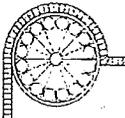


**Township of Brighton**

Sanitary Sewer System  
Information Session  
March 9, 1999

*"Heart of Michigan's Water Wonderland"*



**Township of Brighton**

Sanitary Sewer System  
Information Session  
March 9, 1999

*"Heart of Michigan's Water Wonderland"*

which one?

## **Project Team**

- Brighton Township Sewer Committee
  - Andrew Wardach, Township Supervisor
  - Bruce Kelly, Clark Lake
  - Frank Grapentien, Woodland Lake
  - Michael Longfellow-Jones, Lake of the Pines
  - Gregory Sonnanstine, West Grand River
  - Terry Woodward, Township-at-Large
- Joseph Moore, McNamee, Porter & Seeley, Inc. - Engineering Consultant
- Darrell Fecho, Brighton Township Manager
- Donna Krips, Brighton Township Administrative Coordinator
- Ronald Hyska, Brighton Township Assessor
- Paul Knopp, Brighton Township Building Official
- James Kiefer - Dykema Gossett, Bond Council
- Paul Stauder - Stauder, Berch & Associates, Inc. - Financial Advisor
- John Harris - Harris & Literski - Legal Council
- Don Hayduk, Livingston County Health Department

## **Public Information Session Topics**

- Preliminary Design Study
- Cost
- Project Financing
- Sanitary Sewer System Basis of Design
- Schedule
- Benefits of Public Sanitary Sewer System
- Livingston Co. Health Depart. Information

## **Preliminary Design Study**

- Phase I - Feasibility/Economic Analysis of Local Sanitary Sewers
  - Clark Lake - Low Pressure
  - East Grand River - Gravity
  - Fonda Lake - Low Pressure with Some Gravity
  - Lake of the Pines - Low Pressure
  - West Grand River - Low Pressure and Gravity
  - Woodland Lake - Low Pressure with Some Gravity

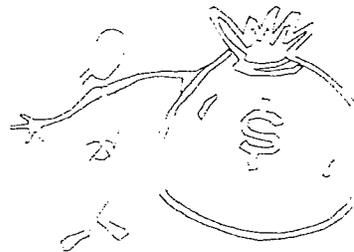
## **Preliminary Design Study**

- Phase II Report
  - Preliminary Design Drawings (Local Sanitary Sewers)
  - WWTP and Transmission Sewer Conceptual Design
  - Costs
  - Schedule

## Preliminary Design Study

- Policy Development by Project Team
  - Financing Structure
  - Size of WWTP
  - Assessment Format
  - Cost to Future Sewer Customers
  - Vacant Properties

**Cost**



## Project Cost Opinion

<u>Component</u>	<u>Cost</u>
• Local Collection Sewer	\$14,876,000
• Transportation Sewer	3,654,000
• WWTP (650,000 gpd)	6,080,000
<b>Total Project Cost</b>	<b>\$24,610,000</b>

### ■ Special Assessment Cost -

- Costs to Complete the Design and Construction of the Public Portion of the Sanitary Sewer Project

### ■ Quarterly Sewer Use Charge -

- Costs to Operate and Maintain the Public Portion of the Sanitary Sewer System. A Portion of the Quarterly Sewer Charge will Pay for the Remaining Design and Construction Costs of the Public Sanitary Sewer Project

### ■ Property Owner's Direct Cost -

- Pump Out and Abandon Existing Septic Tank
- Install Sewer Lead from Building to Public Sewer
- Electrical Cost for Grinder Pump

## Special Assessment Cost (Initial Customers)

- \$12,150 / Residential Equivalent Unit (REU)
- Properties with Existing Local Sewer System:
  - \$12,150 per REU for First REU
  - \$4,547 per REU for Additional REUs
- Vacant Properties:
  - Assigned 1 REU - \$12,150 per REU
  - Option to Purchase Additional REUs at \$4,547 per REU

First Special Assessment Payment Due December 2000

## Property Owner's Direct Cost

- Pump Out Ex. Septic Tank - \$100 to \$200
- Abandon (Fill and Crush) Ex. Septic Tank - \$300 - \$400
- Livingston Co. Health Dept. Permit - \$50
- Install Sewer Lead from Building to Public Sewer:
  - Gravity Sewer System - \$10 - \$15/ft.
  - Low Pressure Sewer System - \$15 - \$20/ft.  
(\$200 minimum)
- Grinder Pump Electrical Cost - \$2 - \$3/month

## Quarterly Sewer Use Charge

### ■ Three Cost Components

- Billing Charge = \$5.29 / bill
- Commodity Charge = \$2.86 / 1,000 gals.
- Debt Service Charge = \$12.00 / bill

## Typical Quarterly Sewer Bill

### ■ Customer with 1 REU (single family home)

- Billing Charge \$ 5.25
- Commodity Charge<sup>1</sup> 54.75
- Debt Service Charge 12.00
- \$72.00**

### ■ Customer with 5 REUs

- Billing Charge \$5.25
- Commodity Charge<sup>1</sup> 274.75
- Debt Service Charge 12.00
- \$292.00**

<sup>1</sup>Billable flow for each REU is 210 gpd or 19,110 gallons/qtr.

