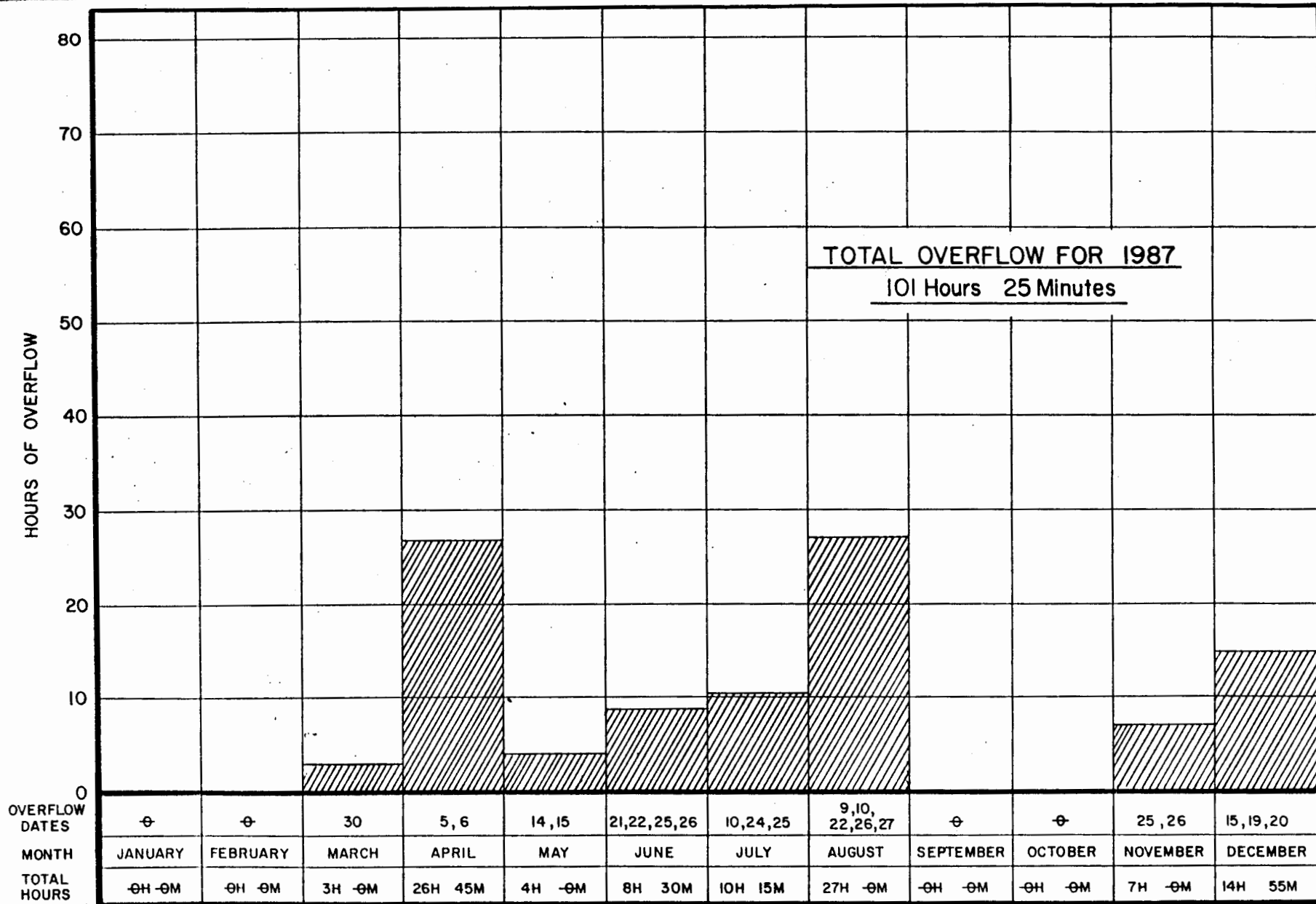
The Drain Commissioner currently employs nine people to maintain and operate the S.O.C.S.D.S. under the direction of William E. Klockow, P.E.

Laboratory staff collect and test samples to continually monitor contributors to the sewer system. The purpose of the monitoring program is to test sewage effluent from industries at designated locations so as to limit the users of the system to specific parameters of sewage strengths. The City of Detroit is notified of the results of these tests, and if a violation occurs the industry violating the sewage ordinance is notified. During 1987 approximately 20,000 analyses were performed on more than 4,000 samples collected within the district. Through these efforts the district has been able to control the strength of the effluent entering the system and later treated by the City of Detroit.

Field staff maintain and operate the Pollution Control Facility. Responsibilities include the operation of the pump station housing six dewatering pumps which pump combined sewage from the Pollution Control Facility into the Dequindre Interceptor. Once the Pollution Control Facility has been pumped dry, a flushing system is activated to wash down the walls and floor of the Pollution Control Basin. After flushing, employees enter the Pollution Control Basin and remove any remaining debris.

During all of 1987 there were only 23 spills from the Twelve Towns system to the Pollution Control Facility, of which ten were retained in the basin with no spill to the Red Run Drain. The remaining 13 spills were chlorinated before spilling to the Red Run Drain. The total overflows to the Red Run Drain were limited to a total period of only 101 hours for the year. The total volume of flow spilled was approximately 150,000,000 cubic feet or approximately 1,120 million gallons.

S.O.C.S.D.S. employees also operate and maintain the Red Run Drain, the outlet water course for the Pollution Control Facility, which begins at Thirteen Mile and Dequindre Road and runs northeasterly through Macomb County for approximately seven miles where it outlets into the Clinton River. This open water course is subject to erosion and shoaling. Funding for maintenance activities on the Red Run Drain is provided by assessments against the Chapter 21 inter-county drainage district for the Red Run Drain.



SOUTHEASTERN OAKLAND COUNTY SEWAGE DISPOSAL SYSTEM  
 JANUARY 1, 1987 THRU DECEMBER 31, 1987

**DRAIN CONSTRUCTION**

## DRAIN CONSTRUCTION

The Drain Commissioner, under the provisions of the Michigan Drain Code, Act 40 of 1956, constructs all new county drains.

Construction of a county drain is undertaken only after a petition has been filed with the Drain Commissioner. Petitions are normally filed by one or more governmental units, however, a petition may be filed by a property owner or a group of property owners.

### DRAIN CONSTRUCTION PROJECTS

#### Caddell Drain - Phase II

In October of 1981 severe flooding took place in the I-96, Ten Mile Road, Grand River and Halstead Road areas of Farmington Hills. On April 30, 1982 a petition to construct a storm drain, jointly signed by the City of Farmington, the City of Farmington Hills and the City of Novi was received by the Drain Office.

On May 3, 1982 the first meeting of the Drainage Board took place and the project was named the Caddell Drain. On June 6, 1982 the project was declared necessary for the public health and the Final Order of Determination was signed; Hubbell, Roth & Clark, Inc. was retained as consulting engineer and the firm of Dickinson, Wright, Moon, Van Dusen & Freeman as bond counsel.

In 1984 William E. Klockow, P.E. was designated the project engineer for the Caddell Drain. In 1985 final engineering plans for Phase II of the Caddell Drain were completed and permit applications were filed with governing agencies. The Board of Commissioners approved a Full Faith and Credit resolution for the sale of bonds on February 28, 1985. Bonds in the amount of \$3,475,000 were sold on April 24, 1985.

Construction bids were received on December 18, 1985, and on January 28, 1986, the Caddell Drain, Phase II construction contract was awarded to the low bidder, Richard Mancini Equipment Company, for their bid in the amount of \$3,478,000.

The contractor began construction of Phase II on March 19, 1986. By May of 1987, the project was substantially completed with only a few remaining items to be completed.

## Doyon Drain Extension

In 1982 the Doyon Drain was constructed in Section 17 of West Bloomfield Township to provide drainage to an existing subdivision. Since that time additional homes were constructed in a portion of the subdivision not served by the Doyon Drain.

In August, 1986, West Bloomfield Township requested that the Doyon Drain be extended as needed to serve these areas, with the cost being financed from surplus construction funds from completed drain projects, as authorized under the provisions of Act 165 of 1984. Glen Yrjanainen, P.E., of the Drain office engineering staff was selected to design the Doyon Drain Extension.

On July 14, 1987 construction bids were received for the Doyon Drain Extension, and a contract was subsequently awarded to H & B Construction, Inc., of Fowlerville, Michigan, for their low bid of \$33,531.86. Construction of the drain extension began in August, 1987 and was completed by October, 1987. The final adjusted construction cost of the work was \$34,496.33.

