

# MANAGER

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**BRIGHTON TOWNSHIP, MICHIGAN**

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## **Preliminary Design Study**

### **PHASE II REPORT**

**Clark Lake Sanitary Sewer System**

**Fonda Lake (Brighton Township Portion) Sanitary Sewer System**

**Lake of the Pines Sanitary Sewer System**

**Woodland Lake Sanitary Sewer System**

**East Grand River Sanitary Sewer and Water Systems**

**West Grand River Sanitary Sewer and Water Systems**



*Prepared by:*

**McNamee, Porter & Seeley, Inc.  
Ann Arbor, MI**

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**December 1998**



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# CONTENTS

	<b>Page</b>
INTRODUCTION	1
PROPOSED SANITARY SEWER SYSTEM AND WATER SYSTEMS	6
Sanitary Sewer System Improvements	6
<i>Local Sanitary Sewer Collection System</i>	7
<i>Transmission Sewer</i>	7
<i>Wastewater Treatment Plant</i>	8
Water System Improvements	8
<i>East Grand River Water System</i>	9
<i>West Grand River Water System</i>	10
PRELIMINARY ASSESSMENT ROLLS	12
COSTS	14
Sanitary Sewer System Improvements Project Cost Opinion	14
Water Supply System Improvements Project Costs	15
<i>East Grand River Water Supply System</i>	15
<i>West Grand River Water Supply System</i>	16
Costs to Property Owners	17
<i>Special Assessment Cost</i>	17
<i>Sewer Lead/On-site Septic System Abandonment Cost</i>	18
<i>Water Service/On-site Water Supply Well Disconnection Cost</i>	19
<i>Quarterly Sanitary Sewer Use Cost</i>	20
<i>Quarter Water Use Cost</i>	21
East Grand River Water System	21
West Grand River Water System	21
SCHEDULE	23
PROJECT FUNDING	24
FINANCIAL ASSISTANCE	25
FINAL DESIGN ISSUES	26
POCKET MAP	



## CONTENTS (continued)

### APPENDICES

- A Location and Boundaries of SADs
- B Brighton Township WWTP NPDES Permit
- C Preliminary Basis of Designs
- D Typical Grinder Pump Installation
- E Typical Grinder Pump Easement Document
- F Preliminary Special Assessment Rolls
- G REU Determination for Properties with Multiple REUs
- H Vacant Properties with Potentially More than One REU/Unbuildable Vacant Properties
- I Engineer's Opinion of Probable Costs
- J Anticipated User Charges
- K Project Schedule
- L USDA 504 Loan and Grant Program Backup
- M LCHD Environmental Awareness Handbook – Brighton Township
- N Sample Sewer Use Ordinance
- O Responses to Homeowner's Questions
- P Properties that can connect to Genoa Township Sanitary Sewer



## INTRODUCTION

The following is the Phase II Report of the Preliminary Design Study for a proposed sanitary sewer system and two water distribution systems within Brighton Township.

The Preliminary Design Study has been completed for properties in six (6) Special Assessment Districts (SADs). The six (6) SADs were formed in response to petitions submitted from the public requesting the Township to determine the costs for a new sanitary sewer system that would serve their property. Two (2) of the six (6) SADs also requested the costs for a new public water main distribution system be determined. The six (6) SADs include Clark Lake, East Grand River, the Brighton Township portion around Fonda Lake, Lake of the Pines, Woodland Lake and West Grand River. The East Grand River and West Grand River SADs consist primarily of commercial properties (or uses) and have requested the Township determine the costs for a proposed sanitary sewer system and a proposed water main distribution system. The other four (4) SADs (Clark Lake, Fonda Lake, Lake of the Pines and Woodland Lake) consist mainly of residential properties or uses and have only requested the costs be determined for a proposed sanitary sewer system. The location and boundaries of the six (6) SADs are shown in Figures A through F in Appendix A.

To prepare an opinion of probable project cost for the proposed sanitary sewer system and the proposed water main distribution systems that will be used for establishing funding, the Preliminary Design for the proposed improvements needed to be completed. The Preliminary Design would identify the type and size of the proposed sanitary sewers, the routing of the sanitary sewers, and the location and size of the proposed wastewater treatment plant. The Preliminary Design would also identify the routing and size of the proposed water mains for the East Grand River and West Grand River SADs. The Preliminary Design Study was performed in two phases. Phase I of the Preliminary Design Study included the evaluation of alternatives for the sanitary sewer and water main routing, as well as the sanitary sewer type (gravity, low pressure or a combination). At the completion of Phase I, the proposed sanitary sewer and water main routes and the sanitary sewer type were selected based on cost-effectiveness and constructability. The preliminary design of the selected sanitary sewer and

water main route and sanitary sewer type has been performed under Phase II of the Preliminary Design Study.

The results from the evaluation of the alternatives are presented in the Phase I Evaluation Report – Final, dated July 31, 1998. A summary of the findings for the sanitary sewer systems in the Phase I Evaluation Report – Final is as follows.

<b>Special Assessment District</b>	<b>Selected Sanitary Sewer Type</b>
Clark Lake	Low Pressure Sewer System
East Grand River	Gravity Sewer System
Fonda Lake	Low Pressure/Gravity Sewer System
Lake of the Pines	Low Pressure Sewer System
West Grand River	Low Pressure/Gravity Sewer System
Woodland Lake	Low Pressure/Gravity Sewer System

The Phase I Evaluation Report identified the proposed water main distribution route and sizes for the East Grand River and West Grand River SADs, and indicated that the selected route is dependent on the source of the water supply.

The second phase of the Preliminary Design Study includes the preliminary design of the proposed sanitary sewer and water main improvements. Based on the preliminary design, the opinion of probable project costs, the anticipated user charges, and project schedule have been determined and are presented in this report. This report also provides an estimate of the additional costs to be incurred by the property owners that are not included in the project cost opinion or the anticipated user charges. For sanitary sewer customers, these additional costs include the property owner's cost to abandon their on-site septic tank and connect their building sewer to the new Brighton Township sanitary sewer. The additional costs for water customers includes the property owner's cost to disconnect the building's water service from the on-site well and to connect the building's water service to the new Brighton Township water main distribution system.

The Preliminary Design Drawings are considered part of this Phase II Preliminary Design Report. The Preliminary Design Drawings show the proposed sewer and water main routing and sizes. The proposed sanitary sewers and water main have been located within the public road right-of-way as much as possible. However, there are some areas where the proposed improvements are located on private property or within private road easements. The drawings also show the areas where easements will need to be obtained for the installation of the improvements on private property. The Township will need to obtain easements from the property owners in these areas.

In addition to the proposed easements shown on the Preliminary Design Drawings, the Township will need to obtain permanent access rights on the private roads to perform soil borings and install the sanitary sewers within the private road easements or rights-of-way. Based on the proposed sanitary sewer routing and the Livingston County Road Commission public road map, permanent access rights need to be obtained for the following roads. All the following private roads are located in the Woodland Lake SAD.

<b>Private Road Name</b>	<b>Private Road Name</b>
Granada (in Section 18)	Woodland Shore (in Sections 18 and 19)
Cortez (in Section 18)	Carols (in Section 19)
Donna-Lou (in Section 18)	Hidden Cove Court (in Section 19)
Shelly (in Section 18)	Lake Bluff Drive (in Section 19)
Brad (in Section 18)	Hunters Grove (in Section 20)
Tim (in Section 18)	Hunter Bay (in Section 20)
Gary (in Section 18)	Beajo Drive (in Section 20)
Greg (in Section 18)	Hilton Bay (in Section 20)
Almashy (in Section 18)	

Soil borings have been taken along the proposed sanitary sewer and water main routes with the exception of the proposed sewer route within the above-referenced private roads. Once the Township obtains access rights to these private roads, the soil borings within the private road easements will be completed. The soil borings and geotechnical evaluation for the routes not located in the private road easements have been completed by Soil and Materials Engineers, Inc., of Plymouth, Michigan. The

soil boring logs and the geotechnical evaluation reports are on file at McNamee, Porter & Seeley, Inc.'s Brighton office and at the Brighton Township Hall.

The preliminary design services that were authorized by Brighton Township did not include the preliminary design of the transmission sewer, the wastewater treatment plant (WWTP), or the water supply sources for the proposed water main distribution systems in the East Grand River and West Grand River SADs. Therefore, these items were not evaluated in the Phase I Evaluation Report. To present a total project cost of the proposed sanitary sewer and water systems, the opinion of probable project cost has been estimated for the transmission sewer, WWTP and the water supply source for the East Grand River SAD. However, the project cost opinions for the transmission sewer, WWTP and the water supply source for the East Grand River SAD are based on conceptual information, and these cost opinions will need to be refined once the design of these proposed facilities is authorized and completed.

The project cost opinion presented in this Phase II Report for the West Grand River water system includes only the cost for the water main distribution system. It does not include the project cost for the water source and related transmission main, since the water source has not been identified for the proposed West Grand River water system. The potential water supply sources for the West Grand River water system are connection into the existing City of Brighton water system or construction of a new Brighton Township Type I water supply well system. The project cost for the West Grand River water supply source cannot be reliably determined until the evaluation of the water source is authorized and completed.

For determining the project cost opinion for the proposed water system serving the East Grand River SAD, it has been assumed that the Township will install a new Type I public water supply along the west side of Old US-23 to the north of Spencer Road. The Township is currently pursuing the installation of a new well house facility with Type I wells and a water storage tank in this area.

Before the total project costs can be estimated for a new water system serving the West Grand River SAD, the Township will need to determine the public water supply source for the water distribution system. The project costs for the proposed West Grand River water system presented in this report

include only the water main distribution costs and do not include the costs for the water supply. Once the Township selects the water supply source for the proposed West Grand River water system, we will develop the water supply costs and determine the total project costs to provide a new water supply system to the properties within the West Grand River SAD.

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The Sanitary Sewer Boundary Map in the pocket of this report shows the initial sanitary sewer service area, the anticipated future sanitary sewer service area, as well as the proposed transmission sewer and the proposed location of the new Brighton Township WWTP. In addition to the future sewer service areas shown on the Sanitary Sewer Boundary Map, the sanitary sewer system could also provide sanitary sewer service to certain areas in Green Oak Township. The potential future sanitary sewer service areas in Green Oak Township include the residential developments around Fonda Lake, Island Lake and Briggs Lake, as well as the Saxony, Willmor and Meadows subdivisions west of US-23.

There were several questions from property owners during the Preliminary Design Study. Responses to the homeowner's questions are presented in Appendix O.

## PROPOSED SANITARY SEWER SYSTEM AND WATER SYSTEMS

### SANITARY SEWER SYSTEM IMPROVEMENTS

The proposed sanitary sewer improvements consist of local sanitary sewers that collect sewage from the users in each sewer district, a transmission sewer that conveys the sewage from each of the six (6) sanitary sewer districts to the WWTP, and a WWTP for treatment of the sanitary sewage. The preliminary design for the local sanitary sewers serving the Clark Lake, East Grand River, Fonda Lake (Brighton Township portion), Lake of the Pines, West Grand River and Woodland Lake sanitary sewer districts has been completed and is shown on the Preliminary Design drawings. The information presented in this report for the transmission sewer and the WWTP is based on conceptual information and will need to be refined as the design of these facilities is completed.

The Preliminary Basis of Design for the proposed sanitary sewer system is included in Appendix C.

A summary of the customer data and preliminary design basis for the sanitary sewer system is shown in the following table. The customer information is based on the preliminary design for the sanitary sewer system.

<b>Sanitary Sewer District</b>	<b>Number of Customers</b>	<b>Number of REUs</b>	<b>Average Design Sewage Flow (GPD)</b>
Clark Lake	109	109	28,340
East Grand River	80	315	81,900
Fonda Lake	78	109	28,340
Lake of the Pines	258	258	67,080
West Grand River	102	218	56,680
Woodland Lake	562	637	165,620
<b>TOTALS</b>	<b>1,189</b>	<b>1,646</b>	<b>427,960</b>

One residential equivalent unit (REU) represents a typical single-family residential dwelling unit. The number of REUs assigned to each property in the sanitary sewer districts is shown on the preliminary

assessment rolls in Appendix F. The average design sewage flow is determined using an average design flow of 260 gallons per day (GPD) per REU.

### ***Local Sanitary Sewer Collection System***

The preliminary design of the local sanitary sewer collection systems serving each of the six (6) sanitary sewer districts is based on the recommendations of the Phase I Evaluation Report – Final, dated July 31, 1998. Information regarding grinder pumps and the typical grinder pump installation is included in Appendix D. The Township will need to obtain easements from each property owner that is being served by a grinder pump. This easement will give the Township access to maintain the grinder pump and appurtenances on the private property. A copy of typical grinder pump easement document is included in Appendix E. The easement document provided in Appendix E is for information purposes only. The Township Attorney should draft the actual grinder pump easement document.

### ***Transmission Sewer***

The transmission sewer has been sized to handle the sewage flows from the initial sewer customers, as well as the future anticipated sewer customers. The proposed transmission sewer route and sizes are shown in the Sanitary Sewer Boundaries map in the pocket at the end of this report. The proposed transmission sewer will include two submersible pumping stations: one pump station at the Old US-23 and Hilton Road intersection, and a second pumping station on Grand River Avenue approximately 3,500 feet west of Pleasant Valley Road. These pump stations will be sized to handle the future anticipated sewage flows with exception of the pumps. The pumps will be sized to handle the initial sewage flows plus some additional future flows. Once the future flows reach the capacity of the pumps, the initial pumps will be replaced with larger capacity pumps.

The transmission sewer is planned to be installed within the limits of Brighton Township. The transmission sewer will not be located in the portion of the Grand River Avenue right-of-way that is located within Green Oak Township. Permanent easements will be necessary on the private properties in Brighton Township where the transmission sewer is located. As discussed with the Township, this eliminates the need to obtain an agreement from Green Oak Township for locating the Brighton Township transmission sewer in Green Oak Township.

### *Wastewater Treatment Plant*

The proposed WWTP will be a treatment facility with tertiary (or sand filtration) treatment. The treated wastewater will be discharged into Woodruff Creek, north of Grand River Avenue. The Michigan Department of Environmental Quality (MDEQ) has already issued a National Pollutant Discharge Elimination System (NPDES) Permit to Brighton Township for a surface water discharge into Woodruff Creek. A copy of the NPDES discharge permit is included in Appendix B. The tertiary treatment is proposed to reliably meet the discharge limits for phosphorus. An oxidation ditch style WWTP was used for budget purposes when determining the WWTP project cost opinion. The actual type of treatment facility will be determined in the early phases of the WWTP design.

The proposed WWTP referenced in this report is sized to handle the sewage flows from the 1,189 sewer customers in the initial sanitary sewer district. A WWTP with an average design flow of 440,000 GPD would be required to handle the flows from the 1,189 initial sewer customers. This 440,000 GPD WWTP includes some additional treatment capacity for the vacant properties that could potentially be developed with more than one (1) REU.

Since the proposed 440,000 GPD WWTP is sized to handle only the initial 1,189 customers, it is likely that the WWTP would need to be expanded when any additional sewer customers connect to the existing sanitary sewer system in the future. The Township will need to determine if the initial WWTP is to be sized to provide additional treatment capacity for future sewer customers.

The proposed WWTP to serve the six (6) sanitary sewer districts is planned to be located northeast of the Grand River Avenue and Pleasant Valley Road intersection. The proposed WWTP location is shown on the Sanitary Sewer Boundaries map in the pocket at the end of this report. The Township is currently discussing the purchase of the WWTP property with the property owner. The property acquisition for the WWTP site will need to be completed before the WWTP design is started.

### **WATER SYSTEM IMPROVEMENTS**

The proposed water sewer improvements consist of a water main distribution system that provides water to the properties in the water district, a water supply source, a water storage tank, and a

transmission main to deliver the water from the water source to the water main distribution system. The preliminary design for the water main distribution systems serving the East Grand River and West Grand River water districts has been completed and is shown on the Preliminary Design drawings.

The Preliminary Basis of Design for the proposed East Grand River and West Grand River water systems is included in Appendix C.

### ***East Grand River Water System***

The water source for the East Grand River water system is planned to be a Type I water supply well system located along the west side of Old US-23 to the north of Spencer Road. The proposed Type I water supply system will have a 700 gallon per minute (gpm) firm capacity with iron removal. Firm capacity is the water supply capacity with the largest pump of service. The water supply system shall consist of two Type I wells, a well house facility, a water storage tank, and a 16-inch water transmission main from the well house to the water main distribution system south of I-96.

The proposed water main distribution is shown in the preliminary design drawings. The proposed water main shall be connected to the existing Country Club Annex water system at the west end of Weber Drive and at the Weber Drive and Old US-23 intersection. This will provide a second water source for the East Grand River and the Country Club Annex water systems. A valve shall be installed at these two connections. The valve will be closed during normal operating conditions to prevent the Country Club Annex water from entering the East Grand River water system. The East Grand River water system will have a higher quality water than the water from the Country Club Annex system, since the East Grand River water system shall have iron removal. The existing Country Club Annex water system does not provide any iron removal.