## **Costs to Typical Single Family House (1 REU)**

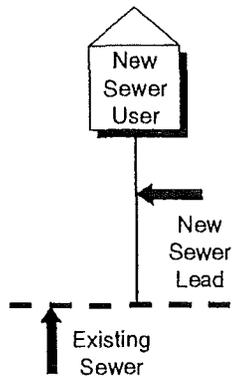
<b>Cost</b>	<b>Amount</b>
Special Assessment	\$12,150
Property Owner Direct Cost	\$1,000 - \$2,000
• One 1,500 Gal. Septic Tank	
• 50 Ft. of Sewer Lead	
Quarterly Sewer User Charge	\$72.00
Monthly Electrical Cost for Grinder Pump	\$2 - \$3

## **Connection Charges for Future Users**

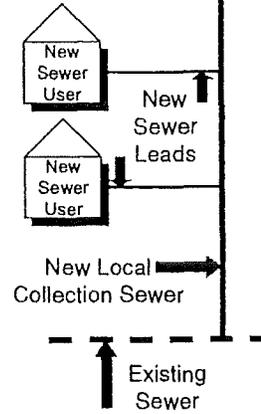
- Direct Connections (No Additional Local Sewer)
  - \$12,150/REU
  - Plus Additional Cost Pursuant to the Engineering News Record Construction Cost Index
- Indirect Connections (Additional Local Sewer)
  - \$6,075/REU
  - Plus Additional Cost Pursuant to the Engineering News Record Construction Cost Index
  - Property Owner to Pay for Cost of Local Sewer

## Type of Connections for Future Users

### Direct Connection



### Indirect Connection



## Sanitary Sewer System Basis of Design

- Overall Sewer System
- Initial Customer Data
- Local Collection Sewer
- Transmission Sewer
- Wastewater Treatment Plant

**(insert)**  
**Map of Township  
and Sewer System**

**Initial Customer Data**

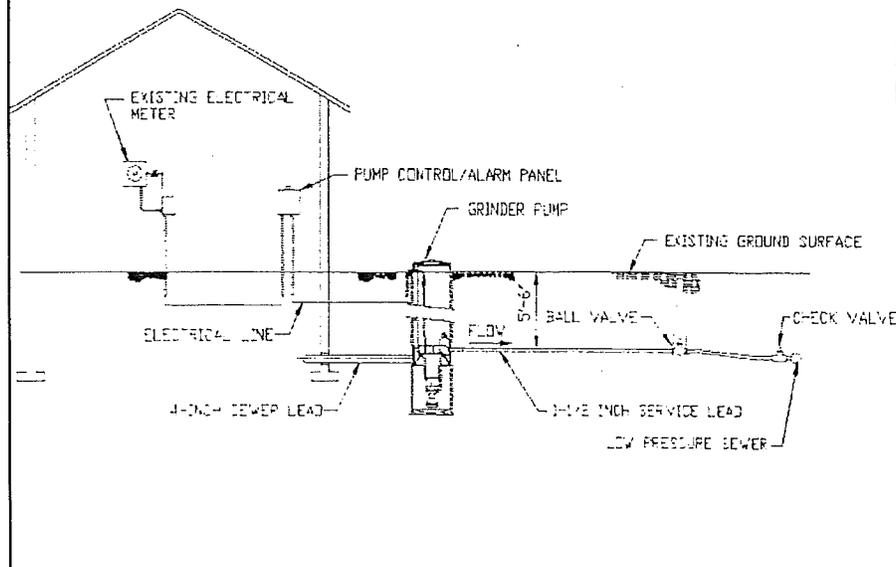
District	Number of Properties	Number of REUs	Average Sewage Flow <sup>1</sup> (gals. per day)
Clark Lake	109	109	28,340
East Grand River	84	319	82,940
Fonda Lake	78	110	28,600
Lake of the Pines	258	258	67,080
West Grand River	109	234	60,840
Woodland Lake	568	645	167,700
Totals	1,206	1,675	435,500