## Fredericks Drain Phase I

On March 24, 1986 the Troy City Council adopted a petition for drainage improvements and extensions to the Page and Lanni Drains in Sections 9, 10, 15 and 16. The first meeting of the Drainage Board was held on April 8, 1986. The project was named the Fredericks Drain, and Donald L. Mills, P.E., was selected as the project engineer. At a meeting held May 22, 1986 the project was declared practical and necessary for the public health, the Final Order of Determination was adopted, and Hubbell, Roth & Clark, Inc. was employed as Consulting Engineer.

Phase I of the project originates at the westerly terminus of the Page Drain and runs westerly along the southerly limits of the City of Troy's D.P.W. yard to the existing Houghten Drain. Included in Phase I is approximately 2,000 lineal feet of 78" diameter pipe, and the construction of a retention basin. Construction bids were received on April 28, 1987 and the contract was awarded to the low bidder, Dan's Excavating, Inc. in the amount of \$627,186.98. Actual construction began in July, 1987 and the project was essentially complete and in service by the fall of 1987. Minor cleanup and restoration remain to be completed in the spring of 1988.

The Fredericks Drain is being financed with surplus construction funds from completed drain projects under the provisions of Act 165 of 1984.

## Holland Drain

The City of Pontiac adopted a petition on October 29, 1985 to construct a storm drain to alleviate flooding problems on Walton Boulevard between Perry Street and Joslyn Avenue. The project includes an improvement of the Galloway Creek.

At a meeting held December 18, 1985 the project was declared practicable and necessary for public health, the Final Order of Determination was approved, and the Engineering Staff of the Oakland County Drain Commissioner was employed to prepare plans, specifications and an estimate of cost. Glen Yrjanainen, P.E. was selected to design the drain and to function as the project engineer for the proposed work.

Plans for the Holland Drain were completed by the spring of 1986, and all required construction easements to build the project were secured by the following summer. Construction bids were received at a meeting held October 28, 1986, and on December 9, 1986 the contract to construct the project was awarded to Adamo Contracting Corporation of Detroit, Michigan for their low bid of \$1,069,554. Construction of the Holland Drain began in December, 1986 and was completed by September, 1987. The final adjusted construction cost of the work was \$1,099,024.71.

The Holland Drain was financed with surplus construction funds from completed drain projects under the provisions of Act 165 of 1984.

## Oakdale Drain

Because of the construction of the I-696 Freeway through the City of Pleasant Ridge, it became necessary to construct a siphon at an existing drain crossing at Oakdale Boulevard. The City of Pleasant Ridge on May 8, 1986 filed a petition with the Drain Commissioner to construct this siphon as a county drain.

At a drainage Board meeting held on July 8, 1986, a public hearing was held, and no objections to the project were made. The project was declared practicable and necessary for the public health, and the Final Order of Determination was authorized and executed.

The Engineering Department of the Department of Transportation of the State of Michigan was appointed to prepare plans and specifications for the project. The project was bid as a section of the I-696 Freeway project. The cost of construction for the Oakdale Drain as bid was \$900,000 and will be paid by the Department of Transportation of the State of Michigan.

The construction of the Oakdale Drain began in the spring of 1987 and was completed before year end. This siphon has been placed into service and is now being used for the purpose intended.

**SEWER AND WATER CONSTRUCTION**

## SEWER AND WATER CONSTRUCTION

### Auburn Hills Water and Sewer Projects

The City of Auburn Hills adopted resolutions on December 15, 1986 requesting the Drain Commissioner as County Agency for Oakland County to finance and construct sanitary sewer and water supply systems to serve the northeasterly portion of the City in the general vicinity of the Lapeer Road (M-24) and the I-75 interchange. The sanitary sewer system will be a direct extension of the Galloway Arm of the Clinton-Oakland Interceptor which presently terminates at the north line of the City of Pontiac near Giddings Road. The water supply system will draw water from the City of Detroit supply with a connection to be made at Giddings and Lake Angelus Roads.

An agreement between the City of Auburn Hills and the County of Oakland was approved by the City Council on December 15, 1986. The Oakland County Board of Commissioners approved the agreement on January 1, 1987 and assigned the project development and construction to the Drain Commissioner's office as County Agency. Philip Sanzica, P.E., was selected as the Drain Office project engineer.

The consulting firm of Orchard, Hiltz & McCliment, Inc. was employed to design the system and prepare construction plans and specifications. The system will be composed of approximately 21,000 lineal feet of 6" through 24" sanitary sewer and 14,000 lineal feet of 12" through 20" water mains. Preliminary cost figures indicated a combined project cost of \$2,850,000.

The cost of the two projects entitled "Auburn Hills Extension No. 2" (sewer), and "Auburn Hills Water Supply System Extension No. 3," will be financed by the sale of Oakland County combined water and sewer bonds for which the City of Auburn Hills will pledge its full faith and credit for repayment.

All rights-of-way for water and sewer construction were acquired by voluntary grant; condemnation proceedings were not required. Construction bids were received on July 8, 1987 and December 14, 1987 and the contracts were awarded to the low bidders, Lawrence M. Clarke, Inc. of Ypsilanti, Michigan in the amount of \$391,300; Fairfield Construction Co. of Roseville, Michigan in the amount of \$894,390; and P & R Contracting, Inc. of Washington, Michigan in the amount of \$616,315. Construction started in August of 1987 and is scheduled for completion in the fall of 1988.



## Milford Sewage Disposal System - Extension No. 2

In September, 1967 Oakland County financed and completed the construction of a major treatment plant expansion for the Village of Milford to comply with water quality standards current at the time the expansion was placed into service. In recent years, however, the Milford Village system could no longer meet newer, more stringent treatment standards.

A determination was made to apply for Federal funding under the Public Law 92-500 grant program. The project appeared to be eligible for grant participation, not only for improvements to the treatment plant, but also for major repair and replacement of a leaking and deteriorating interceptor sewer. The scope of the project was therefore expanded to include the latter.

An agreement between the Village of Milford and the County of Oakland was approved by the Village Council on April 28, 1986. The Oakland County Board of Commissioners approved the agreement and authorized the sale of bonds to finance the local share cost on May 22, 1986. Project development and construction was assigned to the Drain Commissioner as County Agency under the provisions of Act 342 of 1939.

The firm of Wade, Trim and Associates, Inc. of Taylor, Michigan designed the entire project, prepared construction plans and specifications, and assisted in obtaining Federal funding under the Public Law 92-500 grant program. Wade, Trim and Associates, Inc. will also provide resident engineer inspection services at the treatment plant. Philip Sanzica, P.E. was designated as project engineer for the Milford Sewage Disposal System - Extension No. 2 project.

The system improvements consist of approximately 3,000 feet of 8" sanitary sewer to 21" interceptor sewer, approximately 2,500 feet of rehabilitation of 15" to 21" interceptor sewer, and the treatment plant improvements. The sanitary sewer rehabilitation will utilize a process of insertion of a polyester felt insitu-tube in the existing pipelines and manholes which is hardened into a new hard surface sewer lining. This method provides a rehabilitation and repair of the sanitary sewers without excavation, disturbance to people or property, and may be accomplished within a relatively short period of time.

The principal feature of the treatment process includes the Oxidation Ditch Activated Sludge Process and Microscreening to comply with the more strictly enforced regulations in the area of removal of pollutants. This process at a design flow of 1.042 MGD can achieve on a daily basis phosphorous concentrations of less than 900 pounds a year, or 0.28 mg/l. Conventional technology for effluent phosphorous concentrations averages from 0.7 mg/l to 1.0 mg/l and generates a considerable volume of chemical sludge. The proposed innovative system is a new and unique technology which has made it eligible for additional grant funding.

Federal funds for 55% of the grant eligible portions, plus an additional 20% for innovative technology will total approximately 3.6 million dollars when all of the project work is completed. Oakland County bonds in the amount of \$3,550,000 were sold on September 11, 1986 to cover the local share cost.

Construction contracts were awarded in September, 1986 to two contractors: Clark Construction Company in the amount of \$5,339,000, and Delaware Equipment Corporation in the amount of \$739,596, for a total cost of \$6,078,596.

The interceptor sewer, consisting of both new construction and rehabilitation, was completed and ready for service in August 1987. This first phase of the treatment plant was completed and ready for service in December 1987. The remainder of the treatment plant will be completed and ready for service in 1988.