There is a potential of abandoning the existing Country Club Annex water supply wells (and well house facilities) and providing water to the Country Club Annex water system from the new East Grand River water supply source. This may provide a solution to the poor water quality from the Country Club Annex water supply wells. The MDEQ has been in contact with the Township regarding existing Country Club Annex wells and the poor water quality. Additional evaluation and design

would need to be performed before the Township considers abandoning the existing Country Club Annex wells.

The information presented in this report regarding the Type I water supply source, storage tank and transmission main for the East Grand River water district is based on conceptual information and will need to be refined as the design of these facilities is completed.

A summary of the customer data and preliminary design basis for the East Grand River water system is shown in the following table. The customer information is based on the preliminary design for the water system.

	<b>Number of Customers</b>	<b>Number of REUs</b>	<b>Average Design Water Flow (GPD)</b>
East Grand River Water System	80	315	81,900

One residential equivalent unit (REU) represents a typical single-family residential dwelling unit. The number of REUs assigned to each property in the East Grand River water system is shown on the preliminary assessment roll in Appendix F. The average design water flow is determined using an average design flow of 260 gallons per day (GPD) per REU.

***West Grand River Water System***

This report includes only the preliminary design of the water main distribution system serving the properties in the West Grand River water district. The proposed water main distribution is shown in the preliminary design drawings.

The authorization for the preliminary design presented in this report does not include the preliminary design for the water supply source and related transmission main for the West Grand River water district. Once the preliminary design for water supply source and related transmission main is authorized, the proposed improvements can be evaluated and designed. Therefore, the preliminary design report does not include the preliminary design for these facilities. We cannot provide any

information based on conceptual data until the proposed water source for West Grand River district is selected. The potential water supply sources for the West Grand River water district are as follows:

- Connection to the City of Brighton water system
- Connection to the new Brighton Township Type I water supply well system that is constructed to serve the East Grand River water district
- Construction of a new Brighton Township Type I water supply well system to serve the West Grand River area

A summary of the customer data and preliminary design basis for the West Grand River water system is shown in the following table. The customer information is based on the preliminary design for the water system.

	<b>Number of Customers</b>	<b>Number of REUs</b>	<b>Average Design Water Flow (GPD)</b>
West Grand River Water System	102	218	56,680

One residential equivalent unit (REU) represents a typical single-family residential dwelling unit. The number of REUs assigned to each property in the West Grand River water system is shown on the preliminary assessment roll in Appendix F. The average design water flow is determined using an average design flow of 260 gallons per day (GPD) per REU.

## PRELIMINARY ASSESSMENT ROLLS

The preliminary assessment rolls for the proposed sanitary sewer system, the West Grand River water system and the East Grand River water system are included in Appendix F. The assessment rolls include all properties that will be served by the proposed sanitary sewer system or the proposed water main distribution systems. The number of residential equivalent units (REUs) assigned to each property, the property's land area (acreage), and the property's average width (frontage) are listed in the preliminary assessment rolls. One (1) REU represents a typical single-family residential dwelling unit. The method used to calculate the number of REUs for each property that is assigned more than one (1) REU is included in Appendix G.

Each mobile home within a Mobile Home Park where the mobile home occupant is leasing the mobile home pad from the park owner has been assigned 0.77 REU. The mobile homes that are located on an individual lot within a subdivision are assigned one (1) REU. The property owners that have a mobile home on an individual lot have the potential to expand or replace their mobile home with a house in the future. The mobile homes in the mobile home parks cannot expand their dwelling unit, since they are only leasing the mobile home pad from the park owner. The 0.77 REU is the ratio of average design flow used for a mobile home as compared to a single-family dwelling unit. The State of Michigan standards call for an average design flow of 200 gallons per day for mobile homes, and 260 gallons per day for single-family dwelling units in Livingston County ( $200/260 = 0.77$ ).

There are 1,189 properties included in the preliminary assessment roll for the proposed sanitary sewer improvements. The 1,189 properties do not include the properties that cannot be developed, such as unbuildable properties, parks or open space areas.

There are 134 vacant properties within the six (6) districts of the preliminary sanitary sewer special assessment district that could be developed in the future. The 134 vacant properties do not include properties that cannot be developed, such as parks, open space or unbuildable properties. Each vacant property on the preliminary assessment rolls has been assigned one (1) REU, as directed by the Sewer Committee. Of these 134 vacant properties, 110 properties are single-family vacant residential lots

where only one (1) REU is assigned, since only one house (or dwelling unit) can be located on the vacant property under the Township's zoning regulations.

The remaining 24 vacant properties within the preliminary sanitary sewer special assessment district could potentially be developed where more than one REU is assigned to the future development. A list of these vacant properties is included in Appendix H. One REU has been assigned to each of the 24 vacant properties, as directed by the Brighton Township Sewer Committee. The Township is in the process of approaching each owner of these 24 vacant properties to get the property owner's input on how many REUs should be assigned to these 24 vacant properties. The list of these 24 vacant properties in Appendix H also includes the estimated number of REUs to be assigned to each of these 24 vacant properties. The estimated number of REUs is based on 2 REUs per acre for the vacant non-residential properties, which is the development trend for commercial and light industrial properties for other sanitary sewer systems in Livingston County. The estimated number of REUs for the vacant residential properties in Appendix H is based on the estimated development density allowed under the current zoning regulations while accounting for the land area used for the roads and storm drainage facilities. The REU estimate assumed that the roads and storm drainage facilities would occupy approximately 25 percent of the land area.

In addition to the 134 vacant properties, several vacant properties appear to be unbuildable due to land constraints, or because the current land use prohibits development that would require sanitary sewer or water service. The vacant properties that appear to be unbuildable are also listed in Appendix H. The list of unbuildable properties does not include parks or open space areas that cannot be developed. The list of unbuildable properties in Appendix H also includes the number of REUs currently assigned to each of these properties in the preliminary assessment roll. It will need to be determined during the final design whether these properties can be built upon or if they will require sanitary or water service. The properties that are determined to be unbuildable or not to require sanitary or water service should not be assessed for the proposed improvements.

## COSTS

The Engineer's Opinions of Probable Project Costs have been determined for the proposed sanitary sewer system and water system improvements based on the preliminary design of the proposed improvements. The project costs includes all of the anticipated costs to design, construct and finance the proposed sanitary sewer and water improvements. All project costs are reported in first-quarter year 2000 dollars, so the project budget reflects the current costs when the construction bids are received and the project is financed.

Detailed breakdowns of the Project Cost Opinions are included in Appendix I.

### SANITARY SEWER SYSTEM IMPROVEMENTS PROJECT COST OPINION

The proposed sanitary sewer system improvements have been categorized into three segments: the local collection sewers, the transmission sewer, and the WWTP. The local collection sewer segment includes the sanitary sewers necessary to collect the sewage from the individual properties within each sewer area. The transmission sewer segment includes the sanitary sewer necessary to transport the sewage collected from each sewer area to the WWTP. The WWTP segment includes the improvements associated with the new 440,000-gallon-per-day treatment facility and land acquisition necessary to treat the sanitary sewage.

The Engineer's Opinion of Probable Project Costs for the sanitary sewer system improvements to serve the Clark Lake, East Grand River, Fonda Lake (Brighton Township portion), Lake of the Pines, West Grand River, and Woodland Lake assessment districts is as follows:

<b>Improvement</b>	<b>Project Cost Opinion</b>
Local Sanitary Sewer	\$14,741,000
Transmission Sewer	\$3,620,000
Wastewater Treatment Plant	\$5,525,000
<b>Total</b>	<b>\$23,886,000</b>

The project cost opinion for the local sanitary sewers is based on the preliminary design for the local collection sewers. The project cost opinions for the transmission sewer and WWTP are based on conceptual information, and will need to be refined once the design of the transmission sewer and WWTP is completed.

The transmission sewer has been sized to handle future anticipated flows. Therefore, the project cost of \$3,620,000 for the transmission sewer is based on the sewer sizes necessary to handle the sewage flows from the future sewage customers. The incremental project cost for installing a transmission sewer to handle the future customers is \$1,316,000. The incremental project cost of \$1,316,000 is included in the \$3,620,000 project cost for the transmission sewer. This incremental cost represents the differential of installing a 12-inch sanitary sewer instead of an 8-inch sanitary sewer. An 8-inch sanitary sewer is needed for the initial sewer customers, but a 12-inch sanitary sewer is necessary to handle the sewage from the initial and future sanitary sewer customers. Therefore, a 12-inch sanitary sewer shall be installed as part of the initial transmission sewer construction project.

The anticipated cost associated with the proposed water and sanitary sewer system improvements to each property owner will include the Special Assessment Cost levied to each property, the property owner's cost to abandon the existing on-site septic system and connect to the new sanitary sewer system, and the quarterly sanitary sewer and/or water use bills. For properties within the East Grand River and West Grand River SADs, the property owner would also incur a cost to disconnect the building's existing water service from the on-site water supply well and connect the building water service to the new water main system.

## **WATER SUPPLY SYSTEM IMPROVEMENTS PROJECT COSTS**

### ***East Grand River Water Supply System***

The proposed water supply system improvements for the East Grand River Water Supply System have been categorized into two segments: the water main distribution system and the water supply source/transmission main/storage tank. The water main distribution segment includes the water main necessary to provide water service to the properties in the East Grand River water district. The water supply source/transmission main/storage tank segment includes the Type I public water supply wells, well house facility, storage tank and the transmission mains to deliver water from the Type I water

supply wells to the East Grand River District. The project costs for the water supply source are based on locating the new Type I water supply along the west side of Old US-23 to the north of Spencer Road. The Type I water supply will have a 700-gallon-per-minute firm capacity with iron removal. The water storage tank will have a storage volume of 600,000 gallons.

The Engineer’s Opinion of Probable Project Costs for the water supply system improvements to serve the East Grand River water district is as follows:

<b>Improvement</b>	<b>Project Cost Opinion</b>
Type I Water Supply, Transmission Main and Storage Tank	\$4,045,000
Water Main Distribution	\$743,000
<b>Total</b>	<b>\$4,788,000</b>

The project cost opinion for the water main distribution is based on the preliminary design for the local distribution main. The project cost opinion for the Type I water supply, transmission main and water storage tank is based on conceptual information, and will need to be refined once the water source location is finalized and the design of the water supply source, transmission main and storage tank is completed.

***West Grand River Water Supply System***

The proposed water supply system improvements for the West Grand River Water Supply System have been categorized into two segments, the water main distribution system and the water supply source. The water main distribution segment includes the water main necessary to provide water service to the properties in the West Grand River water district. The water supply source segment includes the water supply source, storage tank, and the transmission mains to deliver water from the water source to the West Grand River District.

We have provided a project cost opinion for the water main distribution system serving the properties within the West Grand River water district based on the preliminary design. However, a project cost opinion for the water supply source cannot be determined for the West Grand River water district at

this time. The water supply source for the West Grand River water district must first be determined before a project cost opinion can be developed for the water source. The potential water supply sources for the West Grand River water district are as follows:

- Connection to the City of Brighton water system
- Connection to the new Brighton Township Type I water supply well system that is constructed to serve the East Grand River water district
- Construction of a new Brighton Township Type I water supply well system to serve the West Grand River area

The Engineer’s Opinion of Probable Project Costs for the water main improvements to serve the West Grand River water district is as follows:

<b>Improvement</b>	<b>Project Cost Opinion</b>
Water Supply Source	Not Provided
Water Main Distribution	\$1,003,000

The anticipated cost associated with the proposed water and sanitary sewer system improvements to each property owner will include the Special Assessment Cost levied to each property, the property owner’s cost to abandon the existing on-site septic system and connect to the new sanitary sewer system, and the quarterly sanitary sewer and/or water use bills. For properties within the East Grand River and West Grand River SADs, the property owner would also incur a cost to disconnect the building’s existing water service from the on-site water supply well and connect the building water service to the new water main system.

**COSTS TO PROPERTY OWNERS**

The anticipated costs incurred by each property owner will be as follows:

***Special Assessment Cost***

The special assessment cost will cover the Township’s expenses to complete the public portion of the proposed sanitary sewer and water projects. Properties that are served by the new sanitary sewer

system shall be levied a special assessment for the sanitary sewer system. The properties in the West Grand River and East Grand River districts would be levied a special assessment for the sanitary sewer and water systems, since they will be served by a new sanitary sewer system and water system.

If the property owner is to be served by a gravity sanitary sewer, the special assessment costs will include the installation of a 6-inch sanitary lead stub from the main sanitary sewer to the property (or road right-of-way) line. If the property owner is on a low-pressure sanitary sewer/grinder pump system, the special assessment costs will include the installation of the grinder pump, the electrical hook-up for the grinder pump, and the sanitary lead from the grinder pump to the main sanitary sewer.

For water customers, the special assessment cost shall include installation of a water service lead from the new water main to the property (or right-of-way) line with a curb box at the property line.

The special assessment cost to each property is currently being determined by the Township with assistance from the Township's financial consultant and bond counsel.

#### ***Sewer Lead/On-site Septic System Abandonment Cost***

The property owner will need to abandon the existing on-site septic system and install a new sanitary sewer lead from the existing building to the new Township sewer system. The septic tank will need to be pumped out and filled with sand or flowable grout. The property owner could also remove the septic tank instead of filling the tank with sand. The property owner will also need to install a new 4-inch or 6-inch sanitary lead from the new Township sanitary sewer to the existing building sewer. If the property owner is on the gravity sanitary sewer, a 4-inch or 6-inch sanitary lead will need to be installed from the building to the 6-inch sewer stub at the property (road right-of-way) line. If the property owner is on a low-pressure sanitary sewer/grinder pump system, a 4-inch or 6-inch sanitary lead will need to be installed from the building to the grinder pump.

The individual property owner will be responsible for the cost of this work and for hiring their own contractor to perform this work. The estimated costs for a contractor to perform this work will vary for each property owner, since the cost is dependent on the existing conditions on each property, such as

sanitary lead length, site access, grading and surface restoration. The cost opinion for this work is as follows:

- Installation of 4-inch SDR 26 Sanitary Lead Pipe (house to gravity sewer stub) = \$10 to \$15 per foot
- Installation of 4-inch SDR 26 Sanitary Lead Pipe (house to grinder pump) = \$15 to \$20 per foot
- Pump Out 1,500-Gallon Septic Tank = \$100 to \$200
- Crush and Fill 1,500-Gallon Septic Tank = \$300 to \$400
- Livingston County Health Department Permit = \$50

In isolated cases, the property owner may have to rework the internal building plumbing. This may happen where a homeowner wants to eliminate an existing sanitary ejector pump or wants to re-route the sanitary service to the front of the house rather than to the rear of the house. This work would be performed by the property owner (or a contractor hired by the property owner) at the property owner's cost. The property owner would need to obtain a cost estimate for this work on an individual basis, since the scope of services associated with this work is site-specific.

#### ***Water Service/On-site Water Supply Well Disconnection Cost***

The property owner will need to disconnect the water service from the existing on-site water supply well and install the new water service lead from the property (or road right-of-way) line to the existing building. The new water service lead would then be connected to the internal plumbing system of the existing building.

The individual property owner will be responsible for the cost of this work and for hiring their own contractor to perform this work. The estimated costs for a contractor to perform this work will vary for each property owner, since the cost is dependent on the existing conditions on each property such as water service lead length, site access, grading and surface restoration. The cost opinion for this work is \$2,000 to \$2,500, and depends on the restoration for the new water service. The cost opinion is based on 80 feet of new 1-inch water service pipe between the road right-of-way and the existing building, and a 5/8-inch water main meter and outside remote reader.

The property owner would have to contact the Livingston County Health Department (LCHD) to determine if the on-site water supply well would need to be abandoned. In some areas, the LCHD has allowed the on-site water supply wells to remain in use for exterior water use such as lawn sprinkling. The cost opinion to abandon a 4-inch water supply well with a depth of 80 vertical feet is \$800 to \$1,000, and depends on site-specific issues.

### *Quarterly Sanitary Sewer Use Cost*

Each property owner served by the new sanitary sewer system will receive a sewer bill each quarter for the day-to-day operation and maintenance costs for the sanitary sewer collection system and the WWTP.

The Township will be responsible for all maintenance on the gravity sanitary sewers and the sanitary sewer lead within the road right-of-way (up to the property line). If the property owner is on a low-pressure sanitary sewer/grinder pump system, the Township shall be responsible for the maintenance to the grinder pump, the sanitary lead between the grinder pump and the main sanitary sewer, and the grinder pump's electrical system (including the electrical connection to the electrical meter). Each property owner will be responsible for the maintenance of the 4-inch sanitary lead between the house and the grinder pump for a low-pressure sewer system; or for a gravity sewer system, between the house and the road right-of-way (or property line). The property owner will be responsible for the electrical costs for the grinder pump serving their house. The electrical costs will be included in the property owner's electrical bill. The electrical costs for the grinder pumps serving a typical residential house are estimated to be \$2 to \$3 per month.