<sup>1</sup>260 gallons per day per REU

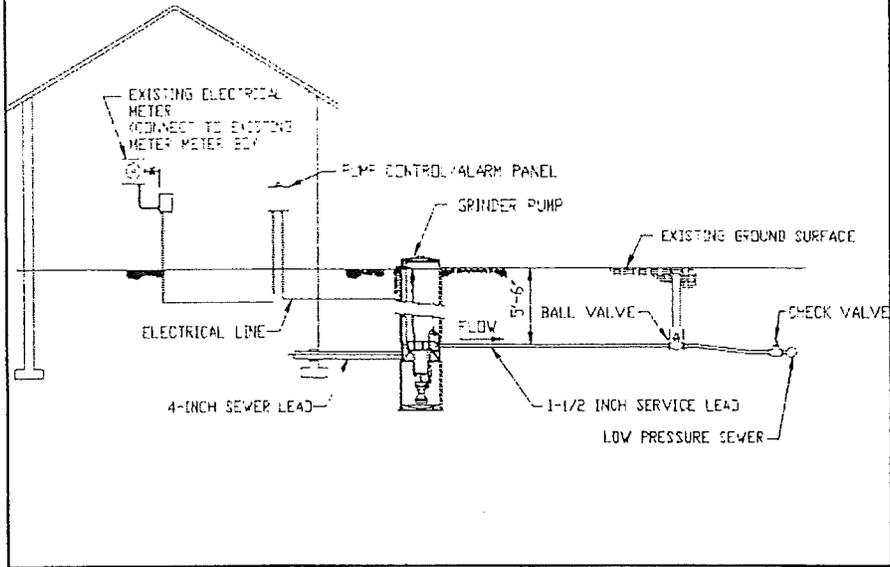
## Local Collection Sewer

- Gravity Sewer System
  - 6-inch Stub to Property Line
- Low Pressure/Grinder Pump System
  - Grinder Pump Location Coordinated with Property Owner
  - Grinder Pump 10 to 100 ft. from Structure
  - Connection to Existing Electrical Meter
  - Grinder Pump - 1 HP, 230 Volts, 30 Amp
  - System Operators Power-Up Pump in Power Outages