#### Orion Township Extension No. 4

On September 17, 1985 the Drain Commissioner received a request from the Township of Orion to construct a sanitary sewer along Lapeer Road (M-24) from a point south of Scripps Road northerly to Clarkston Road. This sewer would serve a district easterly and westerly of Lapeer Road, and would provide service to existing and future industrial and commercial properties. The Township Board requested that this project be constructed utilizing surplus funds currently on deposit with the County.

An agreement between Orion Township and the County of Oakland was approved by the Orion Township Board on October 7, 1985. The Oakland County Board of Commissioners approved the agreement on October 24, 1985, assigned the project development and construction to the Drain Commissioner as County Agency, and transferred \$1,039,000 in surplus funds from prior years sewer construction projects to finance the work. Donald Mills, P.E., was selected as the project engineer for Orion Township Extension No. 4.

The Consulting Engineering firm of Orchard, Hiltz & McCliment, Inc. was retained to design the system and prepare construction plans and specifications. The system consists of approximately 8,400 lineal feet of 12" and 10" diameter sanitary sewer and appurtenances.

Construction bids were received on February 17, 1987 and the contract was awarded to the low bidder, DiPonio & Morelli Construction Company in the amount of \$516,557. Actual construction began in April 1987, and was completed in the fall of 1987. Final payment to the contractor was made in December 1987. Additional work required due to unstable ground conditions encountered on the east side of M-24 south of Clarkston Road increased the final construction cost for the Orion Township Extension No. 4 project to \$670,552.07.

## West Bloomfield Water Supply System - Section VIII

West Bloomfield Township requested the Drain Commissioner to proceed with the development of a project to complete the construction of the water transmission mains along Haggerty Road (20" diameter) and Maple Road (16" diameter) at the northwest corner of Section 31.

An agreement between West Bloomfield Township and the County of Oakland was approved by the Township Board on August 19, 1985. The Oakland County Board of Commissioners approved the agreement on September 26, 1985, assigned the project development and construction to the Drain Commissioner as County Agency, and transferred \$362,000 in surplus funds from prior years water construction projects to finance the project work. The project is composed of approximately 4,000 lineal feet of 16" and 20" diameter water transmission mains. The firm of Hubbell, Roth & Clark, Inc. was retained to design the system and prepare construction plans and specifications. Donald L. Mills, P.E., was selected as the Drain Office project engineer.

Construction plans were received on April 14, 1987, and the contract was awarded to the low bidder, Adamo Contracting Corp. in the amount of \$258,735. Actual construction began in August, 1987 and was completed in the fall of 1987. Minor cleanup and restoration remain to be completed in the spring of 1988.

LAKE LEVEL PROJECTS

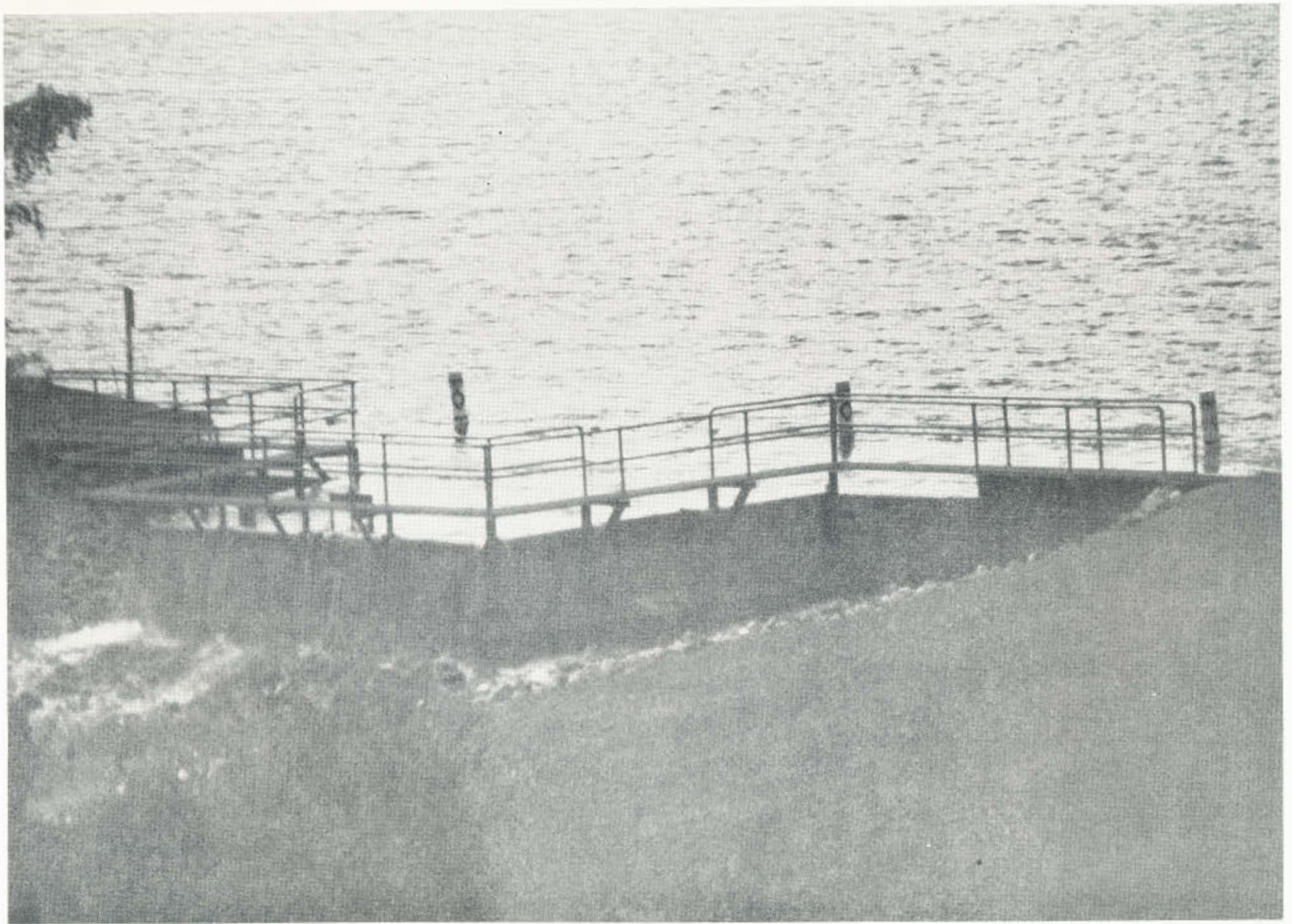
## LAKE LEVEL PROJECTS

### Indianwood Dam

In the 1920's a private dam was constructed on a stream in Section 3 of Orion Township, thereby creating Indianwood Lake. By 1986 this privately owned dam was in a deteriorating condition. In the winter of 1986 the lakefront owners on Indianwood Lake petitioned for a legal lake level under the provisions of Act 146 of 1961, asking that a lake level be established and that the existing dam be replaced. Circuit Court Judge Norman Lippitt established a legal level for Indianwood Lake on August 27, 1986.

Glen Yrjanainen, P.E. of the Drain Office engineering staff was selected to design the new dam. In April, 1986 the County of Oakland agreed to advance the \$100,000 construction cost of the Indianwood Lake Dam project to be paid back from special assessments over a seven-year period.

On August 12, 1986 construction bids were received for the Indianwood Dam, and a contract was subsequently awarded to the P & R Contracting Company, Inc., of Washington, Michigan, for their low bid of \$97,221. Construction of the new dam began in November, 1986 and was completed in May, 1987. The final adjusted construction cost of the work was \$110,654.86.



INDIANWOOD LAKE DAM

## Price Dam

In the early 1900's a private dam was constructed at the Clinton River outlet from the Dawson Mill Pond, in Section 31 of the City of Pontiac. Commonly known as the Dawson Mill Pond Dam, the structure regulates the levels of the Dawson Mill Pond, Sylvan Lake, and Otter Lake. The operation of the dam in recent years has been under the jurisdiction of the City of Pontiac. By 1960 the dam was in a deteriorating, unsafe condition.