The anticipated quarterly sanitary sewer user charges are as follows, and are based on a sanitary sewer system serving 1,189 customers with 1,646 REUs and a billable sewage flow of 210 gallons per day (gpd) per REU. The following user charges do not include capital charges or the recovery of any capital expenses. The sanitary sewer system expenses and anticipated user charge calculations are included in Appendix J.

Billing Charge = \$5.25 per bill per quarter  
Commodity Charge = \$2.86 per 1,000 gallons

Using the anticipated charges, the typical quarterly sewer bill for a sanitary sewer customer with one (1) REU is \$60.00 and for a sanitary sewer customer with five (5) REUs is \$280.00.

### *Quarter Water Use Cost*

Each property owner that is served by the new East Grand River and West Grand River water systems will receive a water bill each quarter for the day-to-day operation and maintenance costs for the water supply and distribution system.

#### *East Grand River Water System*

The anticipated quarterly water user charges for the East Grand River water district are as follow, and are based on a water system serving 80 customers with 315 REUs and a billable water flow of 210 gallons per day (gpd) per REU. The following user charges do not include capital charges or the recovery of any capital expenses. The East Grand River water system expenses and anticipated user charge calculations are included in Appendix J.

Billing Charge = \$28.00 per bill per quarter  
Commodity Charge = \$3.60 per 1,000 gallons

Using the anticipated charges, the typical quarterly water bill for a water customer with one (1) REU in the East Grand River water system would be \$97.00. The typical quarterly water bill for a water customer with five (5) REUs is \$372.00.

#### *West Grand River Water System*

The anticipated user charges for the West Grand River water system cannot be determined until the water source is selected. If the Township constructs a new Type I well system to serve the West Grand River area, the anticipated quarterly water bills would be similar to those anticipated for the East Grand River water district. If the West Grand River water system is connected to the City of Brighton water system, the Township would have to discuss the user charge method and water charges with the City of Brighton. Genoa Township properties that currently receive water from the City of Brighton pay a billing charge plus a commodity charge of \$1.89 per 1,000 gallons for the City of Brighton water service. The Township is responsible for the quarterly water bills, and therefore determines the billing

charge. In this case, the Brighton Township water billing charge would be similar to the quarterly billing charge for the East Grand River water district.

A third option would be to supply water from the new Type I well system that is planned to serve the East Grand River water district. This would increase the water customer base of the new water system and reduce the quarter water bills for customers in the East Grand River and West Grand River water districts.

## SCHEDULE

The anticipated schedule for the proposed water and sanitary sewer system improvements is included in Appendix K. The schedule shown in Appendix K includes the engineering as well as the financing milestones for the proposed project. The engineering and construction milestones are as follows:

<b>Engineering Milestone</b>	<b>Date</b>
Start Design of Transmission Sewer, WWTP, and Water Supply Sources	April 1999
Start Final Design (local sanitary sewers and water main only)	June 1999
Submit Construction Plans to MDEQ for Act 451 Construction Permit	September 1999
Receive MDEQ Act 451 Construction Permit	November 1999
Complete Final Design/Bidding Documents	November 1999
Bids for Construction Received	January 2000
Award Construction Contract/Start Construction	April 2000
Complete Construction	May 2001
Start System Operation	June 2001

This design of the sanitary sewer transmission sewer, WWTP and the water supply sources must be authorized and started by April 1999 to meet the milestones presented in the schedule presented above and in Appendix K. The additional design time is needed, since the preliminary design has not been completed for these items.

The schedule of the engineering milestones is dependent on the financing and public hearing schedule. The schedule of the engineering milestones would need to be adjusted accordingly if other aspects of the project schedule change.

## PROJECT FUNDING

Brighton Township plans to sell bonds through the Livingston County Drain Commissioner's office for the funds necessary to cover the project costs of the proposed sanitary sewer system and water system improvements. The bonds will be paid with revenues generated from the following sources:

1. Special Assessment Fees on Properties included in the Special Assessment District
2. Tap Fee or Connection Charge Revenues from Future Customers
3. Revenues from Capital Charges that are included in the quarterly sewer and/or water charges.

The Township's public finance consultant, Stauder, Barch & Associates, Inc., and the Township's bond counsel, Dykema & Gossett, are currently finalizing the project funding and the method of generating the revenue needed for payment of the bonds.

## FINANCIAL ASSISTANCE

Financial assistance may be available to those property owners that qualify through the United States Department of Agriculture Rural Development 504 Grant and Loan Program. The basic requirements for the 504 Loan and Grant Programs are included in Appendix L. The information provided in Appendix L includes the qualification criteria and the application information for the loans and grants.

Financial assistance may also be available from the Oakland Livingston Human Service Agency (OLHSA) for those property owners that qualify. Information on OLHSA financial assistance can be obtained by contacting one of the two OLHSA offices. The OLHSA offices are in the following locations.

196 Oakland Avenue  
P.O. Box 430598  
Pontiac, MI 48343-0598  
(248) 858-5126

314 E. Clinton  
Howell, MI 48843  
(517) 546-8500

## FINAL DESIGN ISSUES

Design issues have been identified during the preliminary design that need to be addressed during the final design process. These design issues are listed below.

1. Only the parcels that front Ore Creek or Woodland Lake within the Ravines Subdivision were included in the Woodland Lake Special Assessment District. It has been determined that any building within 200 feet of the sanitary sewer must connect to the sanitary sewer system. As a result, a portion of the low-pressure sanitary sewer is to be constructed within the backyards of Lots 4 through 8 and Lots 24 through 33 of the Ravines Subdivision. Constructing the sewer in the backyards keeps the 200-foot rule to only those parcels included in the special assessment district. The main disadvantage to having a backyard sanitary sewer in this area is that the construction crews will have to work on the steep slopes near the water's edge, and access easements will be required for the installation the sanitary sewer in the backyards. Another disadvantage to having the backyard sanitary sewer is that when the parcels on the opposite side of the road are included in a future sanitary sewer district, a second sanitary sewer will have to be constructed parallel to the backyard sanitary sewer but within the road right-of-way. To eliminate the potential for parallel (redundant) sanitary sewers, we recommend that the initial sanitary sewer be installed within the road right-of-way, and that only those parcels in the special assessment district initially be allowed to connect.
2. As part of an agreement between Brighton Township and Genoa Township, seventeen (17) Brighton Township properties along the west side of Grand River Avenue (in the West Grand River district) can connect to the existing Genoa Township sanitary sewer system. To date, four (4) of these properties have connected into the Genoa Township sanitary sewer system. A list of these seventeen (17) properties as well as the four (4) properties that have already connected is included in Appendix P. Once the Brighton Township sanitary sewer assessment costs are finalized, the Brighton Township sanitary sewer special assessment costs for these seventeen (17) properties should be compared to the costs to connect to the Genoa Township sanitary sewer system.

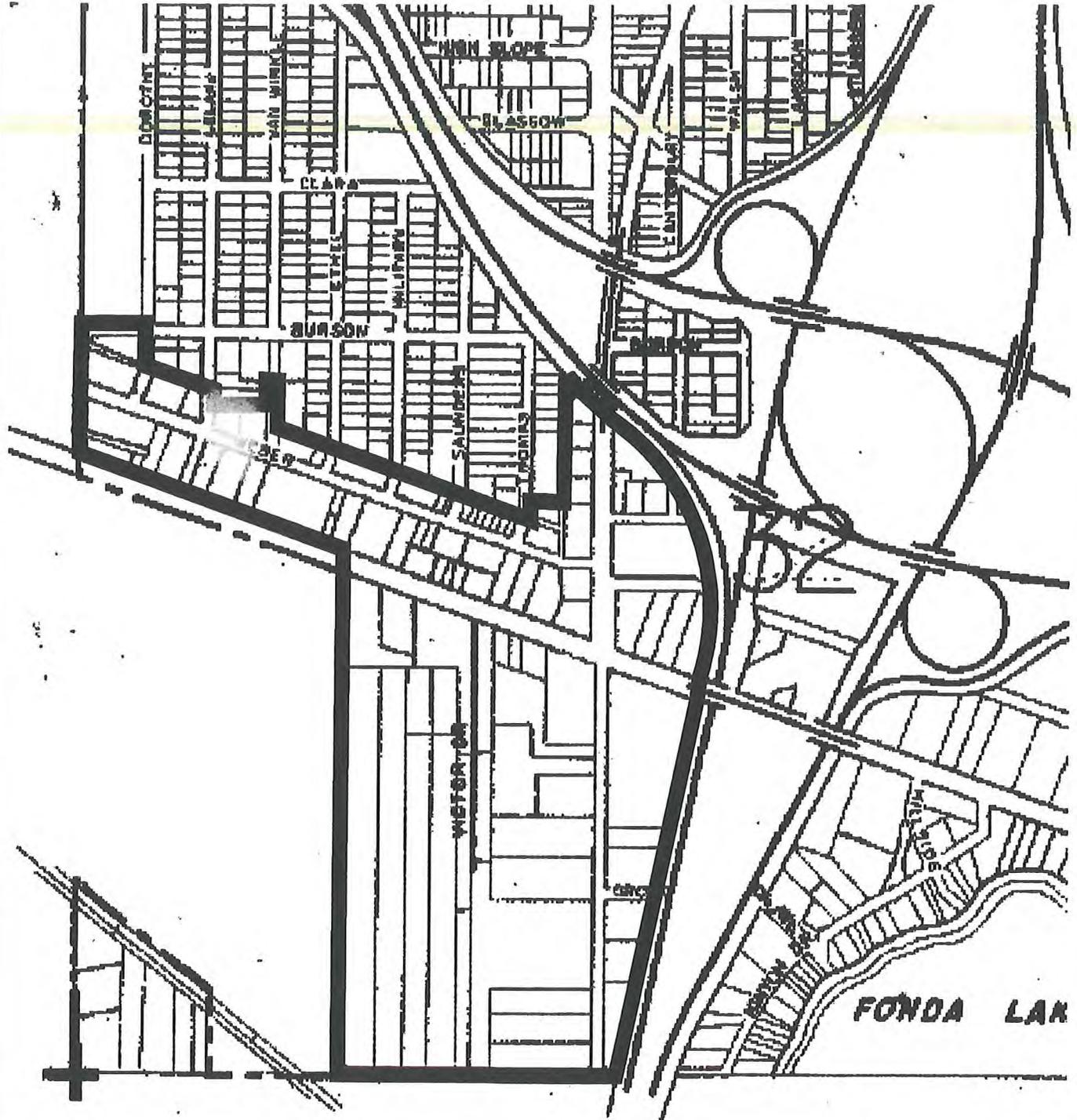
3. The preliminary design drawings for the West Grand River district show the proposed sanitary sewer and water main to be installed within a proposed access between Grand River Avenue and Woodland Lake. The feasibility of this access easement will need to be confirmed before the final design is started. If this access easement is not feasible, the sanitary sewer and water main design will have to be adjusted.
4. The project cost opinion for the West Grand River water system includes only the cost for the local distribution water main and services. The project cost for the water source is not determined. The Township will need to determine the water source for the West Grand River district. Once the water source is determined, the total project costs can be determined, and the anticipated water user costs can be prepared for this district.
5. A portion of the parcels along Weber Drive within the East Grand River water district are already served by the existing Country Club Annex water system. The preliminary design does not provide new water mains to these properties that are already connected to the existing Country Club Annex water system. The Township should determine how to address this issue, and determine if additional water main and service leads should be designed in this system to provide service to all parcels along Weber Drive within the water district.
6. Five (5) residential properties located along south Christine and Margo (in the Woodland Lake district) will not be provided sanitary sewer service as part of this project. These parcels were included in the Special Assessment District for the preliminary design study based on the assumption that they would be located within 200 feet of the proposed sanitary sewer. During the preliminary design, the proposed sanitary sewer route was adjusted so the new sanitary sewer is not located on South Christine. Therefore, these five (5) residential properties are not going to be within 200 feet of the new sanitary sewer, and they will not be provided sanitary sewer service. The Township should evaluate how the previous assessment for the preliminary design study should be handled for these properties.

7. Soil borings have been taken along the proposed sanitary sewer and water main routes, with the exception of the routes where the sanitary sewer is located within a private road easement. All the private roads are located in the Woodland Lake sanitary sewer district. The Township needs to obtain access rights on the private roads so the soil borings can be completed and for the sanitary sewer installation. Once the Township obtains access rights to these private roads, the soil borings will be completed. The remaining soil borings need to be completed before the final design is started.
8. The initial size of the WWTP needs to be determined. The proposed 440,000 GPD WWTP presented in this report is sized to only handle the sewage flows from the initial 1,189 customers. It is likely that the WWTP would have to be expanded when any additional sewer customers want to connect to the sanitary sewer system in the future. It needs to be decided if the initial WWTP should be sized to provide additional treatment capacity for future sewer customers. If it is decided to provide this additional treatment capacity as part of the initial WWTP construction, the amount of additional treatment capacity needs to be determined.
9. The Township should enter into an agreement for the purchase of the property for the proposed WWTP site.
10. The Township should pursue the possibility of locating the transmission sewer along the portion of the Grand River Avenue right-of-way that is located within Green Oak Township. This would require some form of agreement between Brighton Township and Green Oak Township for locating the Brighton Township transmission sewer within Green Oak Township. The current plan shows the transmission sewer outside the Grand River Avenue right-of-way and within the Brighton Township limits. This will require easements on the private properties where the transmission sewer is located. If the transmission sewer is located in the Grand River Avenue right-of-way within Green Oak Township, no easements would be necessary on private property.
11. The potential of abandoning the existing Country Club Annex water supply wells and well house facilities should be evaluated. The new water supply for the East Grand River water district may be able to provide the water to the existing Country Club Annex water main distribution system.

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**APPENDIX A**  
**Location and Boundaries of SADs**





McNAMEE  
PORTER  
& SEELEY  
INC.



BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER STUDY

CONTRACT  
0115.000.00

# EAST GRAND RIVER SANITARY SEWER DISTRICT

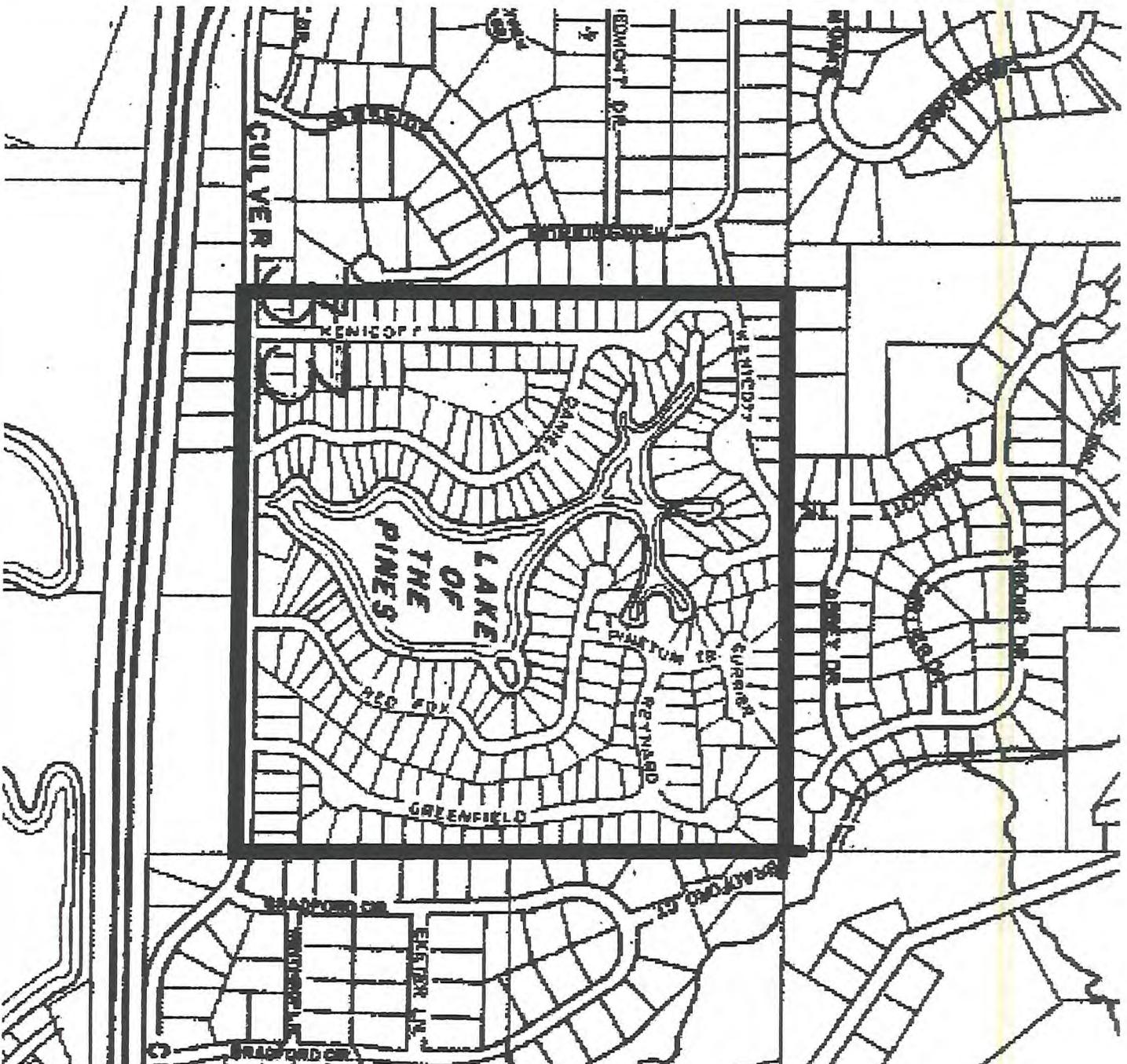
SHEET  
**D**  
OF

SCALE: NONE

DATE 07/09/98

DESIGNED JBM

CHECKED NJM



**McNAMEE  
PORTER  
& SEELEY  
INC.**



**McNAMEE  
FIRST-CHOICE FIRM  
SINCE 1914**

SCALE: NONE  
DESIGNED JBM  
DATE 07/09/98  
CHECKED NJM

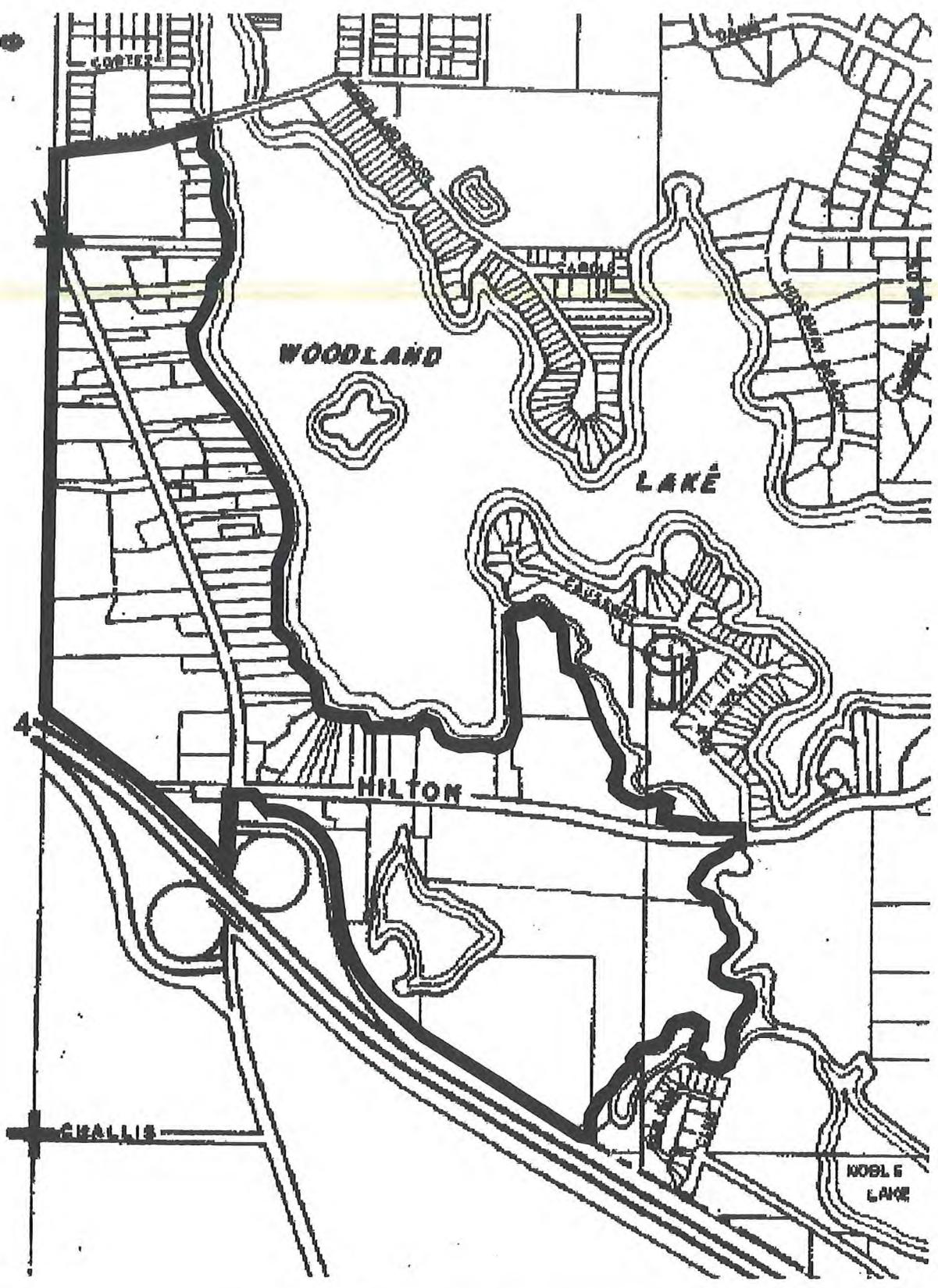
BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER STUDY

# LAKE OF THE PINES SANITARY SEWER DISTRICT

CONTRACT  
**011500000**

SHEET  
**F**  
OF





**McNAMEE  
PORTER  
& SEELEY  
INC.**

  
**McNAMEE**  
FIRST-CHOICE FIRM  
SINCE 1914

SCALE: *NONE*  
DESIGNED *JBM*

DATE *07/09/98*  
CHECKED *NJM*

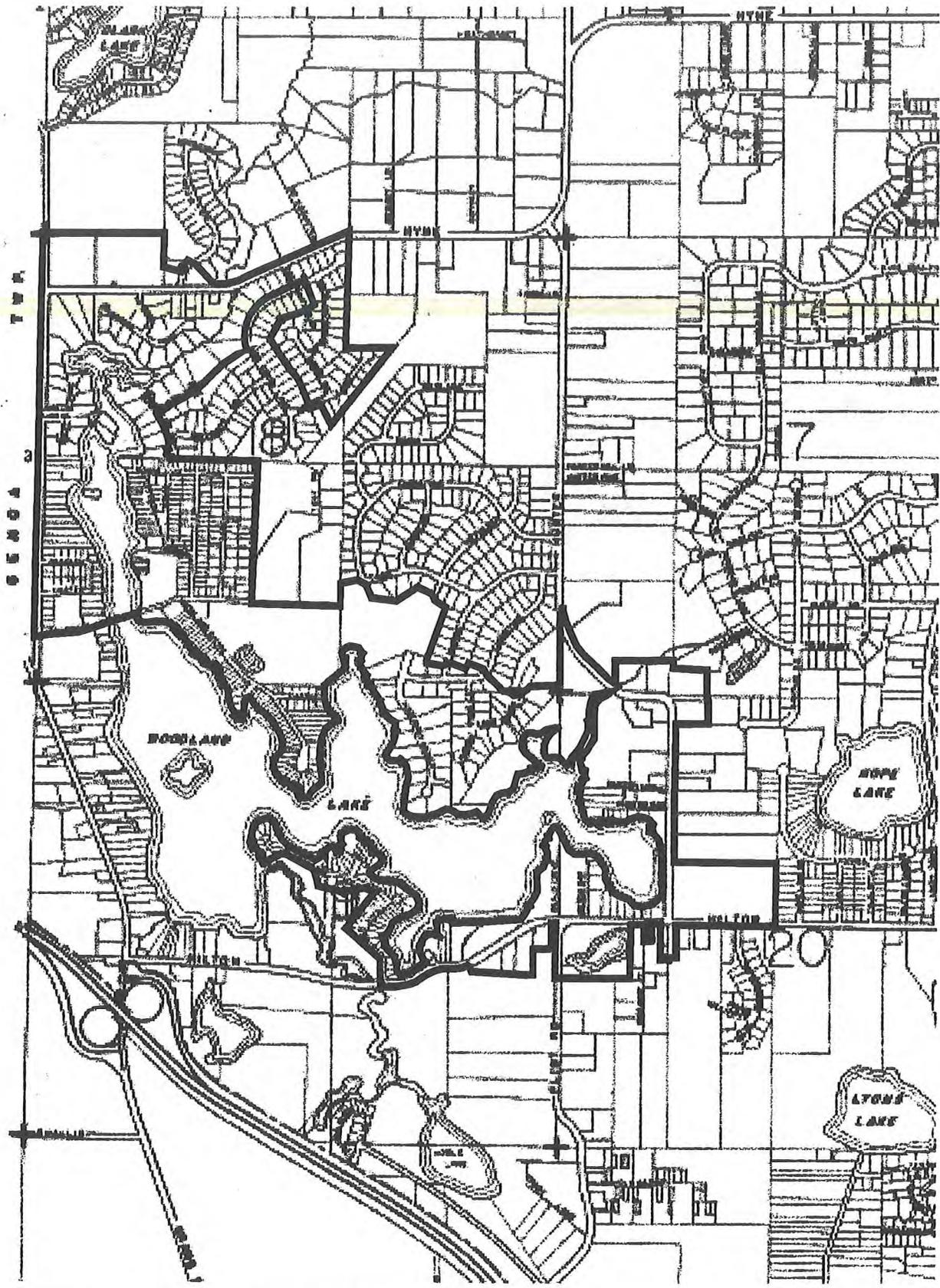
BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER STUDY

**WEST GRAND RIVER  
SANITARY SEWER DISTRICT**

CONTRACT  
**0115,000.00**

SHEET  
**C**

OF



**McNAMEE  
PORTER  
& SEELEY  
INC.**



BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER STUDY

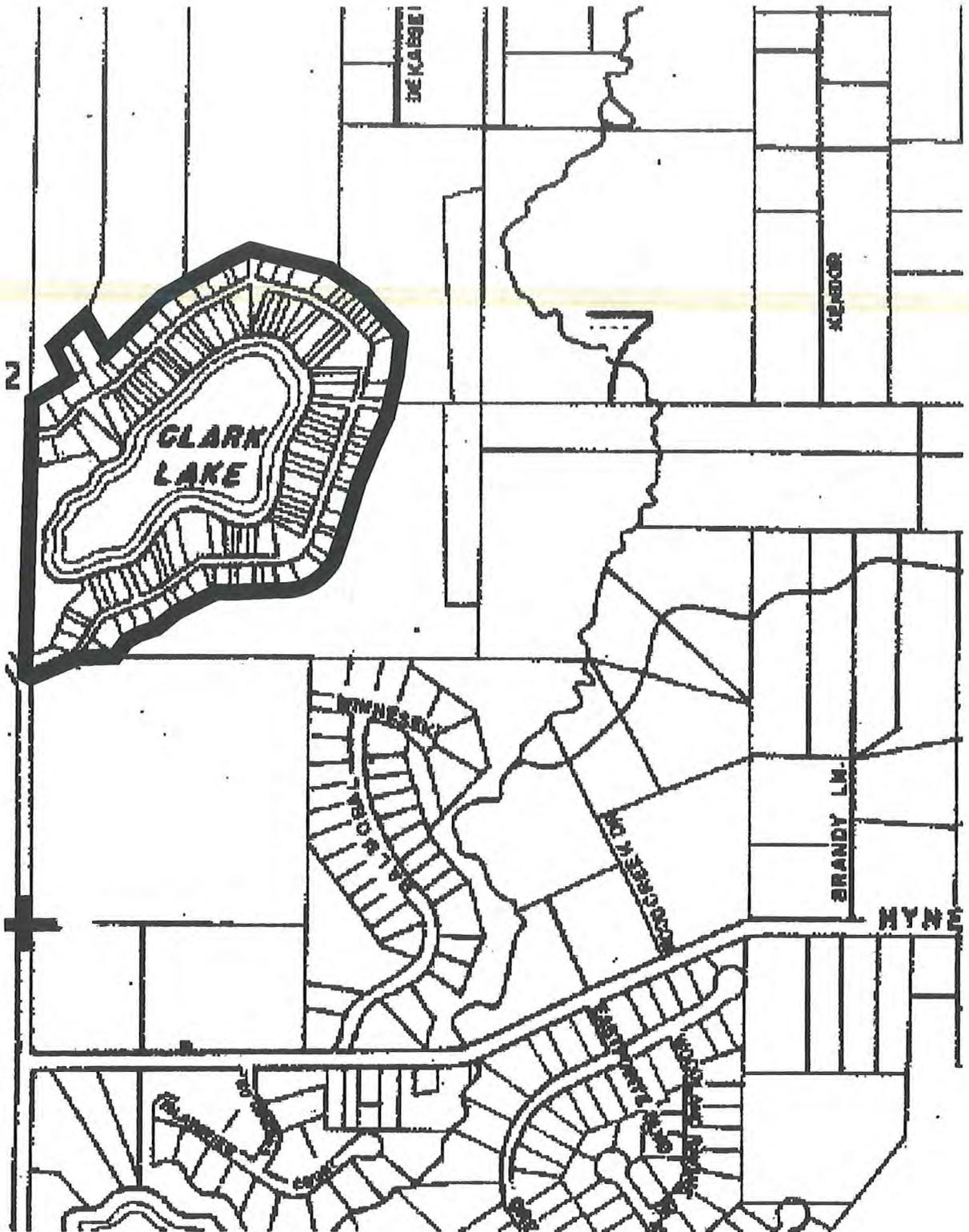
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**0115.000.00**

# WOODLAND LAKE SANITARY SEWER DISTRICT

SHEET  
**B**  
OF

SCALE: NONE  
DESIGNED JBM

DATE 07/09/98  
CHECKED NJM



**McNAMEE  
PORTER  
& SEELEY  
INC.**



BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER STUDY

CONTRACT  
**0115,000.00**

SCALE: NONE

DATE 07/09/98

**CLARK LAKE  
SANITARY SEWER DISTRICT**

SHEET  
**A**

DESIGNED JBM

CHECKED NJM

OF

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**APPENDIX B**  
**Brighton Township WWTP NPDES Permit**



STATE OF MICHIGAN



JOHN ENGLER, Governor

**DEPARTMENT OF ENVIRONMENTAL QUALITY**

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

RUSSELL J. HARDING, Director

REPLY TO:

SURFACE WATER QUALITY DIVISION  
KNAPPS CENTRE  
PO BOX 30273  
LANSING MI 48909-7773

October 6, 1997

Dear Interested Party:

**SUBJECT: National Pollutant Discharge Elimination System (NPDES) Permit No. MI0054968  
Brighton Twp WWTP**

A public hearing with the Office of the Director was held at Brighton High School in Brighton, Michigan, on August 5, 1997, to receive comments on the proposed permit. You have made comments either in writing or in person at the hearing, or both. Attached is a Responsiveness Summary containing those comments and the Department of Environmental Quality's responses.

These comments were taken into consideration before making the final decision. The permit was revised to include a 0.30 mg/l monthly average phosphorus limitation. The attached NPDES permit was issued on September 30, 1997.

Thank you for your input on this important permitting action. If you have any questions regarding the permit, please contact me at the number listed below.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Swenor", written over a horizontal line.

Scott Swenor  
Lake Erie Permits Unit  
Surface Water Quality Division  
517-335-4123

ss:cju

Attachments

cc: Mr. Peter Ostlund, Shiawassee District Supervisor, DEQ  
Mr. Darrell Fecho, Brighton Township Manager  
File

**RECEIVED**

**OCT - 6 1997**

Township Mgr. Office  
Brighton Township

## Responsiveness Summary

### **Proposed Brighton Township Wastewater Treatment Plant**

**Permit No. MI0054968**

The draft National Pollutant Discharge Elimination System (NPDES) permit and fact sheet were put on public notice on May 9, 1997. The public hearing with the Office of the Director was held on August 5, 1997 at Brighton. Comments were received at the Surface Water Quality Division (SWQD), Department of Environmental Quality (DEQ) offices and at the public hearing. These comments were received from Brighton Township; Hamburg Township; Livingston County Board of Commissioners; North Green Oak Township Water and Sewer Authority; Brighton Township Lakes Committee; Land Action of Green Oak Township; Ore Lake Preservation Society; Fonda, Island and Briggs Lake Joint Water Authority; Michigan Lake and Stream Associations Inc.; Sierra Club; Strawberry Point Bluffs S/D Homeowners Association; West Point Hills Homeowners Association; Ore Lake Shores Country Club Association; Huron Country Club Association; and residents of Brighton Township and surrounding townships. Comments are grouped together by topic. The comment is underlined. Staff response follows the comment.

#### **Models and Studies**

How are receiving water flow rates determined? Land and Water Management Division (LWMD) of the DEQ maintains flow data on Michigan streams. Data sources include United States Geological Survey (USGS) long-term gaging stations and field measurements. Long-term gaging stations take measurements every thirty minutes and have been in place for up to fifty years. Low flow data is measured either directly in the field, or is calculated based on known watersheds of similar geology. Field data was available for Woodruff Creek and both field and USGS data were available for the Huron River. This data was used to calculate the drought flows which were adjusted based on drainage area.