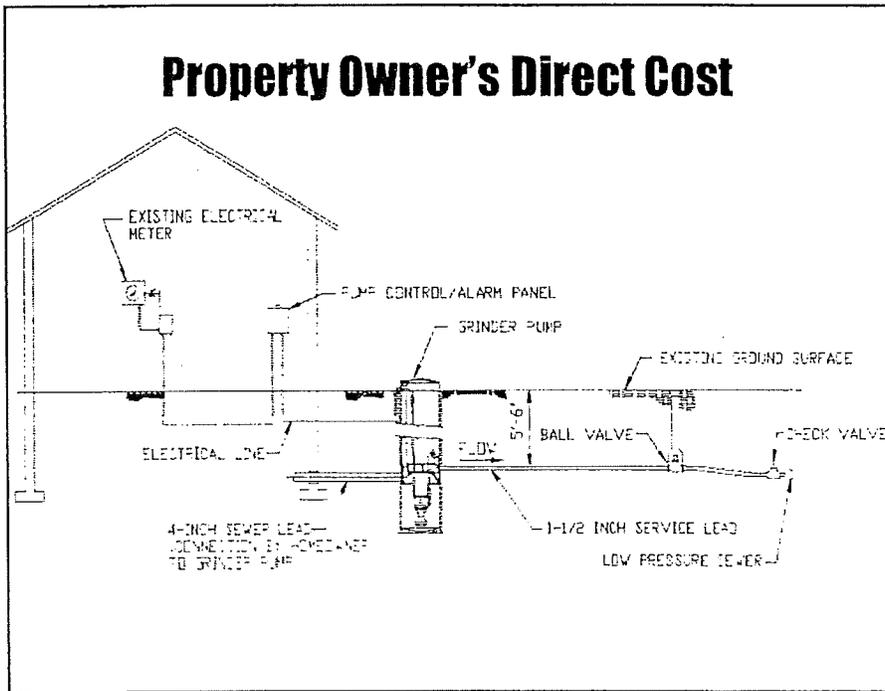
## Typical Grinder Pump Installation



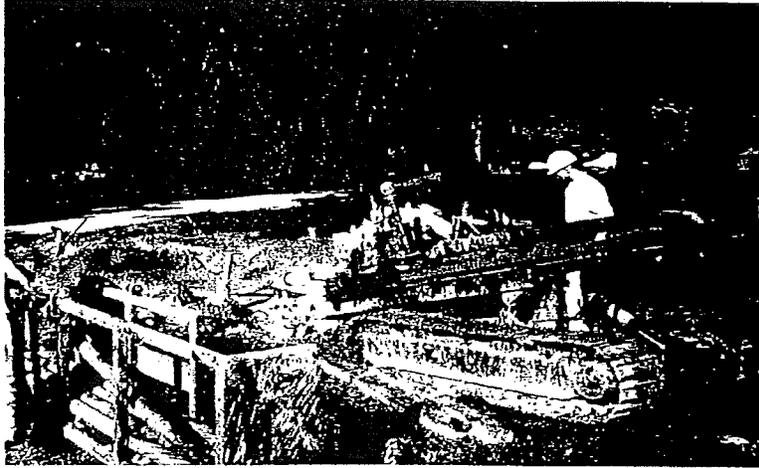
## Included in Special Assessment Cost



## Property Owner's Direct Cost



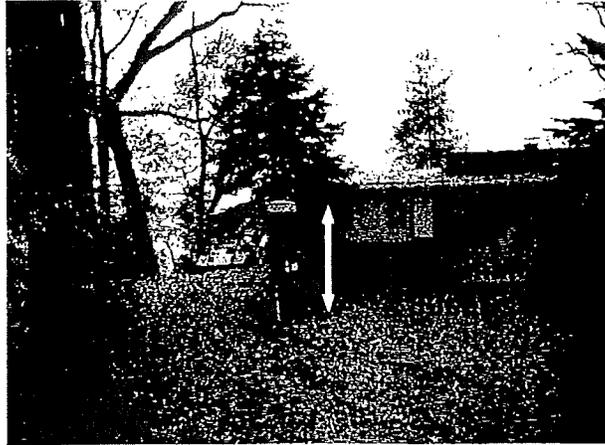
## **Directional Drilling Machine**



## **Typical Road and Yard Restoration**



## Typical Grinder Pump



## Grinder Pump at Final Location



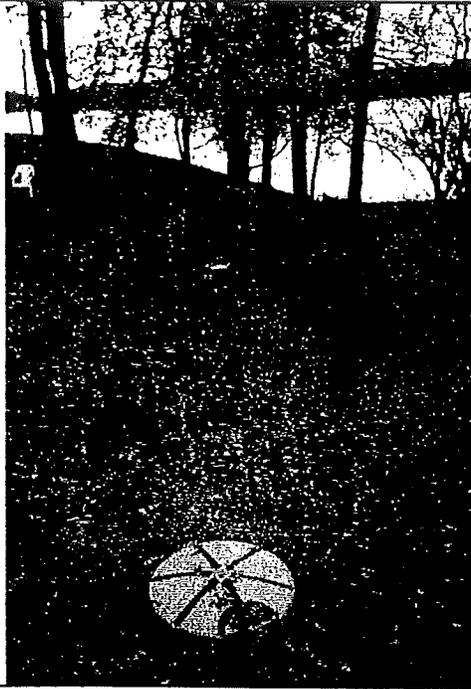
**Sewer Lateral  
Installation In  
Backyard**



**Bore Pits for  
Directional  
Drilling**



## Grinder Pump Installation



## Transmission Sewer

- Sized to Handle Anticipated Future Sewage Flow

## Wastewater Treatment Plant

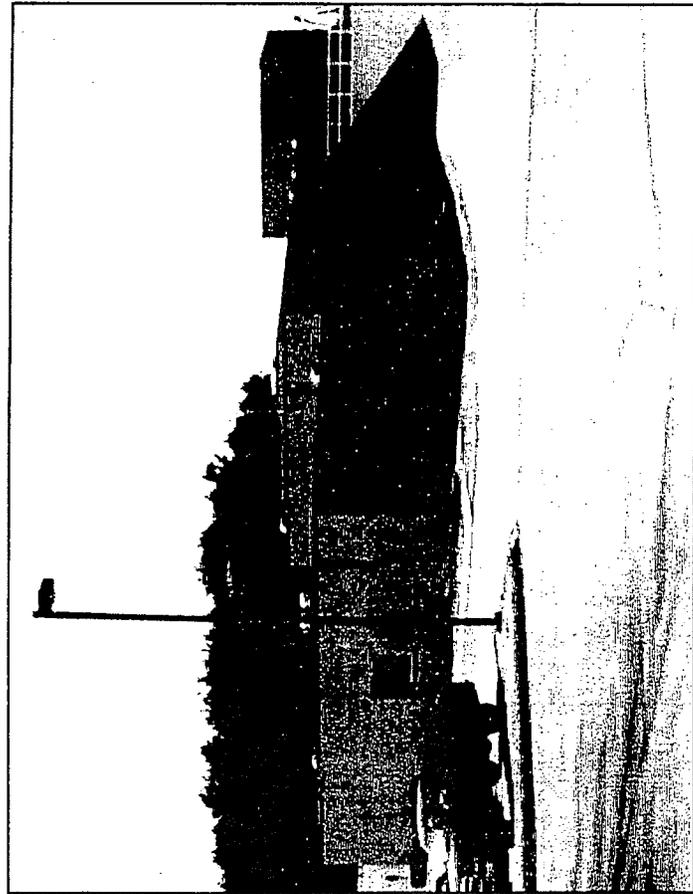
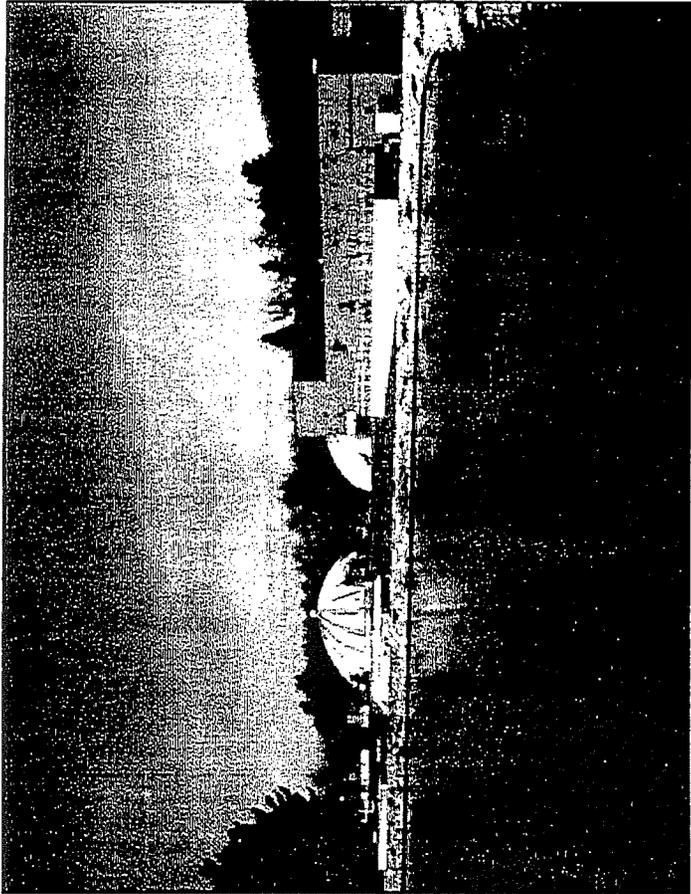
### ■ Design Flow:

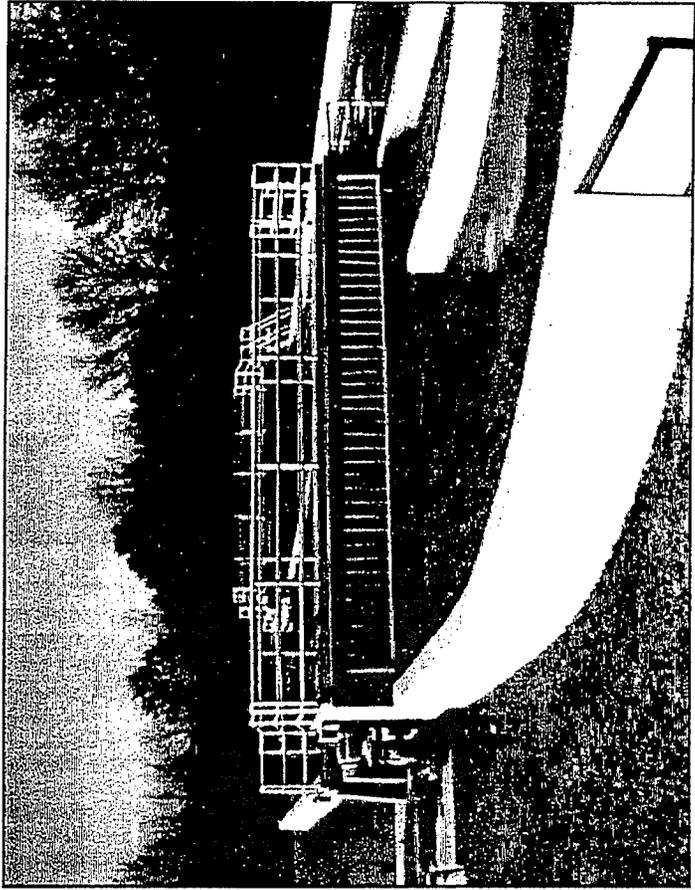
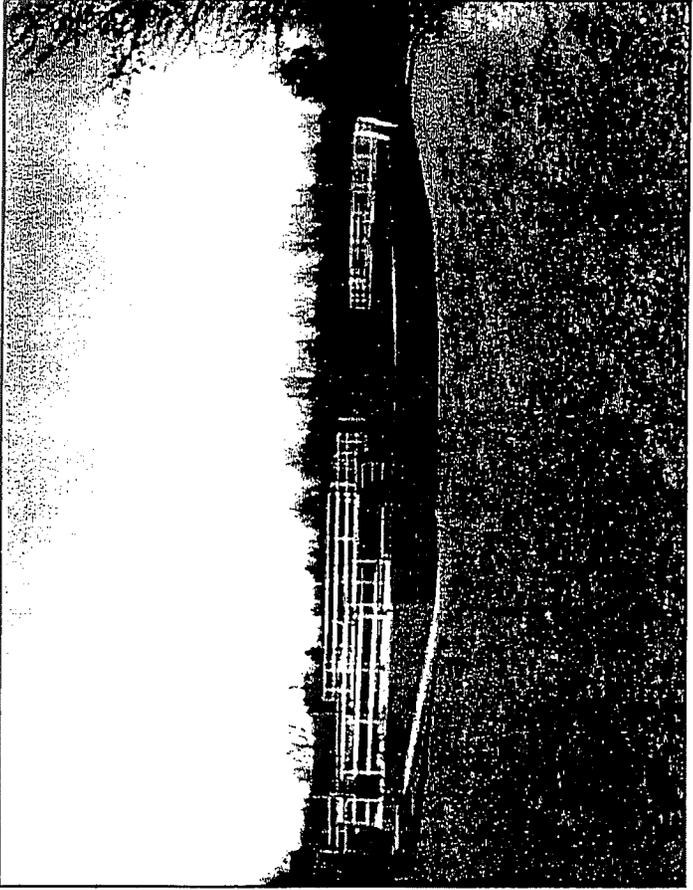
- 650,000 Gallons per Day (gpd) or 2,500 REUs
- 435,500 gpd or 1,675 REUs for Initial Customers