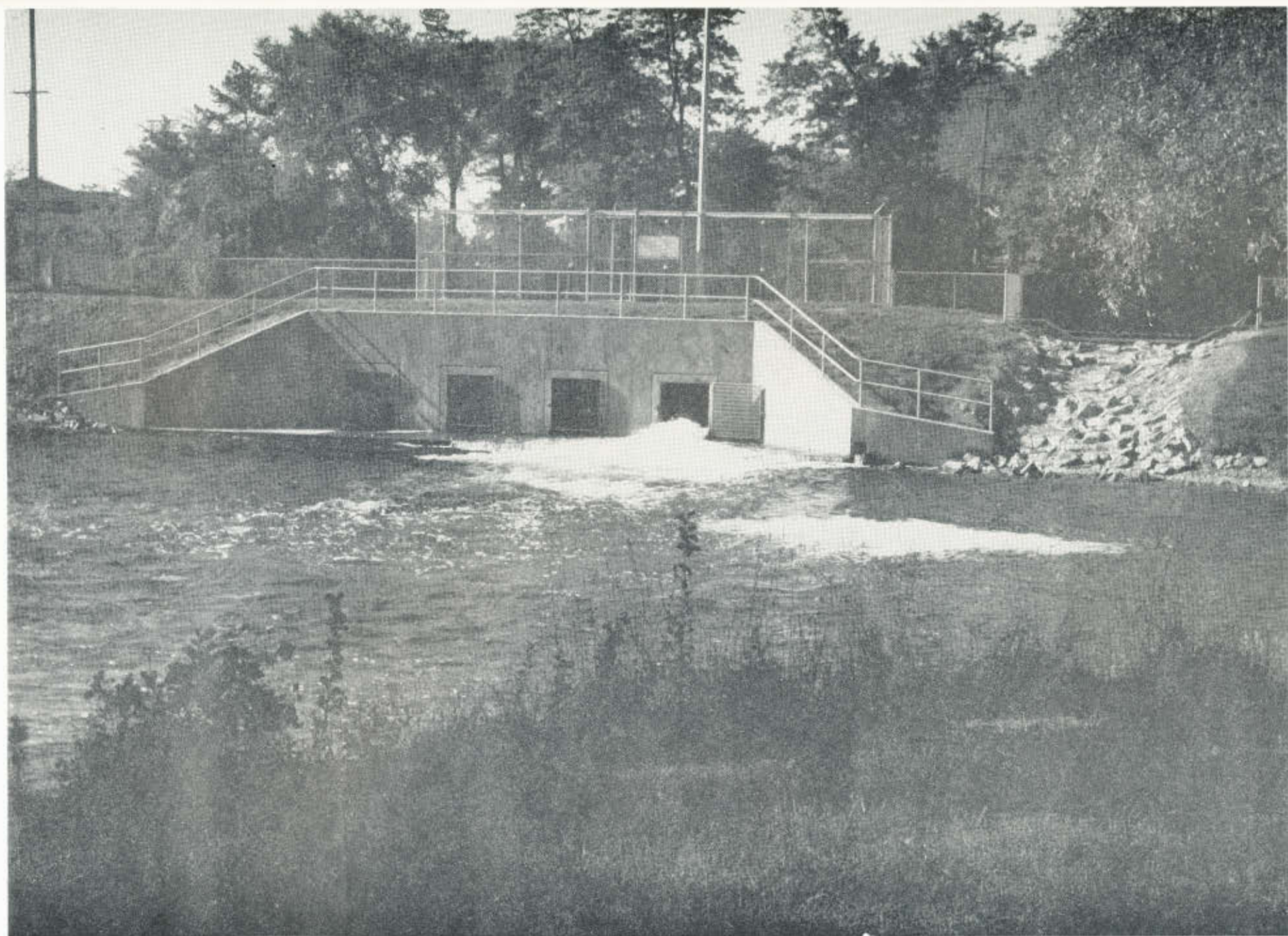
In the spring of 1986 the affected communities, namely the Cities of Pontiac, Sylvan Lake and Keego Harbor and the Township of Waterford, had concluded that the dam should be replaced with a new structure. At a meeting organized by the Drain Commissioner on March 13, 1986, it was agreed that the project cost would be apportioned as follows: City of Pontiac 40%; Township of Waterford 35.99%; City of Sylvan Lake 15.94%; and City of Keego Harbor 8.07%.

Petitions were received under the provisions of the Inland Lake Level Act No. 146 of 1961, to establish a legal level, replace the dam with a new structure, and to place operation and maintenance of the new dam with the Oakland County Drain Commissioner.

In June, 1986 the County of Oakland agreed to advance the \$400,000 construction cost of the project, to be paid back from special assessments over a seven-year period. On July 16, 1986 Circuit Court Judge Steven Andrews established a legal level for the Dawson Mill Pond, Otter Lake and Sylvan Lake. Conceptual plans for the new dam were prepared by Glen Yrjanainen, P.E. of the Drain Office engineering staff.

Hampton Engineering Associates, Inc. was retained to prepare final construction plans and specifications for the new dam using the conceptual plans approved by the Court as the basis for the design. Glen Yrjanainen, P.E., was designated the project engineer for the Price Dam project.

On February 3, 1987 construction bids were received for the Price Dam, and a contract was subsequently awarded to the Anlaan Corporation, of Grand Haven, Michigan, for their low bid of \$307,404. Construction of the new dam began in March, 1987 and was completed in September, 1987. The final adjusted construction cost of the work was \$333,089.09.



PRICE DAM



**PROJECTS UNDER DEVELOPMENT**

**WEST BLOOMFIELD STORM DRAIN PROGRAM**

**OAKLAND TOWNSHIP STORM DRAIN PROGRAM**

**LAKE IMPROVEMENT BOARDS**

## PROJECTS UNDER DEVELOPMENT

During 1987, there were many new projects in various phases of preliminary engineering design and easement acquisition. Fourteen Chapter 20 drain projects were in active development in the Cities of Rochester Hills, Troy and Auburn Hills and in the Townships of West Bloomfield, Independence and Orion.

Sewer and water projects in the engineering design phase include major improvements to the Evergreen-Farmington Sewage Disposal System, the Amy Relief Sewers and the North Huron Valley Interceptor which will serve a portion of western Oakland County, as well as a continuation of water transmission mains in West Bloomfield Township.

### WEST BLOOMFIELD STORM DRAIN PROGRAM

The Charter Township of West Bloomfield by ordinance now requires that proposed storm drainage facilities in new subdivisions and commercial developments be constructed as county drains to be operated and maintained by the Oakland County Drain Commissioner. Accordingly, the Drain Commissioner, under the provisions of Section 433 of the Drain Code, has entered into agreements with property owners and developers to establish their private drains as County drains. The agreements provide that the property owner and developer assume all costs involved in the establishment and construction of the drain. In addition, the agreement provides that the properties within the subdivision or development bear the future costs of operation and maintenance of the drain by special assessment.

Construction of nine new West Bloomfield Township drains under Section 433 of the Drain Code was completed in 1987. An additional 28 West Bloomfield Township drain projects established under Section 433 of the Drain Code were under construction in 1987. Michael J. Lamb, is the engineer responsible for the supervision of this program.

### OAKLAND TOWNSHIP STORM DRAIN PROGRAM

Oakland Township by an ordinance adopted on September 27, 1987 now requires that proposed storm drainage facilities in new subdivision be constructed as county drains and operated and maintained by the Oakland County Drain Commissioner. Accordingly, the Drain Commissioner, under the provisions of Section 433 of the Drain Code, has entered into agreements with property owners and developers to establish their private drains as County drains. The agreements provide that the property owner and developer assume all costs involved in the establishment and

construction of the drain. In addition, the agreement provides that the properties within the subdivision bear the future costs of operation and maintenance of the drain by special assessment.

Construction of one new Oakland Township drain under Section 433 of the Drain Code was completed in 1987. One additional Oakland Township drain project established under Section 433 of the Drain Code was under construction in 1987. Michael J. Lamb is the engineer responsible for the supervision of this new program.

#### LAKE IMPROVEMENT BOARDS

There has been a substantial increase in the number of Lake Improvement Boards in Oakland County during the last several years. At the present time there are 24 Lake Improvement Boards operating in 11 townships and the City of Troy. Ten members of the Board of Commissioners serve on one or more Lake Improvement Boards. C. Hugh Dohany, the Oakland County Treasurer, serves as the Treasurer for 15 of the Lake Improvement Boards. The Township Treasurers of Bloomfield, Waterford and White Lake Townships serve as the Treasurer for 9 Lake Improvement Boards.

Each Lake Improvement Board may determine to pursue one or more lake improvement projects on a lake. Most frequently, the Lake Improvement Board project will be designed to improve water quality and clarity by the mechanical harvesting of aquatic weeds or the chemical treatment of weeds in the lake. During 1987, Lake Improvement Boards on 17 lakes were involved in the mechanical harvesting of weeds from their lake. Lake Improvement Boards on 10 lakes used a program of chemical treatment to kill aquatic weed growth. On 6 lakes, both mechanical weed harvesting and chemical treatment were used.