Has a dissolved oxygen or biochemical oxygen demand (BOD) study been performed? What studies have been performed on Woodruff Creek to insure aquatic life is protected? The effluent limits were developed for Woodruff Creek and the Huron River using the Streeter-Phelps model. This model is generally acceptable for use in modeling in-stream dissolved oxygen using site-specific stream flow, temperature, slope, etc. The proposed permit is based on meeting state water quality standards and therefore will be protective of aquatic life.

Has an environmental impact statement been prepared? An environmental impact statement (EIS) has not been prepared. An EIS is not required for submittal of a NPDES permit application and is not generally required for new wastewater treatment plants.

What soils/groundwater/terrain suitability or cost/benefit analysis studies have been conducted? Is a wastewater treatment plant needed? SWQD reviews permit applications in regard to protection of water quality in receiving waters based on a discharge site requested by the applicant. SWQD does not propose discharge types or location. Under Rule 323.1098 of the Michigan Water Quality Standards, the applicant is responsible for evaluating social and economic considerations for a new discharge. In accordance with Rule 323.1098 of the Michigan Water Quality Standards, the applicant submitted an antidegradation demonstration. SWQD staff have determined the demonstration meets the requirements of Rule 323.1098(4).

### Phosphorus

The current Huron River system phosphorus allocation is based on a 1979 Strawberry Lake phosphorus study. What new phosphorus/water quality data has been collected relating to Strawberry Lake and the Huron River system? Numerous water quality studies conducted by SWQD in the Huron River watershed during the last five years have verified our model is appropriate. Studies include monitoring of toxicants and conventional pollutants such as phosphorus and other nutrients. Strawberry Lake and other lakes in the Huron watershed have been monitored this summer (1997) and are found to be meeting water quality standards for phosphorus, nitrates, temperature and pH.

McNamee, Porter and Seeley, Inc. has submitted a recent report on the Strawberry Lake phosphorus loading allocation which determined the availability of 525 pounds of phosphorus loading per year. How was the phosphorus availability determined? McNamee, Porter and Seeley, Inc. submitted a report to SWQD in February, 1997, summarizing their review of SWQD records. SWQD reviewed the report and confirmed the availability of 525 pounds per year of phosphorus loading due to controls upstream of Strawberry Lake limiting point source discharges beyond what was originally anticipated.

Will nonpoint source phosphorus discharge loading be considered in future allocation studies? Yes, nonpoint source phosphorus loading will continue to be considered, as it has been in the past. Nonpoint source loading was considered in establishing the original phosphorus load allocation developed in 1979.

Rapid development on the Huron River has occurred since the 1979 phosphorus loading allocation was developed. Has phosphorus resulting from nonpoint sources used up the 525 pounds per year of phosphorus loading available for this discharge? Studies during the last five years indicate that any phosphorus load increases from nonpoint sources have not caused a noticeable effect on Strawberry Lake or the Huron River watershed, therefore, based on recent analysis of the point source load, 525 pounds per year is available for the proposed Brighton Township wastewater treatment plant.

If phosphorus is a problem in the Huron River system, why utilize the full phosphorus load allocation? Both point and nonpoint source contributions were considered in the development of this allocation which we believe accurately represents the system. Modeling and field sampling have determined that phosphorus loading up to the full phosphorus load allocation will be protective of water quality standards in Strawberry Lake. Monitoring of water quality is an ongoing process. If future controls are needed, they will be reviewed during the next permit cycle.

Can a maximum daily load or concentration limit for phosphorus be set in the permit, particularly for April through September, so the treatment plant can be held to its best possible efficiency when nuisance conditions are at their worse? Some lakes have long detention times and water is flushed through them slowly. The long-term discharge of phosphorus is the main concern for such lakes. Facilities discharging phosphorus to lakes with low detention times, i.e. rapid flushing, may be subject to seasonal limits. Because the upper Huron River system of lakes flush out relatively slowly, the long-term discharge of phosphorus is the main concern in the proposed permit. Only a yearly phosphorus loading limit is applied in the permit.

Brighton Township will have little incentive to limit phosphorus in the discharge as long as it falls within 525 pounds per year. Brighton Township should be required to take full advantage of phosphorus removal technology. Staff agree phosphorus should be further controlled. A 0.30 mg/l monthly average phosphorus limit has been added to the proposed permit. This addition will insure implementation of advanced phosphorus removal technology at the plant.

The Lake of the Pines Homeowners' Association submitted a report to the SWQD claiming the Huron River system would experience a net benefit due to phosphorus removal if riverfront/ lakefront properties are sewerred. Does specific data exist to verify a net benefit would occur? The study submitted by Lake of the Pines Homeowners' Association was not considered in the development of this permit. SWQD is currently conducting non-point source runoff studies on Lake Macatawa and portions of the Huron River watershed with emphasis on phosphorus. These studies are in progress and therefore final results are not available. Preliminary results indicate runoff from properties served by septic systems may contain phosphorus at concentrations up to 4 mg/l, which is four times the water quality standard for phosphorus from point source discharges.

The State of Michigan has denied surface water discharge permit applications for discharge to the Huron River system in the past. Other dischargers may only discharge to the groundwater. Why is Brighton Township allowed a surface water discharge to the Huron River system? Staff are unaware of any formally denied NPDES permit applications in the Huron River System. Only recently has the phosphorus loading from point source discharges to the Huron River dropped to within the allowable level set for protection of water quality in Strawberry Lake. The recommended in-lake concentration of phosphorus is 0.03 mg/l. When phosphorus loading is at or above the allowable level, new potential dischargers may discharge phosphorus at a concentration of 0.03 mg/l. Because 0.03 mg/l of phosphorus is a very difficult limit to achieve, many potential dischargers seek alternative methods such as groundwater discharge. The Strawberry Lake phosphorus loading allocation remains in effect and will not be exceeded by the proposed discharge.

#### **Discharge Type and Location**

The local drinking water supply is an underground aquifer. Regarding protection of an underground aquifer drinking water supply source; is a surface water discharge proven safer than a groundwater discharge? A groundwater discharge source may pose a greater potential threat to an underground drinking water supply aquifer than a surface water discharge depending on the site-specific conditions. DEQ Drinking Water and Radiological Protection Division (DWRPD) staff have reviewed the proposed NPDES permit and have no objection to the proposed discharge relative to its potential impact upon water supply sources.

Is a groundwater discharge superior to a surface water discharge? Groundwater discharges and surface water discharges each have advantages and disadvantages based on site-specific conditions.

The proposed treatment plant is located at the south side of Brighton Township. Other discharge locations must exist. Can the discharge be located further north so it flows through the township to be served? Why can't the discharge be dumped into an abandoned gravel pit as a groundwater discharge? The proposed discharge type and location were requested by the applicant. The proposed permit was developed based on the applicant's request.

The permit should not be issued until a safe, suitable discharge point can be assured. The proposed NPDES permit is protective of water quality in the receiving waters. All applicable requirements of rules and regulations under the NPDES program would be met for the proposed point of discharge.

**Water Supply Protection**

The proposed discharge is 3,300 feet from the Fonda, Island and Briggs Lakes Joint Water Authority water supply wells. A wellhead protection area is being delineated. What precautions will be taken if the proposed discharge is determined to be located within the wellhead protection area? DWRPD staff are responsible for insuring required isolation distances are met. DWRPD staff have reviewed the proposed NPDES permit and have no objection to the proposed discharge relative to its potential impact upon water supply sources.

Is the water safe to drink at the W. J. Maxey Boys Training School and will it be checked regularly? The W. J. Maxey Boys Training School is served by a Type I community water supply well which is equivalent to a city water supply well. Water samples are collected monthly for bacteria, yearly for partial chemistry analysis and every three years for full chemical analysis. The Community Water Supply Section of the DWRPD oversees well compliance to insure the safety of the drinking water.

**Effluent and Water Quality**

The antidegradation statement in the Fact Sheet for the proposed permit states "some lowering of water quality will occur as a result of this discharge", therefore the permit should be denied. The State of Michigan's Water Quality Standards require that certain determinations be made regarding new wastewater discharges. The proposed permit authorizes an increased loading of pollutants to Woodruff Creek. In accordance with Rule 323.1098 of the Michigan Water Quality Standards, the applicant submitted an antidegradation demonstration. SWQD staff have determined the demonstration meets the requirements of Rule 323.1098(4). Therefore, the permit can be issued even though there may be some lowering of water quality.

What will be the accumulative effect of Brighton Township wastewater treatment plant and other new and increased discharges on the Huron River system in regard to phosphorus and other pollutants? Too much phosphorus in a system can result in excessive nuisance aquatic plants, so the cumulative effect of the discharges has been considered in establishing effluent limitations. Pollutant levels in excess amounts known to cause or contribute to water quality exceedances are not permitted from point sources. As NPDES permits are issued, SWQD considers existing discharges and background water quality, among other things, in establishing appropriate limits and monitoring requirements to protect water quality.

The proposed NPDES permit regulates several pollutants, but what heavy metals or other pollutants not covered in the permit will be present in the discharge? The applicant is required to submit information indicating which pollutants are expected in the discharge. The permit application indicates CBOD, ammonia nitrogen, total suspended solids, phosphorus and fecal coliform bacteria will be present in the discharge. These pollutants were evaluated for limits for the proposed permit. Once in operation, detailed chemical analyses are performed during compliance inspections and for permit reissuance. New data is reviewed for limits as necessary. Toxic pollutants are not expected to be present at levels of concern since the facility receives only sanitary wastewater from residences and businesses, and no industrial wastewaters are received by the facility.

Rule 1070 of Part 31 of Act 451 provides temperature standards for discharges to designated use streams. How will temperature be monitored for compliance? SWQD has reviewed the proposed NPDES permit for temperature considerations and determined temperature limitations are not necessary for this discharge to insure compliance with water quality standards.

Water quality should be protected so Woodruff Creek will remain a healthy feeder creek. Water quality standards will be met in Woodruff Creek and the Huron River. Water quality standards are based on protecting aquatic life for growth and reproduction.

How long will fecals persist downstream? Fecal coliform bacteria are not persistent. The presence of fecal coliform bacteria does not necessarily indicate the presence of sanitary wastewater since fecal coliform bacteria originate from wildlife as well as humans and may be present in any inland waterway. The fecal coliform limits in the proposed NPDES permit are based on water quality standards and are therefore protective of public health.

Wastewater treatment plants affect water quality. A noticeable difference exists in water quality if one compares the Huron River at Dexter with the Huron River after it passes through Ann Arbor. Many factors contribute to the quality of water when it passes through a large city. Agricultural runoff, urban runoff, storm sewer discharges and approximately 20 point source discharges occur between Dexter and the downstream side of Ann Arbor.

#### Treatment Plant Operations

How will residual solids be handled? The proposed NPDES permit requires a Program for Effective Residuals Management (PERM) be developed by the applicant and approved by SWQD. The program addresses proper disposal of solid waste and sludge derived from treatment processes at the facility. SWQD staff review adherence to the program during compliance inspections.

Why is the proposed discharge 1.5 million gallons per day? The proposed discharge volume is 1.2 million gallons per day, as requested by the applicant. The applicant has designed the facility based on the needs of the community.

What effect will the proposed discharge have on water levels in the Huron River system? LWMD reviewed the proposed NPDES permit and determined the discharge volume will not measurably increase flood flows on Woodruff Creek or the Huron River.

The Island Lake State Recreation Area is downstream of the proposed discharge and falls under the "Inland Lakes and Streams" and "Natural Rivers" acts. How is the proposed discharge affected by these acts? The Inland Lakes and Streams Act is administered by LWMD. This act requires permits for construction at or below a waterway's ordinary high water mark, construction in a wetland and construction of discharge pipe headwalls (outfalls). The proposed facility will be reviewed by LWMD for appropriate permitting prior to construction.

The Huron River and several of its major tributaries are designated Natural Rivers under Part 305, Natural Rivers, of Public Act 451 of 1994. As part of the designation of the Huron as a Natural River, a management plan and administrative rules have been created to guide development within four hundred feet of designated segments of the river. Forest Management Division staff of the Department of Natural Resources (DNR) have reviewed the proposed NPDES permit and have no objections to the permit since Woodruff Creek is not a designated tributary, and the facility will be located beyond the four hundred foot Natural River management district, and therefore will not be affected by this act.

What actions will the state take if the treatment plant is not run properly? The State of Michigan can impose fines of up to \$25,000 per day for noncompliance with an NPDES permit depending on the severity of the violation.

Will odors be associated with this facility or its discharge? How will the permit address odors? Odor is controlled through proper operation and maintenance of the wastewater treatment plant. Effluent discharged from the wastewater treatment plant should have little or no noticeable odor.

The fact sheet for the proposed NPDES permit claims the receiving stream design flow is used to develop effluent limitations. The fact sheet also states 25% of the design flow is used to develop effluent limitations for toxic pollutants. Does this mean the discharge volume can only be 25% of the design flow? Please clarify the receiving stream design flow and how effluent limitations are developed in regard to design flow. The design flow for the receiving stream (Woodruff Creek) is 5.3 cubic feet per second (cfs). This is the "drought flow" for July, the lowest monthly flow of the stream. The design flow is used to develop effluent limitations sufficiently stringent to meet water quality standards under drought conditions. Water Quality Standards allow 25% of the receiving stream design flow (in this case, 25% of 5.3 cfs) to be used to develop effluent limitations for toxic pollutants based on chronic effects. This does not mean the discharge volume is restricted to 25% of the receiving stream design flow.

Wastewater treatment plants should be built to state of the art specifications. Is there zero chance of this plant failing? New treatment plants must be built to meet effluent limits and other permit requirements. Part 41 of Act 451 of 1994, as amended, requires a construction permit from SWQD. Plant design is reviewed for approval by licensed SWQD engineers prior to issuance of the construction permit. The plant is required to develop an operations and maintenance manual incorporating best management practices and addressing the issues of spill prevention and response. Requiring a facility to have a "zero chance of failing" is an unattainable requirement which can not be incorporated into a permit. However, non-compliance with permit limitations subjects the permittee to the statutory penalties.

Can Brighton Township send wastewater to an existing facility so a new point source is not created? According to information provided by the applicant, Brighton Township has investigated connecting to either the City of Brighton or Lake Edgewood-Genoa Township sewer systems. Connecting to the Lake Edgewood-Genoa Township sewer system is not possible due to limited capacity of the treatment plant; even if expanded to its maximum potential capacity. It is not feasible to connect to the City of Brighton sewer system due to system layout and insufficient capacity.

What is the service area for the proposed wastewater treatment plant and is the service area existing or speculative? According to information supplied by the applicant, approximately 70% of the proposed sanitary sewer service area is existing development which currently have on-site sewage disposal limitations or problems. The other 30% of the service area is vacant or undeveloped properties between existing developments along the proposed sewer route. Approximately 90% of the vacant or undeveloped land to be served will be on Grand River Avenue between US-23 and Kensington Road. Approximately 14,000 people will be served by the system.

What consideration has been given to a multi-jurisdictional service area? This question should be referred to Brighton Township officials since they would be more familiar with governmental and legal issues involved with arranging a multi-jurisdictional sewer service area.

We understand DEQ staffing is reduced so far that facilities are tested only once every five years. How are discharges monitored at the facility? The applicant is responsible for meeting all NPDES permit requirements, including sampling and monitoring. Over 5,000 facilities are regulated under the NPDES permit program in Michigan. SWQD relies primarily on self-monitoring and discharge monitoring reports submitted by the permittee on a monthly basis. A heavy emphasis is placed on quality assurance programs and penalties for violators. The actual frequency of on-site inspections varies from district to district. Inspections include compliance evaluation, sampling, and random unannounced inspections. Environmental groups and citizens groups are helpful in identifying problem facilities.

What is the current zoning of the proposed plant site and, if necessary, is rezoning subject to a referendum? This question should be referred to Brighton Township officials because zoning issues are not addressed by this permit.

How will funding for the proposed plant and sewer system be obtained? This question should be referred to Brighton Township officials because funding issues are not addressed by this permit.

#### **Miscellaneous**

Only some people, organizations and governmental entities were notified of the proposed draft National Pollutant Discharge Elimination System (NPDES) permit. SWQD notifies the local government, owners of property adjacent to a proposed facility or point of discharge, and groups and individuals who have requested to be noticed, in addition to publishing a public notice of the proposed decision to issue an NPDES permit in a locally distributed newspaper. This is consistent with requirements of the NPDES permit process.

Zebra mussels are an increasing problem in Michigan waterways. If zebra mussels impact water clarity and aquatic plants grow better, will more phosphorus make the situation worse? What effect will zebra mussels have on water quality? We do not have enough information to fully answer this question at this time. However, the lake bottoms in the Huron River system are not suitable habitat for zebra mussels and it is uncertain if they will be able to exist in the lakes in sufficient numbers to have a significant effect on water quality, positive or negative.