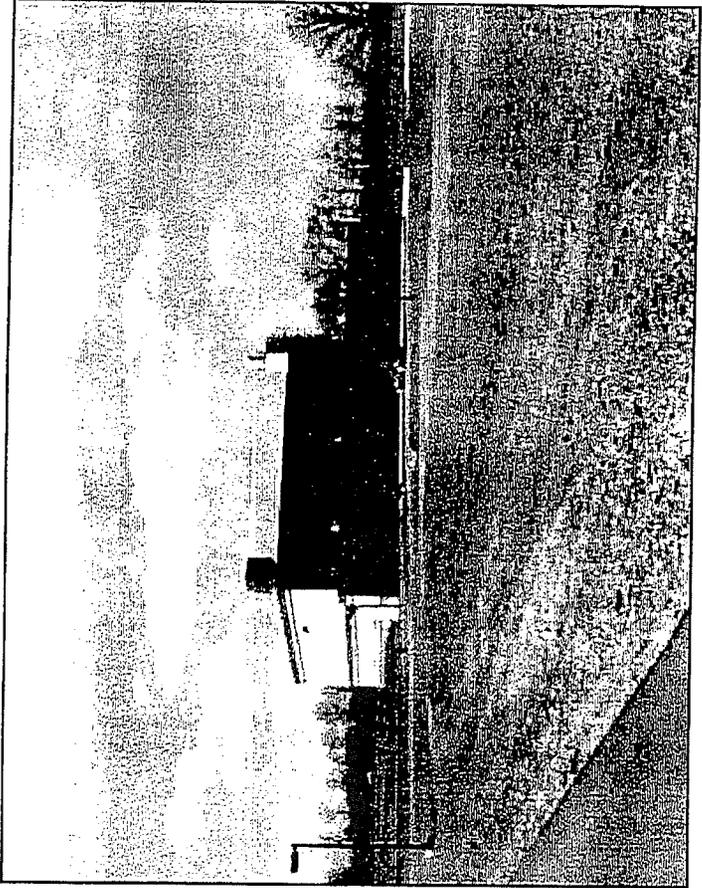
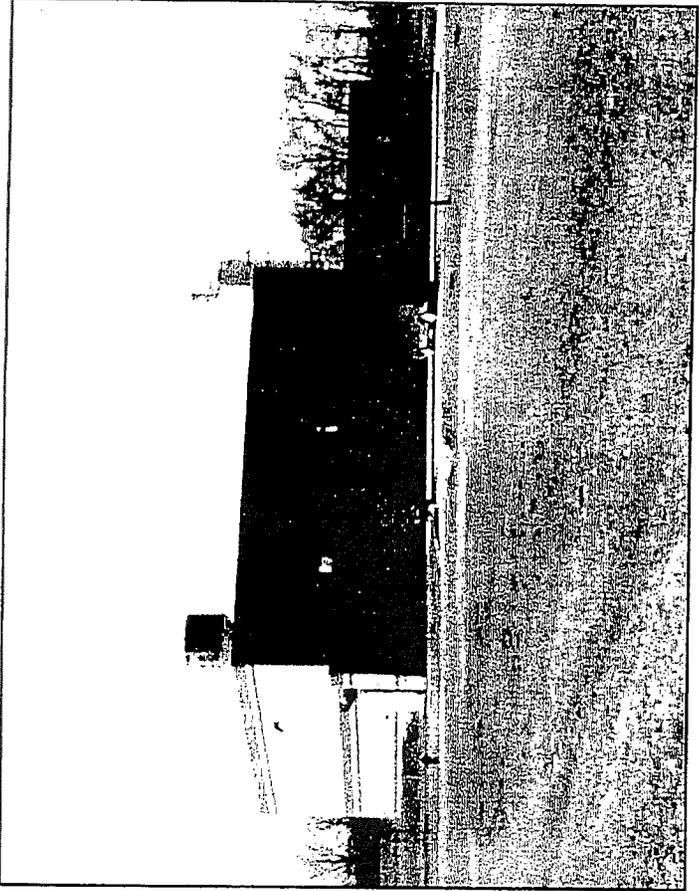
### ■ Treatment Capacity for Future Users:

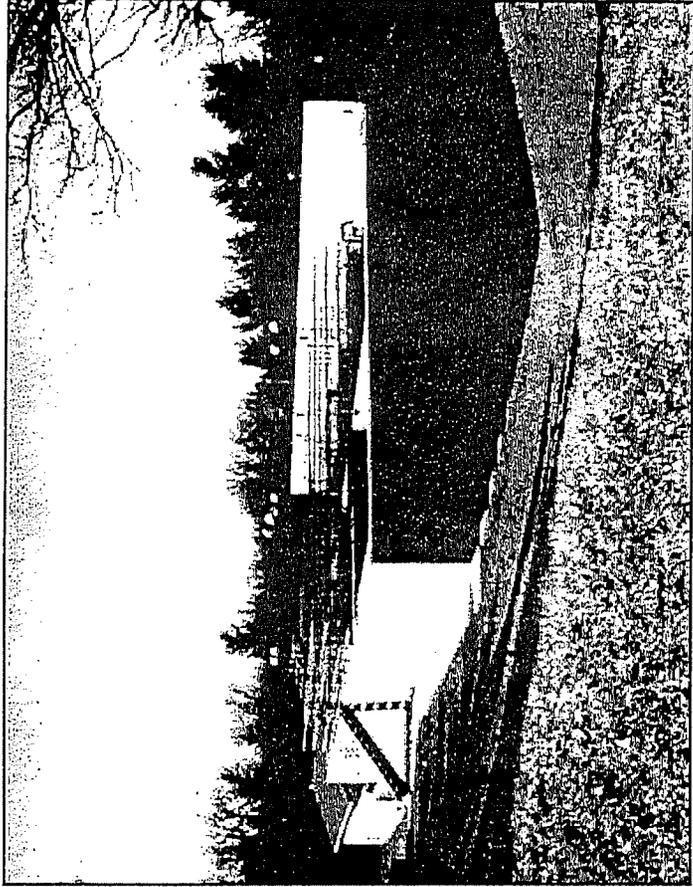
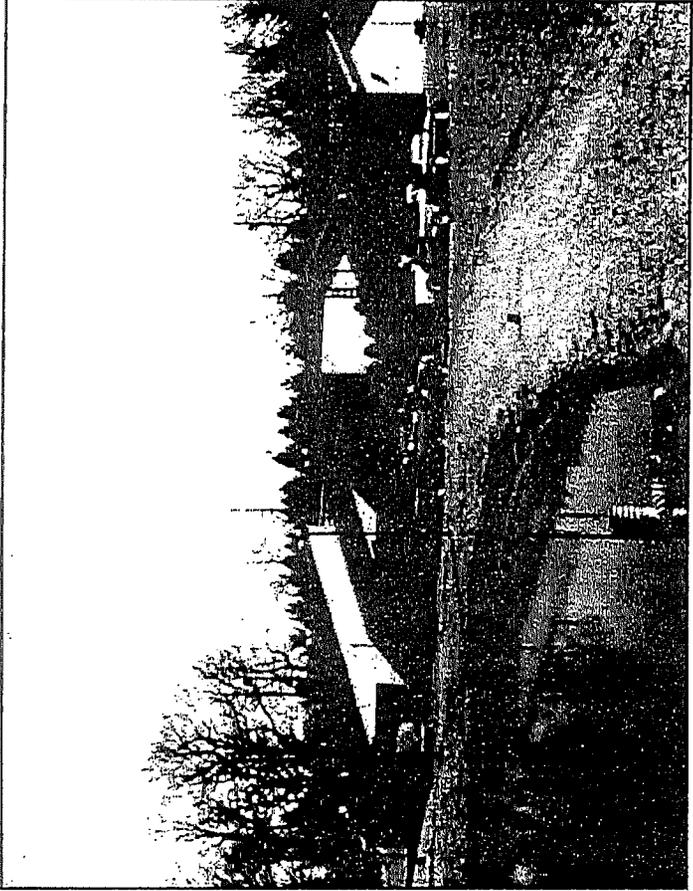
- 214,500 Gallons per Day or 825 REUs
- 5 Years of Future Users at a Connection Rate of 165 REUs per Year