Engineering studies on several lakes have also identified the value of a lake dredging program to remove muck and bottom sediments from all or a portion of several lakes. The high cost of dredging a lake, and the difficulty of locating and obtaining a disposal site for material dredged from the bottom of the lake, as well as the problems connected with obtaining the necessary permits from the Michigan Department of Natural Resources make proceeding with a lake dredging project extremely difficult.

All Lake Improvement Board programs are financed by special assessment rolls against real property abutting the lake or having access to the lake. During 1987, 22 Lake Improvement Boards in Oakland County spread a special assessment for lake improvement work on their lake. The total amount of the special assessment rolls spread in 1987 on the 15 lakes for which Oakland County is the Treasurer was \$608,106.40.

**FINANCIAL STATEMENTS**

## FINANCIAL STATEMENTS

Summary financial statements for the Southeastern Oakland County Sewage Disposal System and for major projects discussed in the Annual Report are included here. Complete financial statements for each drainage district and itemized statements of all of the various accounts maintained by the Oakland County Drain Commissioner in connection with the construction, operation, and maintenance of all of the projects under the jurisdiction of the Oakland County Drain Commissioner are available for inspection on request. The County Clerk also has on file a complete set of financial statements for all projects.

Reference should be made to the Table of Contents of the Financial Statements Volume for reference to any specific project or fund account not included in these summary statements.

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 SOCSOS OPERATION AND MANT SD

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87700

ASSETS

CASH	\$(	25,218.91)
INVESTMENTS		2,485,248.25
DUE FROM MUNICIPALITIES		1,210,636.37
DUE FROM OTHER DRAIN FUNDS		2,223.54
DUE FROM OTHER FUNDS		27,222.21
ACCRUED INTEREST RECEIVABLE		6,445.00
PREPAID EXPENSES	(	1,629.44)
FIXED ASSETS-BUILDINGS		8,683,498.27
FIXED ASSETS		109,809.78
FIXED ASSETS-LAND & IMPROVEMNT		1,533.25
ALLOWANCE FOR DEPRECIATION	(	5,317,118.64)
		-----
TOTAL ASSETS	\$	7,182,649.68
		=====

LIABILITIES

DUE TO MUNICIPALITIES		2,098,927.65
DUE TO OTHER FUNDS		16,271.99
VOUCHERS PAYABLE		3,297.22
UNDISTRIBUTED FUNDS		56,733.12
ACCRUED PAYROLL		5,180.50
		-----
TOTAL LIABILITIES		2,180,410.48
		-----

FUND-BALANCE

RESERVES		1,050,000.00
INVESTMENT IN FIXED ASSETS		3,477,722.66
UNDESIGNATED		474,516.54
		-----
TOTAL FUND BALANCE		5,002,239.20
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	7,182,649.68
		=====

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 SOCSDS OPERATION AND MANT PC

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87710

ASSETS

CASH	\$	55,303.73
INVESTMENTS		1,695,000.00
DUE FROM MUNICIPALITIES		1,252,277.42
DUE FROM OTHER FUNDS		27,973.76
ACCRUED INTEREST RECEIVABLE		3,894.42
PREPAID EXPENSES		4,391.20
FIXED ASSETS-BUILDINGS		23,895,517.52
FIXED ASSETS		205,312.50
FIXED ASSETS-LAND & IMPROVEMNT		611,995.93
ALLOWANCE FOR DEPRECIATION	(	8,704,367.88)
		-----
TOTAL ASSETS	\$	19,047,298.60
		=====

LIABILITIES

DUE TO MUNICIPALITIES	\$	1,800,100.23
DUE TO OTHER FUNDS		18,057.51
VOUCHERS PAYABLE		8,857.56
ACCRUED PAYROLL		6,453.50
		-----
TOTAL LIABILITIES		1,833,478.80
		-----

FUND-BALANCE

RESERVES		700,000.00
INVESTMENT IN FIXED ASSETS		16,008,458.07
UNDESIGNATED		505,361.73
		-----
TOTAL FUND BALANCE		17,213,819.80
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	19,047,298.60
		=====

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 SOCSDS OPERATION AND MANT SD

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87700

REVENUES

DISPOSAL PERMITS	\$	15,898.00
INCOME FROM INVESTMENTS		126,842.83
LOOK BACK ADJUSTMENT		437,725.50
MISCELLANEOUS		59.40
REIMBURSEMENT-ACCOUNTING SERV.		30,440.69
REIM FOR SALARIES-DRAIN PROJ		22,007.63
SEWAGE DISPOSAL SERVICES		8,528,923.69
		-----
TOTAL REVENUES		9,161,897.74
		-----

EXPENDITURES

SALARIES - REGULAR		131,782.73
OVERTIME		2,217.74
HOLIDAY		7,905.71
HOLIDAY OVERTIME		78.38
ANNUAL LEAVE		13,861.18
HOLIDAY COMP.		517.79
SICK LEAVE		4,201.94
RETROACTIVE		166.41
JURY DUTY		298.86
SHIFT PREMIUM		31.15
SERVICE INCREMENT		13,146.60
SUMMER HELP		3,684.00
DEATH LEAVE		178.83
FRINGE BENEFITS	(	6,237.06)
FRINGE BENEFITS-WORKERS COMP		1,089.17
FRINGE BENEFITS-GROUP LIFE		480.33
FRINGE BENEFITS-RETIREMENT		31,789.80
FRINGE BENEFITS-HOSPITALIZATIO		18,240.12
FRINGE BENEFIT-SOCIAL SECURITY		13,548.40
FRINGE BENEFIT-DENTAL		3,081.93
FRINGE BENEFITS-DISABILITY		2,008.64
INVESTMENT FEES		261.10
AUDITING SERVICE		4,260.00
BUILDING MAINTENANCE CHARGES		4,468.43
DEPRECIATION-EQUIP-OPERATING		8,031.84
EQUIPMENT REPAIR - OPERATING		3,421.52
EQUIPMENT REPAIR - MTR VEHICLE		706.62
ENGINEERING AND SURVEY		698.58



OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 SOCSDS OPERATION AND MAINT SD

DECEMBER 31, 1987

	CONSTRUCTION FUND NO 87700
EQUIPMENT RENTAL	12.85
EQUIPMENT REPAIRS & MAINT.	2,223.51
GAS - NATURAL	2,581.88
INSURANCE	4,032.03
LANDS & GROUNDS MAINTENANCE	475.95
LAUNDRY & CLEANING	705.79
LEGAL EXPENSE	60,840.97
LIGHT AND POWER	6,850.15
MAINTENANCE CONTRACT	3,231.00
MEMBERSHIP DUES & PUBLICATIONS	99.50
PROTECTIVE CLOTHING & EQUIP.	409.96
SEWAGE DISPOSAL SERVICES	8,308,638.35
SEWER MAINTENANCE	25,000.21
TRAVEL & CONFERENCE	463.66
WATER AND SEWAGE CHARGES	972.51
FILM & PROCESSING	57.75
LABORATORY SUPPLIES	2,520.74
OFFICE SUPPLIES	634.96
POSTAGE	45.12
DPW WATER & SEWER EQUIPMENT	1,345.70
CENTRAL STORES-HOUSKEEPING SUP	666.39
RADIO COMMUNICATIONS	1,700.56
LEASED VEHICLES	2,251.31
EQUIPMENT RENTAL	129.09
PRINT SHOP	23.44
TELEPHONE COMMUNICATIONS	1,139.63
DRAIN EQUIPMENT	3,877.75
	-----
TOTAL EXPENDITURES	8,694,851.30
	-----
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	----- 467,046.44 -----

OTHER FINANCING SOURCES(USES)

TRANSFERS TO MUNICIPALITIES	( 449,693.31)
	-----
TOTAL OTHER FINANCING SOURCES(USES)	( 449,693.31)
	-----

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$ 17,353.13 =====
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OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 SOCSDS OPERATION AND MANT PC

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87710

REVENUES

GAIN ON SALE OF VEHICLES	\$	2,600.00
INCOME FROM INVESTMENTS		87,640.56
LOOK BACK ADJUSTMENT		867,146.50
POLLUTION CONTROL SERVICES		5,850,000.00
REIMBURSEMENT-ACCOUNTING SERV.		30,440.68
REIM FOR SALARIES-DRAIN PROJ		1,756.17
		-----
TOTAL REVENUES		6,839,583.91
		-----