What are the disadvantages of Brighton Township continuing to be served by only septic systems? Areas of high septic system concentration can be associated with an increased incidence of well water contamination by nitrates and coliform bacteria. Nearby surface water may also be contaminated by failing septic systems. Septic systems have finite life spans and smaller properties may limit the ability to replace or upgrade a failed system.

What is the appeals process if this permit is issued? Any person to whom a new NPDES permit is not acceptable may file a sworn petition with the Office of Administrative Hearings of the DEQ, setting forth conditions of the permit which are being challenged, and specifying the grounds for the challenge. The DEQ may reject any petition filed more than sixty days after issuance as being untimely.

Permit No. MI0054968

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq; the "Federal Act"), Michigan Act 451, Public Acts of 1994, as amended (the "Michigan Act"), Parts 31 and 41, and Michigan Executive Orders 1991-31, 1995-4 and 1995-18,

Brighton Township  
4363 Buno Road  
Brighton, Michigan 48116

is authorized to discharge from a wastewater treatment plant located at

Pleasant Valley Road  
Brighton, Michigan 48116

designated as Brighton Twp WWTP

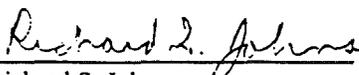
to the receiving water named Woodruff Creek in accordance with effluent limitations, monitoring requirements and other conditions set forth in this permit.

This permit for a new use takes immediate effect on the date of issuance, unless the applicant either administratively or judicially challenges any condition of this permit; in which case the entire permit is stayed and all authorizations explicitly or implicitly contained in the permit cease. Any person to whom this permit is not acceptable may file a sworn petition with the Office of Administrative Hearings of the Michigan Department of Environmental Quality, setting forth the conditions of the permit which are being challenged, and specifying the grounds for the challenge. The Department may reject any petition filed more than 60 days after issuance as being untimely.

This permit and the authorization to discharge shall expire at midnight, October 1, 2001. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit an application which contains such information and forms as are required by the Michigan Department of Environmental Quality to the Shiawassee District Supervisor of the Surface Water Quality Division by April 1, 2001.

This permit is based on a complete application submitted on June 24, 1996. The provisions of this permit are severable. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term in accordance with applicable laws and rules.

Issued 9-29-97.

  
Richard S. Johns  
Acting Division Supervisor  
Surface Water Quality Division



## PART I

**Section A. Limitations and Monitoring Requirements**

- a. **Narrative Standard**  
The receiving water shall contain no unnatural turbidity, color, oil films, floating solids, foams, settleable solids, or deposits as a result of this discharge.
- b. **Sampling Locations**  
Samples for CBOD<sub>5</sub>, Total Suspended Solids, Ammonia Nitrogen and Total Phosphorus shall be taken prior to disinfection. Samples for Dissolved Oxygen, Fecal Coliform Bacteria, Total Residual Chlorine and pH shall be taken after disinfection. The Shiawassee District Supervisor of the Surface Water Quality Division may approve alternate sampling locations which are demonstrated by the permittee to be representative of the effluent.
- c. **Percent Removal Requirements**  
This requirement shall be calculated based on the monthly (30-day) effluent CBOD<sub>5</sub> and Total Suspended Solids concentrations and the monthly influent concentrations for approximately the same period.
- d. **Phosphorus Reporting**  
Phosphorus discharge is limited to five hundred twenty five (525) pounds per year as a twelve month running total. Each monthly discharge monitoring report shall indicate the total phosphorus load discharged during the twelve most recent months. Both the monthly average phosphorus concentration and the total phosphorus load discharged shall be reported for the current month. The equation for calculating monthly phosphorus load is as follows:

Load (lbs) = flow (MGD) X phosphorus concentration (mg/l) X 8.34 X number of days in the month,

where flow is monthly average in million gallons per day, phosphorus concentration is monthly average in milligrams per liter and 8.34 is a conversion factor.

## PART I

## Section A. Limitations and Monitoring Requirements

Preventing Pollution is the Best Solution

The Michigan Department of Environmental Quality (DEQ) encourages you to consider pollution prevention alternatives. In some cases pollution prevention may allow you to avoid the need to discharge pollutants which would otherwise require permit limitations -- or even avoid the need for permits altogether! Pollution prevention can:

- Save Money
- Reduce Waste
- Aid Permit Compliance
- Protect Our Environment
- Improve Corporate Image
- Reduce Liability

The DEQ is helping Michigan's industries save money, reduce waste and protect our environment through pollution prevention. DEQ staff can provide pollution prevention assistance through telephone consultations, technical workshops and seminars, and informational publications. They can also put you directly in touch with local support networks and national pollution prevention resources. For more information, contact the Michigan Department of Environmental Quality, Environmental Assistance Division, at 1-800-662-9278 or visit our homepage at <http://www.deq.state.mi.us>

**PART I**

**Section B. Schedule of Compliance**

**1. Schedule of Compliance Not Required**

This section (Section B: Schedule of Compliance) is not needed for this permit.

**PART I****Section C. Industrial Waste Pretreatment Program****1. Industrial Waste Pretreatment Program**

It is understood that the permittee does not receive the discharge of any type or quantity of substance which may cause interference with the operation of the treatment works; and, therefore is not required to immediately develop an industrial pretreatment program in accordance with Section 307 of the Federal Act. The permittee is required to comply with Section 307 of the Federal Act upon accepting any such discharge for treatment. The permittee is required to notify the Shiawassee District Supervisor of the Surface Water Quality Division within thirty days if any user discharges or proposes to discharge such wastes to the permittee for treatment.

Under no circumstances shall the permittee allow introduction of the following wastes into the waste treatment system:

- 1) pollutants which cause pass through or interference;
- 2) pollutants which create a fire hazard or explosion hazard in the sewerage system, including, but not limited to wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21;
- 3) pollutants which will cause corrosive structural damage to the sewerage system; but in no case, discharges with pH less than 5.0, unless the works is specifically designed to accommodate such discharges;
- 4) solid or viscous pollutants in amounts which will cause obstruction to the flow in the sewerage system resulting in interference;
- 5) any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the treatment plant;
- 6) heat in amounts which will inhibit biological activity in the treatment plant resulting in interference; but in no case, heat in such quantities that the temperature at the treatment plant exceeds 40 degrees Centigrade (104 degrees Fahrenheit) unless the Chief of the Surface Water Quality Division, upon request of the permittee, approves alternate temperature limits;
- 7) pollutants which result in the presence of toxic gases, vapors or fumes within the sewerage system in a quantity that may cause acute worker health and safety problems; and
- 8) any trucked or hauled pollutants, except at discharge points designated by the permittee.

If information is gained by the Surface Water Quality Division that the permittee receives or is about to receive industrial wastes, then this permit may be modified in accordance with applicable laws and rules to incorporate the requirements of Section 307 of the Federal Act.

**PART I****Section D. Program for Effective Residuals Management****1. Program For Effective Residuals Management**

In addition to the requirements in Part II.D.7. in this permit, the permittee shall provide for the effective management and/or disposal of residuals, i.e., solids, sludges, ash, grit and other substances removed from or resulting from treatment of the wastewater. Residuals disposal shall be accomplished in such manner and at such locations that the disposal practices shall not result in unlawful pollution of the air, surface waters or ground waters of the state nor create nuisance conditions. Such management and/or disposal program shall be set forth in a "Program for Effective Residuals Management" prepared by the permittee.

The program shall include:

- a. a management plan (treatment, transportation, storage, disposal, contingency plans);
- b. an inventory of residuals production, storage, and disposal for a period of at least one year;
- c. an analysis of the residuals;
- d. a monitoring program;
- e. include site maps, soil analyses, application rates, proposed vegetation, and other pertinent information if land application is proposed; and
- f. include a hydrogeologic study if groundwater degradation potential exists.

The program shall be submitted to and approved by the Shiawassee District Supervisor of the Surface Water Quality Division on or before December 1, 1997.

Subsequent to approval, disposal of residuals resulting from the treatment of wastewater shall be in accordance with the program. If the permittee desires to make any substantial changes in the program, such proposed changes shall be submitted to and approved by the Shiawassee District Supervisor prior to implementation. Substantial changes shall include but not be limited to: a change in disposal method or site; a change in treatment method; a change in storage method or site; a change in monitoring parameters or monitoring frequency; an increase in application rate; or a change in residuals quantity or characteristics. Any residual disposal inconsistent with the approved program shall be considered a violation of this permit.

## PART II

## Section A. Definitions

This list of definitions may include terms not applicable to this permit.

**Acute toxic unit** is 100 divided by the LC50 (with the LC50 expressed as a percentage).

**Bioaccumulative chemical of concern (BCC)** means a chemical which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor of more than 1000 after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation. The human health bioaccumulation factor shall be derived according to R 323.1057(5). Chemicals with half-lives of less than 8 weeks in the water column, sediment, and biota are not BCCs. The minimum bioaccumulation concentration factor (BAF) information needed to define an organic chemical as a BCC is either a field-measured BAF or a BAF derived using the biota-sediment accumulation factor (BSAF) methodology. The minimum BAF information needed to define an inorganic chemical as a BCC, including an organometal, is either a field-measured BAF or a laboratory-measured bioconcentration factor (BCF). The BCCs to which these rules apply are identified in Table 5 of R 323.1057 of the Water Quality Standards.

**Chronic toxic unit** is 100 divided by the MATC (with the MATC expressed as a percentage).

**Daily concentration** is the sum of the concentrations of the individual samples of a parameter divided by the number of samples taken during any calendar day. If the parameter concentration in any sample is less than the detection limit, regard that value as zero when calculating the daily concentration. The daily concentration will be used to determine compliance with any maximum and minimum daily concentration limitations (except for pH and dissolved oxygen). When required by the permit, report the maximum calculated daily concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the Discharge Monitoring Reports (DMRs).

For pH, report the maximum value of any individual sample taken during the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs and the minimum value of any individual sample taken during the month in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. For dissolved oxygen, report the minimum concentration of any individual sample in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

**Daily loading** is the total discharge by weight of a parameter discharged during any calendar day. This value is calculated by multiplying the daily concentration by the total daily flow and by the appropriate conversion factor. The daily loading will be used to determine compliance with any maximum daily loading limitations. When required by the permit, report the maximum calculated daily loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMRs.

**Department** means the Michigan Department of Environmental Quality.

**Detection Level** means the lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability.

**District Supervisor:** The Shiawassee District Supervisor of the Surface Water Quality Division is located at the Shiawassee District Office, 10650 South Bennet, Morrice, Michigan 48857, telephone: 517-625-5515 (fax: 517-625-5000).

**Division of Health Facility Services – Health Facility Evaluation Section, Michigan Department of Consumer and Industry Services** mailing address is P.O. Box 30195, Lansing, Michigan 48909.

**Drinking Water and Radiological Protection Division – Environmental Health, Michigan Department of Environmental Quality** mailing address is P.O. Box 30630, Lansing, Michigan 48909-8130.

**EC<sub>50</sub>** means a statistically or graphically estimated concentration that is expected to cause 1 or more specified effects in 50% of a group of organisms under specified conditions.

## PART II

### Section A. Definitions

**Fecal coliform bacteria monthly** is the geometric mean of the samples collected in a calendar month (or 30 consecutive days). The calculated monthly value will be used to determine compliance with the maximum monthly fecal coliform bacteria limitations. When required by the permit, report the calculated monthly value in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMRs.

**Fecal coliform bacteria 7-day** is the geometric mean of the samples collected in any 7-day period. The calculated 7-day value will be used to determine compliance with the maximum 7-day fecal coliform bacteria limitations. When required by the permit, report the maximum calculated 7-day concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

**Flow Proportioned sample** is a composite sample with the sample volume proportional to the effluent flow.

**Grab sample** is a single sample taken at neither a set time nor flow

**IC<sub>25</sub>** means the toxicant concentration that would cause a 25% reduction in a nonquantal biological measurements for the test population.

**Interference** is a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:  
1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and  
2) therefore, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or, of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act. [This definition does not apply to sample matrix interference.]

**LC<sub>50</sub>** means a statistically or graphically estimated concentration that is expected to be lethal to 50% of a group of organisms under specified conditions.

**Maximum acceptable toxicant concentration (MATC)** means the concentration obtained by calculating the geometric mean of the lower and upper chronic limits from a chronic test. A lower chronic limit is the highest tested concentration that did not cause the occurrence of a specific adverse effect. An upper chronic limit is the lowest tested concentration which did cause the occurrence of a specific adverse effect and above which all tested concentrations caused such an occurrence.

**Monthly concentration** is the sum of the daily concentrations determined during a reporting month (or 30 consecutive days) divided by the number of daily concentrations determined. The calculated monthly concentration will be used to determine compliance with any maximum monthly concentration limitations. When required by the permit, report the calculated monthly concentration in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMRs.

For minimum percent removal requirements, the monthly influent concentration and the monthly effluent concentration shall be determined. The calculated monthly percent removal, which is equal to 100 times the quantity [1 minus the quantity (monthly effluent concentration divided by the monthly influent concentration)], shall be reported in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

**Monthly loading** is the sum of the daily loadings of a parameter divided by the number of daily loadings determined in the reporting month (or 30 consecutive days). The calculated monthly loading will be used to determine compliance with any maximum monthly loading limitations. When required by the permit, report the calculated monthly loading in the "AVERAGE" column under "QUANTITY OR LOADING" on the DMRs.

## PART II

### Section A. Definitions

**National Pretreatment Standards** are the regulations promulgated by or to be promulgated by the Federal Environmental Protection Agency pursuant to Section 307(b) and (c) of the Federal Act. The standards establish nationwide limits for specific industrial categories for discharge to a POTW.

**NOAEL** means the highest tested dose or concentration of a substance that results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.

**Noncontact Cooling Water** is water used for cooling which does not come into direct contact with any raw material, intermediate product, by-product, waste product or finished product.

**Nondomestic user** is any discharger to a POTW that discharges wastes other than or in addition to water-carried wastes from toilet, kitchen, laundry, bathing or other facilities used for household purposes.

**Pretreatment** is reducing the amount of pollutants, eliminating pollutants, or altering the nature of pollutant properties to a less harmful state prior to discharge into a public sewer. The reduction or alteration can be by physical, chemical, or biological processes, process changes, or by other means. Dilution is not considered pretreatment unless expressly authorized by an applicable National Pretreatment Standard for a particular industrial category.

**POTW** is a publicly owned treatment works.

**Quantification level** means the measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calculated at a specified concentration above the detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant.

**Regional Administrator** is the Region 5 Administrator, U.S. EPA, located at R-16J, 77 W. Jackson Blvd., Chicago, Illinois 60604.

**7-day concentration** is the sum of the daily concentrations determined during any 7 consecutive days in a reporting month divided by the number of daily concentrations determined. The calculated 7-day concentration will be used to determine compliance with any maximum 7-day concentration limitations. When required by the permit, report the maximum calculated 7-day concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

**7-day loading** is the sum of the daily loadings of a parameter divided by the number of daily loadings determined during any 7 consecutive days in a reporting month. The calculated 7-day loading will be used to determine compliance with any maximum 7-day loading limitations. When required by the permit, report the maximum calculated 7-day loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMRs.

**Significant industrial user** is a nondomestic user that: 1) is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; or 2) discharges an average of 25,000 gallons per day or more of process wastewater to a POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastestream which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the permittee as defined in 40 CFR 403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's treatment plant operation or violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

**Tier I value** means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier I toxicity data base.

**Tier II value** means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier II toxicity data base.

## PART II

### Section A. Definitions

**Toxicity Reduction Evaluation (TRE)** means a site-specific study conducted in a stepwise process designed to identify the causative agents of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity.

**Water Quality Standards** means the Part 4 Water Quality Standards developed under Part 31 of Act No. 451 of the Public Acts of 1994, as amended, being Rules 323.1041 through 323.1117 of the Michigan Administrative Code.

**3-Portion Composite sample** is a sample consisting of three equal volume grab samples collected at equal intervals over an 8-hour period.

**24-Hour Composite sample** is a flow proportioned composite sample consisting of hourly or more frequent portions that are taken over a 24-hour period.

## PART II

### Section B. Monitoring Procedures

#### 1. Representative Samples

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

#### 2. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations promulgated pursuant to Section 304(h) of the Federal Act (40 CFR Part 136 - Guidelines Establishing Test Procedures for the Analysis of Pollutants). For parameters not specified in the permit or covered by the regulations, test procedures shall be submitted for approval to the Shiawassee District Supervisor of the Surface Water Quality Division.

The permittee shall periodically calibrate and perform maintenance procedures on all analytical instrumentation at intervals to ensure accuracy of measurements. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Control/Quality Assurance program.

#### 3. Instrumentation

The permittee shall periodically calibrate and perform maintenance procedures on all monitoring instrumentation at intervals to ensure accuracy of measurements.