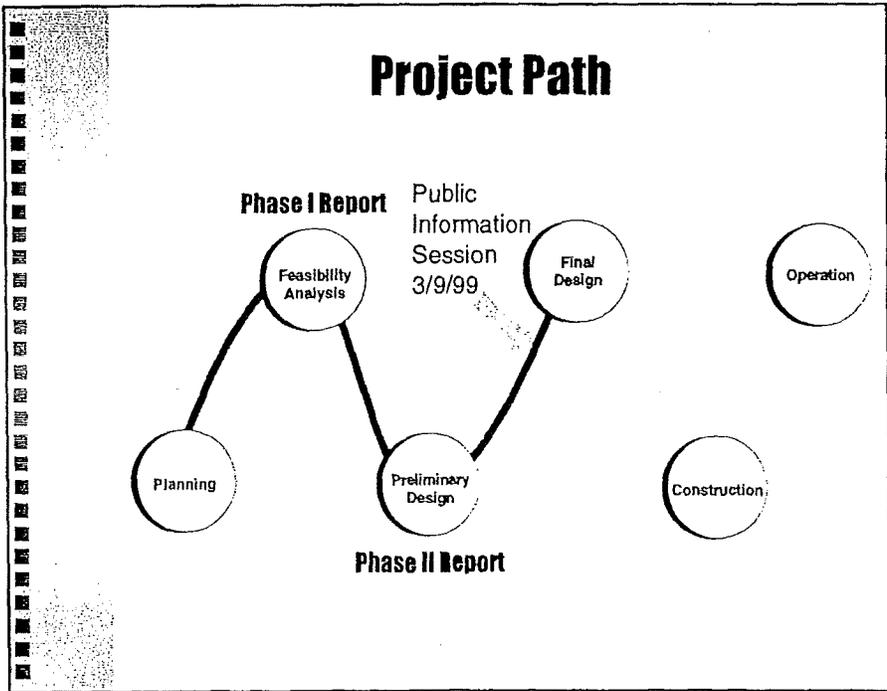
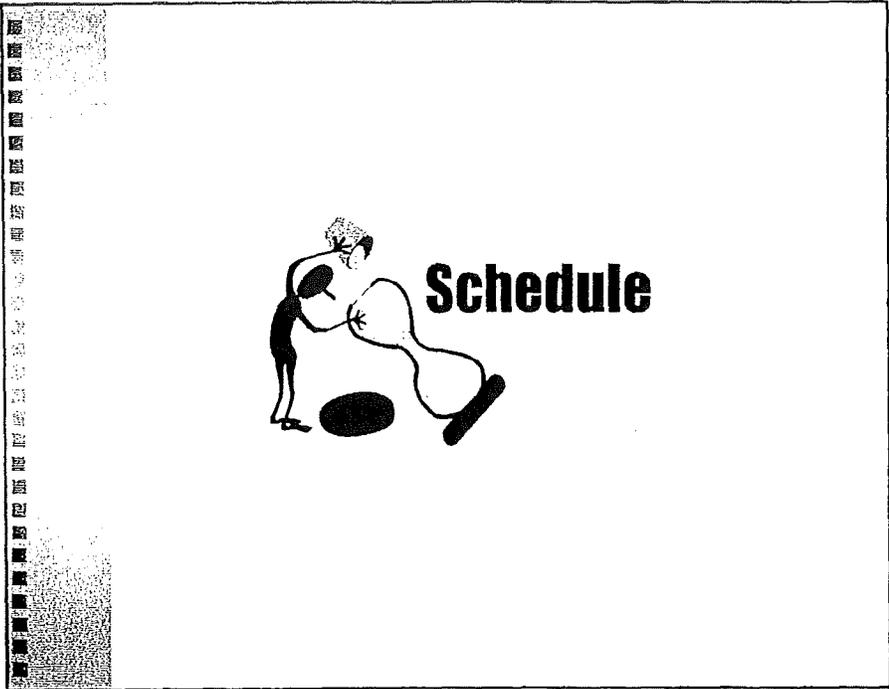










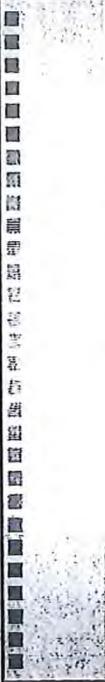


## Project Schedule

Milestone	Date
Public Information Session	March 9, 1999
Petitions to Township	May 14, 1999
First Public Hearing for Special Assessment (establish special assessment district)	June 1999
Start Final Design	June 1999
Construction Documents Out for Bidding	Dec. 1999
Construction Bids Received	Jan. 2000
Second Public Hearing for Special Assessment (finalize assessment roll)	Feb. 2000
Bond Sale/Close	March - April 2000
Start Construction	April 2000
First Installment of Special Assessment	Dec. 2000
Complete Construction	May 2001
Start System Operation	June 2001
Properties Connect to New Sewer System (90 days)	June - Sept. 2001

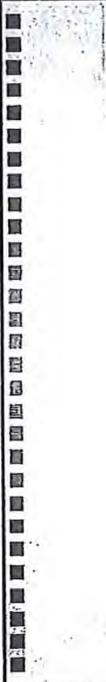
## Special Assessment Process

Milestone	Date
Signed Petitions to Twp.	May 14, 1999
Define Scope of Project Based on Petition Results	May - June 1999
1st Public Hearing for Special Assessment (establish Special Assessment District)	June 1999
Receive Bids for Construction	January 2000
Finalize Costs Based on Actual Construction Bids	January 2000
2nd Public Hearing for Special Assessment (set actual assessment roll)	February 2000
First Installment of Special Assessment	December 2000

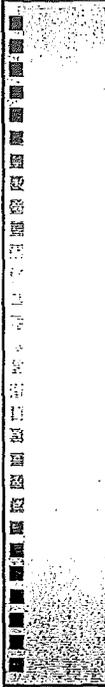


## **Benefits of Public Sanitary Sewer System**

- Reduce Nutrient Loading to Lake
- Reduce Nitrate Loading to Groundwater (Drinking Water Supply)
- Township to Operate and Maintain Collection and Disposal System
- Increased Removal or Treatment of Pollutants (up to 95% removal)
- Sewer Collection System and Treatment Facility to be Monitored by the Township and the State



## **Livingston County Health Department Information**



# **Preliminary Design Study Phase II Report**

On-Line at . . .

[www.mcnamee.com/brighton-twp](http://www.mcnamee.com/brighton-twp)