EXPENDITURES

SALARIES - REGULAR	153,472.31
OVERTIME	7,031.19
HOLIDAY	6,968.49
HOLIDAY OVERTIME	195.99
ANNUAL LEAVE	9,921.93
HOLIDAY COMP.	687.65
SICK LEAVE	3,176.68
RETROACTIVE	562.33
SHIFT PREMIUM	123.43
SERVICE INCREMENT	7,238.72
SUMMER HELP	1,072.00
WORKMEN'S COMP.	279.23
FRINGE BENEFITS	6,467.08
FRINGE BENEFITS-WORKERS COMP	1,693.26
FRINGE BENEFITS-GROUP LIFE	457.71
FRINGE BENEFITS-RETIREMENT	28,428.96
FRINGE BENEFITS-HOSPITALIZATIO	13,305.87
FRINGE BENEFIT-SOCIAL SECURITY	12,213.88
FRINGE BENEFIT-DENTAL	2,112.87
FRINGE BENEFITS-DISABILITY	1,490.99
INVESTMENT FEES	187.49
AUCTION EXPENSE	154.53
AUDITING SERVICE	4,260.00
BUILDING MAINTENANCE CHARGES	29,460.50
DEPRECIATION-EQUIP-OPERATING	2,860.60
EQUIPMENT REPAIR - OPERATING	12,416.84
EQUIPMENT REPAIR - MTR VEHICLE	1,317.99
EQUIPMENT RENTAL	754.20
EQUIPMENT REPAIRS & MAINT.	20,474.88

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 SOCSDS OPERATION AND MANT PC

DECEMBER 31, 1987

	CONSTRUCTION FUND NO 87710
GARBAGE & RUBBISH DISPOSAL	816.05
GAS - NATURAL	7,461.53
INSURANCE	7,597.06
LANDS & GROUNDS MAINTENANCE	1,100.09
LAUNDRY & CLEANING	3,010.86
LIGHT AND POWER	25,192.75
MAINTENANCE CONTRACT	4,780.90
MAINTENANCE EQUIPMENT RENTAL	211.94
MEMBERSHIP DUES & PUBLICATIONS	99.50
POLLUTION CONTROL SERVICES	5,346,224.70
PROTECTIVE CLOTHING & EQUIP.	1,601.57
SEWER MAINTENANCE	40.22
TRAVEL & CONFERENCE	1,170.01
WATER AND SEWAGE CHARGES	9,826.94
CHLORINATION SUPPLIES	55,605.65
FILM & PROCESSING	149.19
OFFICE SUPPLIES	1,376.70
POSTAGE	116.07
SHOP SUPPLIES	5,183.48
DPW WATER & SEWER EQUIPMENT	835.03
CENTRAL STORES-HOUSKEEPING SUP	1,062.22
RADIO COMMUNICATIONS	1,989.36
LEASED VEHICLES	6,189.32
EQUIPMENT RENTAL	129.06
STATIONERY STOCK	9.33
TELEPHONE COMMUNICATIONS	1,348.43
DRAIN EQUIPMENT	3,877.71
	-----
TOTAL EXPENDITURES	5,813,793.27
	-----
EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	----- 1,025,790.64 -----
OTHER FINANCING SOURCES(USES)	
TRANSFERS TO MUNICIPALITIES	( 867,146.55)
	-----
TOTAL OTHER FINANCING SOURCES(USES)	( 867,146.55)
	-----
EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$ 158,644.09 =====

OAKLAND COUNTY  
 CHAPTER 20 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 CADDELL DRAINAGE DISTRICT

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 81600

ASSETS

CASH	\$	2,101.16
INVESTMENTS		242,500.00
ACCRUED INTEREST RECEIVABLE		2,735.70
FIXED ASSETS		5,447,363.63
		-----
TOTAL ASSETS	\$	5,694,700.49
		=====

LIABILITIES

ACCOUNTS PAYABLE	\$	119,683.00
DUE TO OTHER FUNDS		7,259.18
		-----
TOTAL LIABILITIES		126,942.18
		-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		5,447,363.63
UNDESIGNATED		88,498.68
DESIGNATED		31,896.00
		-----
		5,567,758.31
		-----
		-----
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	5,694,700.49
		=====

OAKLAND COUNTY  
 CHAPTER 20 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 CADDELL DRAINAGE DISTRICT

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 81600

REVENUES

INCOME FROM INVESTMENTS	\$	25,146.32
PERMITS		350.00
REIMBURSEMENTS-GENERAL		557.00
PROPERTY TAX LEVY		435,000.00
		-----
TOTAL REVENUES		461,053.32
		-----

EXPENDITURES

SALARIES - REGULAR	31,486.61
PER DIEM	325.00
FRINGE BENEFITS	11,335.17
INVESTMENT FEES	237.98
LEGAL EXPENSE	1,854.62
CONTRACTED SERVICES	1,552,996.34
COPIER MACHINE RENTAL	127.44
DESIGN FEES	1,672.30
EQUIPMENT RENTAL	164.95
INTEREST EXPENSE	1,664.17
LAYOUT AND STAKING	22,007.98
OTHER ENGINEERING SERVICES	18,021.71
PURCHASE OF LAND & EASEMENT	146,589.31
RECORDING FEES	23.10
TRANSPORTATION	4,790.80
FILM & PROCESSING	48.90
MATERIAL & SUPPLIES	13.41
OFFICE SUPPLIES	33.34
DRAIN EQUIPMENT	464.40
	-----
TOTAL EXPENDITURES	1,793,853.53
	-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- ( 1,332,800.21) -----
--	--	-----------------------------------

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES		\$ ( 1,332,800.21) =====
--	--	-----------------------------

OAKLAND COUNTY  
 CHAPTER 20 MAINTENANCE FUNDS  
 BALANCE SHEET  
 DOYON DRAINAGE DISTRICT

DECEMBER 31, 1987

MAINTENANCE  
 FUND NO  
 89596

ASSETS

CASH	\$	1,901.05
INVESTMENTS		31,000.00
ACCRUED INTEREST RECEIVABLE		242.19
FIXED ASSETS		309,198.80
		-----
TOTAL ASSETS	\$	342,342.04
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	614.10
		-----
TOTAL LIABILITIES		614.10
		-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		309,198.30
UNDESIGNATED		32,529.14
		-----
TOTAL FUND BALANCE		341,727.94
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	342,342.04
		=====

OAKLAND COUNTY  
 CHAPTER 20 MAINTENANCE FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 DOYON DRAINAGE DISTRICT

DECEMBER 31, 1987

MAINTENANCE  
 FUND NO  
 89596

REVENUES

DEPOSITS - ENG PLANS & SPECS	\$	145.00
INCOME FROM INVESTMENTS		3,688.89
PERMITS		250.00
		-----
TOTAL REVENUES		4,083.89
		-----

EXPENDITURES

SALARIES - REGULAR		9,929.75
PER DIEM		325.00
FRINGE BENEFITS		3,574.70
INVESTMENT FEES		34.90
ADVERTISING		75.00
CONTRACTED SERVICES		34,396.33
COPIER MACHINE RENTAL		.56
EQUIPMENT RENTAL		83.62
PURCHASE OF LAND & EASEMENT		1,725.00
RECORDING FEES		28.75
TRANSPORTATION		633.70
ENGINEERING SUPPLIES		89.13
MATERIAL & SUPPLIES		95.00
OFFICE SUPPLIES		33.34
MICROFILM & REPRODUCTIONS		45.88
DRAIN EQUIPMENT		622.14
		-----
TOTAL EXPENDITURES		51,713.80
		-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- ( 47,629.91) -----
--	--	--------------------------------

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$(	47,629.91) =====
--	-----	---------------------

OAKLAND COUNTY  
 CHAPTER 20 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 FREDERICKS DRAIN

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 81625

ASSETS

CASH	\$	489.15
INVESTMENTS		2,401,000.00
ACCRUED INTEREST RECEIVABLE		24,717.15
FIXED ASSETS		849,338.50
		-----
TOTAL ASSETS	\$	3,275,544.80
		=====

LIABILITIES

ACCOUNTS PAYABLE	\$	4,450.00
DUE TO OTHER FUNDS		14,099.23
		-----
TOTAL LIABILITIES		18,549.23
		-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		849,338.50
UNDESIGNATED		2,403,083.91
DESIGNATED		4,573.16
		-----
		3,256,995.57
		-----
		-----
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	3,275,544.80
		=====