#### 4. Recording Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information: 1) the exact place, date, and time of measurement or sampling; 2) the person(s) who performed the measurement or sample collection; 3) the dates the analyses were performed; 4) the person(s) who performed the analyses; 5) the analytical techniques or methods used; 6) the date of and person responsible for equipment calibration; and 7) the results of all required analyses.

#### 5. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Regional Administrator or the Michigan Department of Environmental Quality.

## PART II

### Section C. Reporting Requirements

#### 1. Start-up Notification

If the permittee will not discharge during the first 60 days following the effective date of this permit, the permittee shall notify the Shiawassee District Supervisor of the Surface Water Quality Division within 14 days, and then 60 days prior to the commencement of the discharge.

#### 2. Submittal Requirements for Self-Monitoring Data

Unless instructed on the effluent limits page to conduct "retained self-monitoring", the permittee shall submit self-monitoring data on the Environmental Protection Agency's Discharge Monitoring Report (DMR) forms (monthly summary information) and the Department's Daily Discharge Monitoring Report forms (daily information) to the PCS Unit, Surface Water Quality Division, Michigan Department of Environmental Quality, P.O. Box 30273, Lansing, Michigan, 48909-7773, for each calendar month of the authorized discharge period(s). The forms shall be postmarked no later than the 10th day of the month following each month of the authorized discharge period(s).

Alternative Daily Discharge Monitoring Report formats may be used if they provide equivalent reporting details and are approved by the Shiawassee District Supervisor of the Surface Water Quality Division. For information on electronic submittal of this information, contact the Shiawassee District Supervisor.

#### 3. Retained Self-Monitoring Requirements

If instructed on the effluent limits page to conduct retained self-monitoring, the permittee shall maintain a year-to-date log of retained self-monitoring results and, upon request, provide such log for inspection to the staff of the Surface Water Quality Division, Michigan Department of Environmental Quality (in the case of mobile home parks, campgrounds, marinas and schools, to the staff of the Drinking Water and Radiological Protection Division -- Environmental Health, Michigan Department of Environmental Quality, or, in the case of hospitals, nursing homes and extended care facilities, to the staff of the Division of Health Facility Services -- Health Facility Evaluation Section, Michigan Department of Consumer and Industry Services). Retained self-monitoring results are public information and shall be promptly provided to the public upon request.

The permittee shall certify, in writing, to the Shiawassee District Supervisor of the Surface Water Quality Division, on or before January 10th of each year, that: 1) all retained self-monitoring requirements have been complied with and a year-to-date log has been maintained; and 2) the application on which this permit is based still accurately describes the discharge.

#### 4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

Monitoring required pursuant to Part 41 of the Michigan Act or Rule 35 of the Mobile Home Park Commission Act (Act 96 of the Public Acts of 1987) for assurance of proper facility operation shall be submitted as required by the Department.

## PART II

### Section C. Reporting Requirements

#### 5. Compliance Dates Notification

Within 14 days of every compliance date specified in this permit, the permittee shall submit a written notification to the Shiawassee District Supervisor of the Surface Water Quality Division indicating whether or not the particular requirement was accomplished. If the requirement was not accomplished, the notification shall include an explanation of the failure to accomplish the requirement, actions taken or planned by the permittee to correct the situation, and an estimate of when the requirement will be accomplished. If a written report is required to be submitted by a specified date and the permittee accomplishes this, a separate written notification is not required.

#### 6. Noncompliance Notification

Compliance with all requirements set forth in the Federal Act, Parts 31 and 41 of the Michigan Act, and related regulations and rules is required. All instances of noncompliance shall be reported as follows:

- a. 24-hour reporting - Any noncompliance which may endanger health or the environment (including maximum daily concentration discharge limitation exceedances) shall be reported, verbally, within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five (5) days.
- b. other reporting - The permittee shall report, in writing, all other instances of noncompliance not described in a. above at the time monitoring reports are submitted; or, in the case of retained self-monitoring, within five (5) days from the time the permittee becomes aware of the noncompliance.

Written reporting shall include: 1) a description of the discharge and cause of noncompliance; and 2) the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and the steps taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

#### 7. Spill Notification

The permittee shall immediately report any spill or loss of any product, by-product, intermediate product, oils, solvents, waste material, or any other polluting substance which occurs to the surface waters or groundwaters of the state by calling the Department of Environmental Quality's 24-hour Emergency Response telephone number, 1-800-292-4706 (calls from out-of-state dial 1-517-373-7660); and within ten (10) days of the spill or loss, the permittee shall submit to the Shiawassee District Supervisor of the Surface Water Quality Division a full written explanation as to the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken, and schedule of implementation.

#### 8. Upset Noncompliance Notification

If a process "upset" (defined as an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee) has occurred, the permittee who wishes to establish the affirmative defense of upset shall notify the Shiawassee District Supervisor of the Surface Water Quality Division by telephone within 24 hours of becoming aware of such conditions; and within five (5) days, provide in writing, the following information:

- a. that an upset occurred and that the permittee can identify the specific cause(s) of the upset;
- b. that the permitted wastewater treatment facility was, at the time, being properly operated; and
- c. that the permittee has specified and taken action on all responsible steps to minimize or correct any adverse impact in the environment resulting from noncompliance with this permit.

In any enforcement proceedings, the permittee, seeking to establish the occurrence of an upset, has the burden of proof.

**PART II****Section C. Reporting Requirements****9. Bypass Prohibition and Notification**

- a. Bypass Prohibition - Bypass is prohibited unless:
  - 1) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
  - 2) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass; and
  - (3) the permittee submitted notices as required under 9.b. or 9.c. below.
- b. Notice of Anticipated Bypass - If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Shiawassee District Supervisor of the Surface Water Quality Division, if possible at least ten days before the date of the bypass, and provide information about the anticipated bypass as required by the Shiawassee District Supervisor. The Shiawassee District Supervisor may approve an anticipated bypass, after considering its adverse effects, if it will meet the three conditions listed in 9.a. above.
- c. Notice of Unanticipated Bypass - The permittee shall submit notice to the Shiawassee District Supervisor of the Surface Water Quality Division of an unanticipated bypass by telephone at 517-625-5515 (if the notice is provided after regular working hours, use the following number: 1-800-292-4706) as soon as possible, but no later than 24 hours from the time the permittee becomes aware of the circumstances.
- d. Written Report of Bypass - A written submission shall be provided within five (5) working days of commencing any bypass to the Shiawassee District Supervisor of the Surface Water Quality Division, and at additional times as directed by the Shiawassee District Supervisor. The written submission shall contain a description of the bypass and its cause; the period of bypass, including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass; and other information as required by the Shiawassee District Supervisor.
- e. Bypass Not Exceeding Limitations - The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of 9.a., 9.b., 9.c., and 9.d., above. This provision does not relieve the permittee of any notification responsibilities under Part II.C.10. of this permit.
- f. Definitions
  - (1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
  - (2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

## PART II

### Section C. Reporting Requirements

#### 10. Notification of Changes in Discharge

The permittee shall notify the Shiawassee District Supervisor of the Surface Water Quality Division, in writing, within 10 days of knowing, or having reason to believe, that any activity or change has occurred or will occur which would result in the discharge of: 1) detectable levels of chemicals on the current Michigan Critical Materials Register, priority pollutants or hazardous substances set forth in 40 CFR 122.21, Appendix D, or the Pollutants of Initial Focus in the Great Lakes Water Quality Initiative specified in 40 CFR 132.6, Table 6, which were not acknowledged in the application or listed in the application at less than detectable levels; 2) detectable levels of any other chemical not listed in the application or listed at less than detection, for which the application specifically requested information; or 3) any chemical at levels greater than five times the average level reported in the complete application submitted on June 24, 1996. Any other monitoring results obtained as a requirement of this permit shall be reported in accordance with the compliance schedules.

#### 11. Changes in Facility Operations

Any anticipated action or activity, including but not limited to facility expansion, production increases, or process modification, which will result in new or increased loadings of pollutants to the receiving waters must be reported to the Shiawassee District Supervisor of the Surface Water Quality Division by a) submission of an increased use request (application) and all information required under Rule 323.1098 (Antidegradation) of the Water Quality Standards or b) by notice if the following conditions are met: 1) the action or activity will not result in a change in the types of wastewater discharged or result in a greater quantity of wastewater than currently authorized by this permit; 2) the action or activity will not result in violations of the effluent limitations specified in this permit; 3) the action or activity is not prohibited by the requirements of Part II.C.10.; and 4) the action or activity will not require notification pursuant to Part II.C.10. Following such notice, the permit may be modified according to applicable laws and rules to specify and limit any pollutant not previously limited.

#### 12. Bioaccumulative Chemicals of Concern (BCC)

Consistent with the requirements of Rules 323.1098 and 323.1215 of the Michigan Administrative Code, the permittee is prohibited from undertaking any action that would result in a lowering of water quality from an increased loading of a BCC unless an increased use request and antidegradation demonstration have been submitted and approved by the Department.

#### 13. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Shiawassee District Supervisor of the Surface Water Quality Division 30 days prior to the actual transfer of ownership or control.

## PART II

### Section D. Management Responsibilities

#### 1. Duty to Comply

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.

It is the duty of the permittee to comply with all the terms and conditions of this permit. Any noncompliance with the Effluent Limitations, Special Conditions, or terms of this permit constitutes a violation of the Michigan Act and/or the Federal Act and constitutes grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of an application for permit renewal.

#### 2. Operator Certification

The permittee shall have the waste treatment facilities under direct supervision of an operator certified at the appropriate level for the facility certification by the Michigan Department of Environmental Quality, as required by Sections 3110 and 4104 of the Michigan Act.

#### 3. Facilities Operation

The permittee shall, at all times, properly operate and maintain all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures.

#### 4. Power Failures

In order to maintain compliance with the effluent limitations of this permit and prevent unauthorized discharges, the permittee shall either:

- a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit; or
- b. upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, the permittee shall halt, reduce or otherwise control production and/or all discharge in order to maintain compliance with the effluent limitations and conditions of this permit.

#### 5. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the surface waters or groundwaters of the state resulting from noncompliance with any effluent limitation specified in this permit including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the discharge in noncompliance.

#### 6. Containment Facilities

The permittee shall provide facilities for containment of any accidental losses of concentrated solutions, acids, alkalies, salts, oils, or other polluting materials in accordance with the requirements of the Part 5 Rules (Rules 323.1151 through 323.1169 of the Michigan Administrative Code). For a POTW, these facilities shall be approved under Part 41 of the Michigan Act.

## PART II

### Section D. Management Responsibilities

#### 7. Waste Treatment Residues

Solids, sludges, biosolids, filter backwash, scrubber water or other pollutants resulting from treatment or control of wastewaters shall be disposed of in an environmentally compatible manner and according to applicable laws and rules. Such disposal shall not result in any unlawful pollution of the air, surface waters or groundwaters of the state.

#### 8. Right of Entry

The permittee shall allow the Michigan Department of Environmental Quality, any agent appointed by the Department or the Regional Administrator, upon the presentation of credentials:

- a. to enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and
- b. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect process facilities, treatment works, monitoring methods and equipment regulated or required under this permit; and to sample any discharge of pollutants.

#### 9. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Act and Rule 2128 (Rule 323.2128 of the Michigan Administrative Code), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department and the Regional Administrator. As required by the Federal Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Act and Sections 3112, 3115, 4106 and 4110 of the Michigan Act.

**PART II****Section E. Activities Not Authorized by This Permit****1. Discharge to the Groundwaters**

This permit does not authorize any discharge to the groundwaters. Such discharge must be authorized by a groundwater discharge permit issued pursuant to the Michigan Act.

**2. Facility Construction**

This permit does not authorize or approve the construction or modification of any physical structures or facilities. Approval for such construction for a POTW must be by permit issued under Part 41 of the Michigan Act. Approval for such construction for a mobile home park, campground or marina shall be from the Drinking Water and Radiological Protection Division -- Environmental Health, Michigan Department of Environmental Quality. Approval for such construction for a hospital, nursing home or extended care facility shall be from the Division of Health Facility Services -- Health Facility Evaluation Section, Michigan Department of Consumer and Industry Services upon request.

**3. Civil and Criminal Liability**

Except as provided in permit conditions on "Bypass" (Part II.C.9. pursuant to 40 CFR 122.41(m)), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance, whether or not such noncompliance is due to factors beyond his control, such as accidents, equipment breakdowns, or labor disputes.

**4. Oil and Hazardous Substance Liability**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee may be subject under Section 311 of the Federal Act except as are exempted by federal regulations.

**5. State Laws**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Federal Act.

**6. Property Rights**

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits or approvals from other units of government as may be required by law.



**APPENDIX C**  
**Preliminary Basis of Designs**



**BRIGHTON TOWNSHIP, MICHIGAN**

# **Preliminary Basis of Design**

## **Sanitary Sewer System**

**WOODLAND LAKE SANITARY SEWER SYSTEM**  
**WEST GRAND RIVER SANITARY SEWER SYSTEM**  
**CLARK LAKE SANITARY SEWER SYSTEM**  
**EAST GRAND RIVER SANITARY SEWER SYSTEM**  
**FONDA LAKE (BRIGHTON TWP. PORTION) SANITARY SEWER SYSTEMS**  
**LAKE OF THE PINES SANITARY SEWER SYSTEM**

**December 1998**



## INTRODUCTION

### GENERAL

The Brighton Township Sanitary Sewer System lie within Brighton Township, Livingston County, Michigan. The Service Areas in this sewer system include the existing developments around Clark Lake, Woodland Lake, West Grand River, East Grand River, Fonda Lake and Lake of the Pines. The limits of each of the sanitary sewer special assessment districts are outlined in Figures A through F.

### SERVICE AREA

The service area for each district was determined to provide a municipal sanitary sewer system to the existing developments included within the six districts. The following paragraphs list the service area for each of the six sanitary sewer districts.

#### Clark Lake

The Clark Lake Special Assessment District consists of the existing residential homes that surround Clark Lake and are located on Clark Lake Road.

#### Woodland Lake

The Woodland Lake Special Assessment District includes the parcels of land that are located on the north and east sides of Woodland lake from Hyne Road to the north to Hunter Road to the east to Hilton road to the south. The majority of this special assessment district is residential properties varying from a Manufactured Housing Community to single family residential homes. Two churches and a couple of apartment housing units are also included in this district.

#### West Grand River

This special assessment district includes the commercial and residential properties located on the west and south sides of Woodland Lake. The district is bounded by Almashy Road to the north, Brighton Township/Genoa Township limits to the west and Hilton Road/I-96 to the south.

#### East Grand River

The two commercial corridors (Old US-23 and Grand River Avenue) make up the East Grand River Special Assessment District. The district boundaries include I-96 to the north; US-23 to the east; Green Oak Township boundary to the south; and City of Brighton to the west.

#### Fonda Lake

The Fonda Lake Special Assessment District includes only the parcels of property around Fonda Lake that are located within Brighton Township and the commercial properties on the south side of Grand River Avenue as outlined in figure 5.

#### Lake of the Pines

The northeast quarter of section 33 signify the boundary of the Lake of the Pines Special Assessment District. This district includes all residential properties with no commercial

properties being included in this district. The majority of the district is developed with only a few areas that could produce additional residential homes.

## **PROPOSED FACILITIES**

### Local Collection Sewers

The Brighton Township Sanitary Sewer System will consist of both a gravity sewer system and a low-pressure sewer system. The gravity sewer main will vary in size from 8-inch diameter in the upper portion of the sewer system to 21-inch diameter on the main transmission sewer on the north side of Fonda Lake. A low-pressure sewer system will be constructed in the areas where the Township has determined that a conventional gravity sewer system would be cost prohibitive. The low-pressure sewer system will include a simplex or duplex grinder pump station at each parcel with sewer line sizes varying from 2-inch to 8-inch in diameter.

The Clark Lake and Lake of the Pines districts are proposed to be an all low-pressure sewer system. Woodland Lake, West Grand River and Fonda Lake are proposed to have a combined sewer system consisting of both a low-pressure sewer and a gravity sewer depending upon the location and topography in those districts. The East Grand River Sanitary Sewer District is proposed to solely be a gravity sewer system.

### Transmission Sewers

A conceptual design of the sanitary sewer transmission sewer route and sizing has been performed to calculate total project costs for preliminary assessment roll purposes only. The actual sewer location will be determined at a later date.

The conceptual design indicates that the transmission sewer will consist of 12-inch gravity sewer on Hilton Road, 12-inch diameter force main and 18-inch diameter gravity sewer on Old US-23, 12-inch diameter force main under US-23 and along the west side of Fonda lake, and a 21-inch diameter gravity sewer and 12-inch diameter force main on Grand River Avenue finally discharging into the proposed wastewater treatment plant. Three pumping stations will be constructed along the transmission sewer route to lift the sewage to either another stretch of gravity sewer or to the wastewater treatment plant.