OAKLAND COUNTY  
 CHAPTER 20 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 FREDERICKS DRAIN

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 81625

REVENUES

INCOME FROM INVESTMENTS	\$	119,015.98
		-----
TOTAL REVENUES		119,015.98
		-----

EXPENDITURES

SALARIES - REGULAR	45,513.12
PER DIEM	350.00
FRINGE BENEFITS	16,384.69
INVESTMENT FEES	943.14
LEGAL EXPENSE	750.95
APPRAISAL FEES	90.00
CONTRACTED SERVICES	625,977.82
COPIER MACHINE RENTAL	25.25
EQUIPMENT RENTAL	673.75
LICENSES AND PERMITS	1,445.72
OTHER ENGINEERING SERVICES	86,012.69
PUBLISHING LEGAL NOTICES	1,305.33
PURCHASE OF LAND & EASEMENT	56,975.00
RECORDING FEES	295.50
TRANSPORTATION	4,908.95
ENGINEERING SUPPLIES	187.00
FILM & PROCESSING	99.44
MATERIAL & SUPPLIES	111.50
OFFICE SUPPLIES	33.33
MICROFILM & REPRODUCTIONS	67.75
DRAIN EQUIPMENT	530.00
	-----
TOTAL EXPENDITURES	842,685.93
	-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- ( 723,669.95) -----
--	--	---------------------------------

OTHER FINANCING SOURCES(USES)

OPERATING TRANSFERS IN		3,137,979.59
		-----
TOTAL OTHER FINANCING SOURCES(USES)		3,137,979.59
		-----

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$	2,414,309.64 =====
--	----	-----------------------

OAKLAND COUNTY  
 CHAPTER 20 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 HOLLAND DRAIN

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 81618

ASSETS

CASH	\$	2,446.30
INVESTMENTS		340,000.00
ACCRUED INTEREST RECEIVABLE		2,994.01
FIXED ASSETS		1,301,174.68
		-----
TOTAL ASSETS	\$	1,646,614.99
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	4,756.17
		-----
TOTAL LIABILITIES		4,756.17
		-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		1,301,174.68
UNDESIGNATED		340,684.14
		-----
TOTAL FUND BALANCE		1,641,858.82
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	1,646,614.99
		=====

OAKLAND COUNTY  
 CHAPTER 20 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 HOLLAND DRAIN

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 81618

REVENUES

INCOME FROM INVESTMENTS	\$	31,194.75
PERMITS		50.00
		-----
TOTAL REVENUES		31,244.75
		-----

EXPENDITURES

SALARIES - REGULAR		40,704.17
PER DIEM		500.00
FRINGE BENEFITS		14,653.53
INVESTMENT FEES		279.83
LEGAL EXPENSE		2,111.11
CONTRACTED SERVICES		1,099,024.71
COPIER MACHINE RENTAL		161.45
EQUIPMENT RENTAL		422.50
OTHER ENGINEERING SERVICES		2,099.15
PURCHASE OF LAND & EASEMENT		1,675.30
RECORDING FEES		94.00
TRANSPORTATION		3,229.75
ENGINEERING SUPPLIES		123.00
FILM & PROCESSING		32.95
MATERIAL & SUPPLIES		19.95
OFFICE SUPPLIES		314.86
DRAIN EQUIPMENT		40.60
		-----
TOTAL EXPENDITURES		1,165,487.86
		-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		( 1,134,243.11)
		-----

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$(	1,134,243.11)
		=====

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 C.O.S.D.S. AUBURN HILLS EXT.#2

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87415

ASSETS

CASH		\$	31,443.81)
FIXED ASSETS			120,599.16
			-----
TOTAL ASSETS		\$	89,155.35
			=====

LIABILITIES

DUE TO OTHER FUNDS		\$	89,069.45
VOUCHERS PAYABLE			85.90
			-----
TOTAL LIABILITIES			89,155.35
			-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS			120,599.16
UNDESIGNATED		(	120,599.16)
			-----
			-----
TOTAL LIABILITIES & FUND BALANCE		\$	89,155.35
			=====

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 C.O.S.D.S. AUBURN HILLS EXT.#2

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87415

EXPENDITURES

SALARIES - REGULAR	23,096.29
FRINGE BENEFITS	8,170.67
LEGAL EXPENSE	219.03
PERSONAL MILEAGE	418.75
PHOTOCOPY EXPENSE	591.22
PUBLISHING LEGAL NOTICES	1,726.63
PURCHASE OF LAND & EASEMENT	85,288.87
TRANSPORTATION	4.00
MICROFILM & REPRODUCTIONS	9.92
DRAIN EQUIPMENT	1,073.78
	-----
TOTAL EXPENDITURES	120,599.16
	-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	-----
	( 120,599.16)
	-----

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	-----
	\$( 120,599.16)
	=====

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 AUBURN HILLS WSS EXT. NO.3

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87410

ASSETS

CASH		\$ (	16,633.76)
FIXED ASSETS			458,623.41
			-----
TOTAL ASSETS		\$	441,989.65
			=====

LIABILITIES

ADVANCES AND LOANS PAYABLE		\$	403,000.00
DUE TO OTHER FUNDS			38,817.70
VOUCHERS PAYABLE			171.95
			-----
TOTAL LIABILITIES			441,989.65
			-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS			458,623.41
UNDESIGNATED		(	482,919.41)
DESIGNATED			24,296.00
			-----
			-----
			-----
TOTAL LIABILITIES & FUND BALANCE		\$	441,989.65
			=====

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 AUBURN HILLS WSS EXT. NO.3

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87410

EXPENDITURES

SALARIES - REGULAR	39,151.25
FRINGE BENEFITS	13,986.43
LEGAL EXPENSE	472.35
CONTRACTED SERVICES	367,004.00
PERSONAL MILEAGE	455.75
PHOTOCOPY EXPENSE	522.86
PUBLISHING LEGAL NOTICES	1,586.15
PURCHASE OF LAND & EASEMENT	32,642.63
MATERIAL & SUPPLIES	29.52
POSTAGE	9.00
DRAIN EQUIPMENT	2,763.47

TOTAL EXPENDITURES	458,623.41
--------------------	------------

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	( 458,623.41)
--	---------------

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$( 458,623.41)
--	-----------------

OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 MILFORD S.D.S. EXT. #2

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87388

ASSETS

CASH	\$	26,143.96
INVESTMENTS		450,000.00
UNDEPOSITED CASH		124,795.00
DUE FROM FEDERAL GOVERNMENT		568,325.00
ACCRUED INTEREST RECEIVABLE		1,312.50
FIXED ASSETS		6,329,881.23
		-----
TOTAL ASSETS	\$	7,500,457.69
		=====

LIABILITIES

ACCOUNTS PAYABLE	\$	33,759.80
DUE TO OTHER FUNDS		453.00
VOUCHERS PAYABLE		142,809.73
DEFERRED INCOME		568,325.00
		-----
TOTAL LIABILITIES		745,347.53
		-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		6,329,881.23
UNDESIGNATED	(	20,011.42)
DESIGNATED		445,240.35
		-----
		6,755,110.16
		-----
		-----
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	7,500,457.69
		=====



OAKLAND COUNTY  
 ACT 342 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 MILFORD S.D.S. EXT. #2

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 87388

REVENUES

GARNISHMENT FEES	\$	2.00
GRANTS		3,079,209.00
INCOME FROM INVESTMENTS		82,144.30
		-----
TOTAL REVENUES		3,161,355.30
		-----

EXPENDITURES

SALARIES - REGULAR	43,024.19
FRINGE BENEFITS	14,768.69
LEGAL EXPENSE	17,719.03
CONTRACT ADMINISTRATION	237,232.23
CONTRACTED SERVICES	4,892,628.19
DESIGN FEES	23,431.71
INSPECTION	92,254.83
OTHER ENGINEERING SERVICES	550.33
PERSONAL MILEAGE	62.00
PHOTOCOPY EXPENSE	5.00
PURCHASE OF LAND & EASEMENT	4,920.06
RECORDING FEES	113.65
TRANSPORTATION	1.25
MATERIAL & SUPPLIES	179.10
DRAIN EQUIPMENT	4,434.69
	-----
TOTAL EXPENDITURES	5,331,324.95
	-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES	----- ( 2,169,969.65) -----
--	-----------------------------------

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$ ( 2,169,969.65) =====
--	-----------------------------

OAKLAND COUNTY  
 ACT 185 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 COSDS ORION TWP EXT #4

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 83964

ASSETS

CASH	\$	34,279.53
INVESTMENTS		250,000.00
ACCRUED INTEREST RECEIVABLE		729.17
FIXED ASSETS		863,732.55
		-----
TOTAL ASSETS	\$	1,148,741.25
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	567.78
		-----
TOTAL LIABILITIES		567.78
		-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		863,732.55
UNDESIGNATED		284,440.92
		-----
		1,148,173.47
		-----
		-----
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	1,148,741.25
		=====

OAKLAND COUNTY  
 ACT 185 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 COSDS ORION TWP EXT #4

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 83964

REVENUES

INCOME FROM INVESTMENTS	\$	40,991.69
		-----
TOTAL REVENUES		40,991.69
		-----

EXPENDITURES

SALARIES - REGULAR		29,748.25
FRINGE BENEFITS		10,601.38
INVESTMENT FEES		91.32
LEGAL EXPENSE		1,149.16
CONTRACT ADMINISTRATION		9,543.60
CONTRACTED SERVICES		670,552.07
DESIGN FEES		65,000.00
LAYOUT AND STAKING		16,102.27
LICENSES AND PERMITS		1,030.47
PERSONAL MILEAGE		88.00
PHOTOCOPY EXPENSE		17.55
PUBLISHING LEGAL NOTICES		156.00
PURCHASE OF LAND & EASEMENT		960.00
RECORDING FEES		52.00
R/W NEGOTIATION AND EXPENSE		950.00
SOIL TEST BORINGS		9,992.22
OFFICE SUPPLIES		33.33
DRAIN EQUIPMENT		3,060.10
		-----
TOTAL EXPENDITURES		819,127.72
		-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		-----
	(	778,136.03)
		-----

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES		-----
	\$(	778,136.03)
		=====

OAKLAND COUNTY  
 ACT 185 CONSTRUCTION FUNDS  
 BALANCE SHEET  
 WEST BLOOMFIELD WSS-SECTION 8

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 83963

ASSETS

CASH	\$	31,970.92
INVESTMENTS		100,000.00
ACCRUED INTEREST RECEIVABLE		287.78
FIXED ASSETS		322,789.22
		-----
TOTAL ASSETS	\$	455,047.92
		=====

LIABILITIES

DUE TO OTHER FUNDS	\$	26,879.35
VOUCHERS PAYABLE		19,958.00
		-----
TOTAL LIABILITIES		46,837.35
		-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		322,789.22
UNDESIGNATED		81,979.35
DESIGNATED		3,442.00
		-----
		408,210.57
		-----
		-----
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	455,047.92
		=====

OAKLAND COUNTY  
 ACT 185 CONSTRUCTION FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 WEST BLOOMFIELD WSS-SECTION 8

DECEMBER 31, 1987

CONSTRUCTION  
 FUND NO  
 83963

REVENUES

INCOME FROM INVESTMENTS	\$	20,010.68
		-----
TOTAL REVENUES		20,010.68
		-----

EXPENDITURES

SALARIES - REGULAR		11,362.63
FRINGE BENEFITS		4,054.57
INVESTMENT FEES		45.35
CONTRACT ADMINISTRATION		3,509.44
CONTRACTED SERVICES		255,293.00
DESIGN FEES		16,331.35
LAYOUT AND STAKING		5,559.96
PERSONAL MILEAGE		5.00
PUBLISHING LEGAL NOTICES		144.00
RECORDING FEES		5.00
MATERIAL & SUPPLIES		27.44
OFFICE SUPPLIES		95.20
DRAIN EQUIPMENT		1,498.10
		-----
TOTAL EXPENDITURES		297,931.54
		-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- ( 277,920.86) -----
--	--	---------------------------------

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	\$(	277,920.86) =====
--	-----	----------------------

OAKLAND COUNTY  
DAM REPLACEMENT FUNDS  
BALANCE SHEET  
INDIANWOOD LAKE DAM

DECEMBER 31, 1987

IMPROVEMENT  
FUND NO  
80902

ASSETS

CASH	\$	2,264.20
ASSESSMENTS RECEIVABLE		103,715.46
FIXED ASSETS		147,611.14
		-----
TOTAL ASSETS	\$	253,590.80
		=====

LIABILITIES

ADVANCES AND LOANS PAYABLE	\$	100,000.00
DUE TO OTHER FUNDS		27,808.86
DEFERRED INCOME		86,615.42
		-----
TOTAL LIABILITIES		214,424.28
		-----

FUND-BALANCE

INVESTMENT IN FIXED ASSETS		147,611.14
UNDESIGNATED	(	108,444.62)
		-----
TOTAL FUND BALANCE		39,166.52
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	253,590.80
		=====

OAKLAND COUNTY  
 DAM REPLACEMENT FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 INDIANWOOD LAKE DAM

DECEMBER 31, 1987

IMPROVEMENT  
 FUND NO  
 80902

REVENUES

MISCELLANEOUS	\$	2,601.00
PROPERTY TAX LEVY		19,144.61
		-----
TOTAL REVENUES		21,745.61
		-----

EXPENDITURES

SALARIES - REGULAR		7,335.82
FRINGE BENEFITS		2,843.57
CONTRACTED SERVICES		76,381.36
PHOTOCOPY EXPENSE		30.00
PUBLISHING LEGAL NOTICES		415.10
ENGINEERING SUPPLIES		136.84
FILM & PROCESSING		30.75
MAINTENANCE SUPPLIES		143.80
POSTAGE		203.01
DRAIN EQUIPMENT		1,834.42
		-----
TOTAL EXPENDITURES		89,360.17
		-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		-----
	(	67,614.56)
		-----

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES		-----
	\$(	67,614.56)
		=====

OAKLAND COUNTY  
DAM REPLACEMENT FUNDS  
BALANCE SHEET  
PRICE DAM

DECEMBER 31, 1987

IMPROVEMENT  
FUND NO  
80904

ASSETS

CASH	\$	2,572.42
INVESTMENTS		122,700.00
ASSESSMENTS RECEIVABLE		342,865.98
ACCRUED INTEREST RECEIVABLE		49.25
FIXED ASSETS		431,474.54
		-----
TOTAL ASSETS	\$	899,662.19
		=====

LIABILITIES

ADVANCES AND LOANS PAYABLE	\$	400,000.00
DUE TO OTHER FUNDS		154.84
DEFERRED INCOME		285,721.65
		-----
TOTAL LIABILITIES		685,876.49
		-----

FUND-BALANCE

RESERVES		97,700.00
INVESTMENT IN FIXED ASSETS		431,474.54
UNDESIGNATED	(	315,388.84)
		-----
TOTAL FUND BALANCE		213,785.70
		-----
TOTAL LIABILITIES & FUND BALANCE	\$	899,662.19
		=====



OAKLAND COUNTY  
 DAM REPLACEMENT FUNDS  
 STATEMENT OF REVENUE & EXPENDITURES  
 PRICE DAM

DECEMBER 31, 1987

IMPROVEMENT  
 FUND NO  
 80904

REVENUES

DEPOSITS - ENG PLANS & SPECS	\$	750.00
INCOME FROM INVESTMENTS		1,043.96
PROPERTY TAX LEVY		57,147.41
		-----
TOTAL REVENUES		58,941.37
		-----

EXPENDITURES

SALARIES - REGULAR		27,458.59
FRINGE BENEFITS		9,885.05
CONTRACTED SERVICES		353,675.67
ELECTRICAL SERVICE		31.07
ENGINEERING AND SURVEY		3,335.80
LICENSES AND PERMITS		123.88
PUBLISHING LEGAL NOTICES		1,155.04
RECORDING FEES		20.00
ENGINEERING SUPPLIES		24.00
FILM & PROCESSING		57.68
MAINTENANCE SUPPLIES		158.15
OFFICE SUPPLIES		98.80
POSTAGE		4,029.24
PRINT SHOP		1,922.11
DRAIN EQUIPMENT		1,597.06
		-----
TOTAL EXPENDITURES		403,572.14
		-----

EXCESS (DEFICIENCY) OF REVENUES OVER EXPENDITURES		----- ( 344,630.77) -----
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OTHER FINANCING SOURCES(USES)

OPERATING TRANSFERS IN		97,700.00
		-----
TOTAL OTHER FINANCING SOURCES(USES)		97,700.00
		-----

EXCESS (DEFICIENCY) OF REVENUES AND OTHER SOURCES OVER EXPENDITURES AND OTHER USES	-55-	\$ ( 246,930.77) =====
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