### Wastewater Treatment Facility

A wastewater treatment facility NPDES permit has been applied for and issued to Brighton Township for a surface water discharge into North Ore Creek. A conceptual layout of the proposed WWTP facility has been determined, however until the Township reaches an agreement with the prospective land owner for purchase of land necessary to build the WWTP, a final layout can not be determined.

At this time, the NPDES permit has been issued and is active until April of 2001. A conceptual design of the facility indicates that the capacity necessary for the initial sanitary sewer districts will be 0.44 MGD. Additional capacity may be built into the facility to account for future growth into the sewer system.

## BASIS OF DESIGN

The sewer system consists of a combination of a gravity sewer system and a low-pressure sewer system. The gravity sewer main sizes were based on 'Ten State Standards' for design requirements. The low-pressure system was designed using the design requirements of the Environmental-One Corporation (E-One) handbook and spreadsheet. A copy of the low-pressure sewer system design spreadsheet and a statistical table which indicates the maximum number of grinder pump cores operating daily are attached in the appendix of this report.

The gravity sewer system was designed based on the requirements that an 8-inch sewer is the minimum diameter size allowed for a public sewer system. The gravity sewer lines vary in size from an 8-inch diameter sewer main in the Woodland Lake, West Grand River and East Grand River districts to a 21-inch diameter transmission sewer main along Grand River on the north side of Fonda Lake.

Six sewage-pumping stations are proposed through out the sanitary sewer system. Woodland Lake contains two, West Grand River contains one and East Grand River has one. Two pumping stations are preliminary proposed along the transmission sewer route. One is located at the corner of Hilton and Old US-23 and the other on Grand River near Pleasant Valley Road. The sewage pump stations have been preliminary located in low elevation areas of the system where the sewage would be pumped to a point of higher elevation to resume gravity flow.



APPENDIX

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**Table III**

**MAXIMUM NUMBER OF GRINDER PUMP CORES  
OPERATING DAILY**

<b>Number of Grinder Pump Cores Connected</b>	<b>Maximum Daily Number of Grinder Pump Cores Operating Simultaneously</b>
1	1
2-3	2
4-9	3
10-18	4
19-30	5
31-50	6
51-80	7
81-113	8
114-146	9
147-179	10
180-212	11
213-245	12
246-278	13
279-311	14
312-344	15

**PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS**

Date : Dec-24-98		Brighton Township										Prepared By: JBM			
Proposed Low Pressure Sewer System Conditions															
Branch Number	No. of Cores Per Branch	Cumulative No. of Cores @ Branch	Maximum Number Of Simultaneous Operations	Maximum Flow (gpm)	Pipe Size (in)	Actual Pipe Inside Diameter	Maximum Velocity (fps)	Branch Length (ft)	Friction Loss Factor (ft/100 ft)	Friction Loss in Branch	Cumulative Friction Loss (ft)	Maximum Main Elevation	Minimum Pump Elevation	Static Head (ft)	Total Dynamic Head (ft)
using pipe diameters for SDR 11 polyethylene pipe.										Friction loss calculations were based on a Constant for inside roughness of "C" =					130

6	30	30	5	55	3.00	2.864	2.74	1400	1.28	17.93	101.89	930.0	910.0	20	121.89
5	10	40	6	66	3.00	2.864	3.29	1400	1.79	25.13	83.96	930.0	910.0	20	103.96
4.1.1	2	2	2	22	3.00	2.864	1.10	1400	0.23	3.29	87.24	930.0	920.0	10	97.24
4.2	2	2	2	22	3.00	2.864	1.10	1400	0.23	3.29	87.24	930.0	920.0	10	97.24
4.1	28	32	6	66	3.00	2.864	3.29	1400	1.79	25.13	83.96	930.0	920.0	10	93.96
4	50	122	9	99	4.00	3.682	2.98	1400	1.12	15.68	58.83	930.0	910.0	20	78.83
3	3	125	9	99	4.00	3.682	2.98	1400	1.12	15.68	43.14	915.0	910.0	5	48.14
2.3	18	18	4	44	3.00	2.864	2.19	1400	0.85	11.86	67.10	930.0	910.0	20	87.10
2.2.1	3	3	2	22	2.00	1.943	2.38	1400	1.55	21.70	76.93	930.0	920.0	10	86.93
2.2	3	24	5	55	3.00	2.864	2.74	1400	1.28	17.93	55.24	930.0	910.0	20	75.24
2.1.1	10	10	4	44	3.00	2.864	2.19	1400	0.85	11.86	49.17	930.0	910.0	20	69.17
2.1	41	75	7	77	4.00	3.682	2.32	1400	0.70	9.85	37.31	930.0	910.0	20	57.31
2	3	203	11	121	4.00	3.682	3.65	1400	1.62	22.74	27.46	905.0	890.0	15	42.46
1.2	10	10	4	44	3.00	2.864	2.19	1400	0.85	11.86	50.01	930.0	920.0	10	60.01
1.1.1	6	6	3	33	2.00	1.943	3.57	1400	3.28	45.97	84.13	930.0	920.0	10	94.13
1.1	38	54	7	77	3.00	2.864	3.83	1400	2.39	33.43	38.15	930.0	920.0	10	48.15
1	4	261	13	143	6.00	5.421	1.99	1400	0.34	4.72	4.72	900.0	890.0	10	14.72
0	0														

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Date : Dec-24-98		Brighton Township										Prepared By: JBM			
Proposed Low Pressure Sewer System Conditions															
Branch Number	No. of Cores Per Branch	Cumulative No. of Cores @ Branch	Maximum Number Of Simultaneous Operations	Maximum Flow (gpm)	Pipe Size (in)	Actual Pipe Inside Diameter	Maximum Velocity (fps)	Branch Length (ft)	Friction Loss Factor (ft/100 ft)	Friction Loss In Branch	Cumulative Friction Loss (ft)	Maximum Main Elevation	Minimum Pump Elevation	Static Head (ft)	Total Dynamic Head (ft)
Using pipe diameters for SDR 11 polyethylene pipe.								Friction loss calculations were based on a Constant for inside roughness of "C" = 130							
26.4	12	12	4	44	3.00	2.864	2.19	700	0.85	5.93	76.47	965.0	955.0	10	86.47
26.3.1	2	2	2	22	2.00	1.943	2.38	150	1.55	2.32	72.86	965.0	955.0	10	82.86
26.3	7	40	6	66	3.00	2.864	3.29	550	1.79	9.87	70.54	965.0	955.0	10	80.54
26.2.1	6	6	3	33	2.00	1.943	3.57	350	3.28	11.49	72.16	965.0	935.0	30	102.16
26.2	13	40	6	66	3.00	2.864	3.29	900	1.79	16.15	60.66	965.0	955.0	10	70.66
26.1.1	7	7	3	33	2.00	1.943	3.57	450	3.28	14.78	59.29	965.0	955.0	10	69.29
26.1	4	51	7	77	3.00	2.864	3.83	450	2.39	10.75	44.51	965.0	955.0	10	54.51
29.1	3	3	2	22	2.00	1.943	2.38	600	1.55	9.30	74.08	965.0	945.0	20	94.08
30	3	3	2	22	2.00	1.943	2.38	250	1.55	3.87	68.65	965.0	945.0	20	88.65
29	2	8	3	33	2.00	1.943	3.57	300	3.28	9.85	64.78	965.0	945.0	20	84.78
28.1	2	2	2	22	2.00	1.943	2.38	250	1.55	3.87	58.80	965.0	945.0	20	78.80
28	0	10	4	44	3.00	2.864	2.19	1500	0.85	12.71	54.93	965.0	950.0	15	69.93
27	22	32	6	66	4.00	3.682	1.99	1600	0.53	8.46	42.22	965.0	950.0	15	57.22
26	1	83	8	88	4.00	3.682	2.65	300	0.90	2.70	33.76	965.0	955.0	10	43.76
25	7	90	8	88	4.00	3.682	2.65	1850	0.90	16.66	31.06	965.0	945.0	20	51.06
24.2	7	7	3	33	2.00	1.943	3.57	800	3.28	26.27	74.24	965.0	940.0	25	99.24
24.1.1	4	4	3	33	2.00	1.943	3.57	450	3.28	14.78	62.74	965.0	935.0	30	92.74
24.1	3	14	4	44	2.00	1.943	4.76	600	5.59	33.57	47.97	965.0	950.0	15	62.97
24	3	107	8	88	4.00	3.682	2.65	1050	0.90	9.46	14.40	965.0	935.0	30	44.40
23.2	112	112	8	88	4.00	3.682	2.65	2000	0.90	18.01	40.97	965.0	955.0	10	50.97
23.1	0	112	8	88	4.00	3.682	2.65	2000	0.90	18.01	22.95	965.0	950.0	15	37.95
23	2	219	12	132	6.00	5.421	1.83	1400	0.29	4.07	4.94	965.0	935.0	30	34.94
22.2	7	7	3	33	2.00	1.943	3.57	500	3.28	16.42	34.08	965.0	945.0	20	54.08
22.1.1	4	4	3	33	2.00	1.943	3.57	300	3.28	9.85	27.51	965.0	955.0	10	37.51
22.1	0	11	4	44	2.00	1.943	4.76	300	5.59	16.78	17.66	965.0	955.0	10	27.66
22	14	233	12	132	6.00	5.421	1.83	300	0.29	0.87	0.87	965.0	935.0	30	30.87
21															

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Date : Dec-28-98		Brighton Township										Prepared By: JBM				
Proposed Low Pressure Sewer System Conditions																
Branch Number	No. of Cores Per Branch	Cumulative No. of Cores ● Branch	Maximum Number Of Simultaneous Operations	Maximum Flow (gpm)	Pipe Size (in)	Actual Pipe Inside Diameter	Maximum Velocity (fps)	Branch Length (ft)	Friction Loss Factor (ft/100 ft)	Friction Loss In Branch	Cumulative Friction Loss (ft)	Maximum Main Elevation	Minimum Pump Elevation	Static Head (ft)	Total Dynamic Head (ft)	
This spreadsheet was calculated using pipe diameters for SDR 11 polyethylene pipe. Friction loss calculations were based on a Constant for inside roughness of "C" = 130																
10	95	95	8	88	4.00	3.682	2.65	5000	0.90	45.03	45.03	970.0	955.0	15	60.03	
9																
8.1	8	8	3	33	2.00	1.943	3.57	600	3.28	19.70	22.69	970.0	940.0	30	52.69	
8	0	8	3	33	3.00	2.864	1.64	600	0.50	2.98	2.98	970.0	960.0	10	12.98	
7.1																
7	4	4	3	33	2.00	1.943	3.57	300	3.28	9.85	9.85	970.0	960.0	10	19.85	
6.1	6	6	3	33	4.00	3.682	0.99	300	0.15	0.44	0.44	960.0	945.0	15	15.44	
6																
5																
4	6	6	3	33	2.00	1.943	3.57	300	3.28	9.85	17.83	960.0	955.0	5	22.83	
	5	11	4	44	3.00	2.864	2.19	500	0.85	4.24	7.98	960.0	955.0	5	12.98	
4.2.1	6	17	4	44	4.00	3.682	1.33	1500	0.25	3.74	3.74	960.0	950.0	10	13.74	
4.3.1	29	29	5	55	6.00	5.421	0.76	2900	0.06	1.67	4.56	950.0	940.0	10	14.56	
4.4	22	22	5	55	4.00	3.682	1.66	500	0.38	1.89	10.59	940.0	930.0	10	20.59	
4.3	25	47	6	66	4.00	3.682	1.99	1100	0.53	5.82	8.71	940.0	930.0	10	18.71	
4.2	2	78	7	77	6.00	5.421	1.07	2400	0.11	2.57	2.89	940.0	933.0	7	9.89	
4.1.1	2	80	7	77	6.00	5.421	1.07	300	0.11	0.32	0.32	940.0	930.0	10	10.32	
4.1																
4	2	2	2	22	2.00	1.943	2.38	800	1.55	12.40	12.40	940.0	930.0	10	22.40	
3.1																
3	32	32	6	66	2.50	2.352	4.87	2200	4.68	102.96	102.96	965.0	935.0	30	132.96	
2.1																
2	6	6	3	33	2.50	2.352	2.44	400	1.30	5.19	81.65	965.0	935.0	30	111.65	
1	6	12	4	44	2.50	2.352	3.25	500	2.21	11.04	11.04	965.0	935.0	30	41.04	

**BRIGHTON TOWNSHIP, MICHIGAN**

**Preliminary Basis of Design**  
**Water System**

**WEST GRAND RIVER WATER SYSTEM**  
**EAST GRAND WATER SYSTEMS**

**December 1998**

## INTRODUCTION

### GENERAL

The Brighton Township Water Sewer System lies within Brighton Township, Livingston County, Michigan. The Service Areas in this sewer system include the existing commercial corridors as outlined in Figures C and D.

### SERVICE AREA

The service area for each district was determined to provide a municipal water system to the existing developments included within the two districts. The following paragraphs list the service area for each of the special assessment districts.

#### West Grand River

This special assessment district includes the commercial and residential properties located on the west and south sides of Woodland Lake. The district is bounded by Almashy Road to the north, Brighton Township/Genoa Township limits to the west and Hilton Road/I-96 to the south.

#### East Grand River

The two commercial corridors (Old US-23 and Grand River Avenue) make up the East Grand River Special Assessment District. The district boundaries include I-96 to the north; US-23 to the east; Green Oak Township boundary to the south; and City of Brighton to the west.

### PROPOSED FACILITIES

The facilities proposed for both commercial corridors include only the water main, service leads, and hydrants associated with the local distribution system. A conceptual layout and sizing of the transmission water main, well house and storage tank were performed to determine project costs. Preliminary design drawings have not been prepared for these items and will be completed at a later date.

#### West Grand River

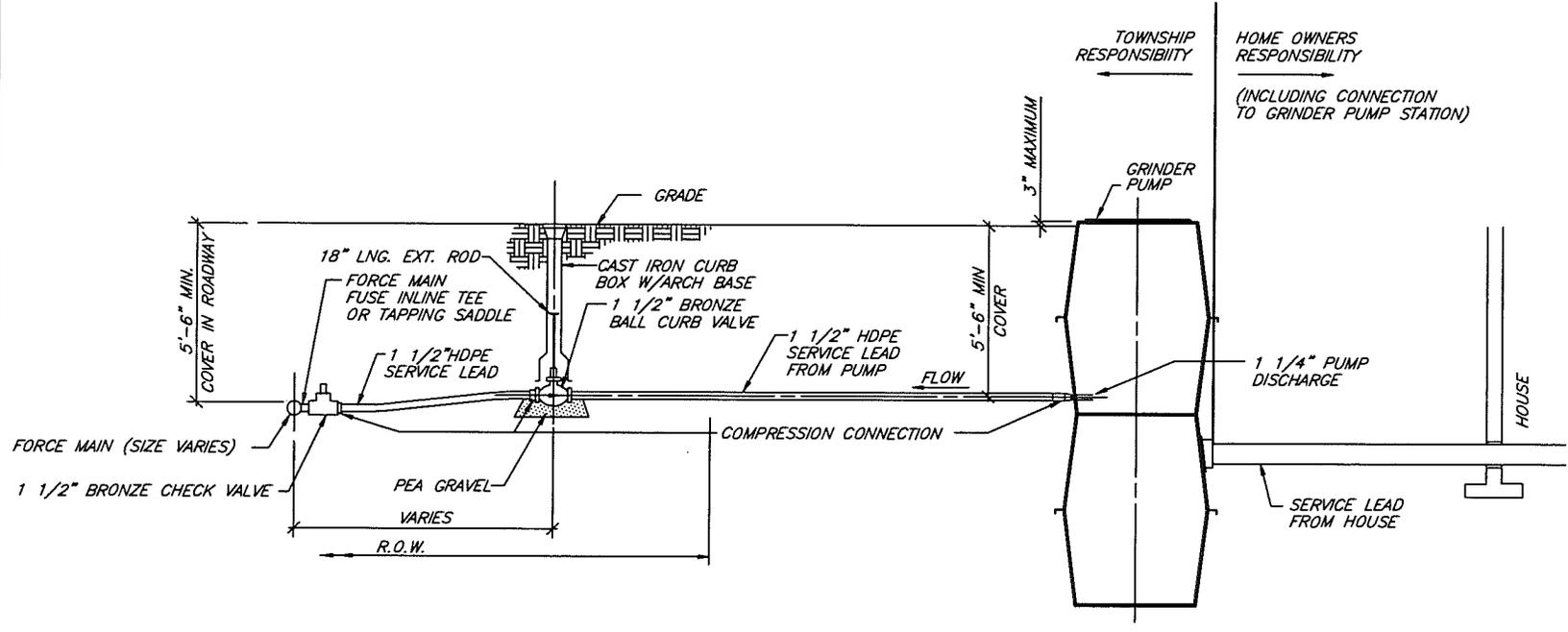
The West Grand River water improvements consists of one water main on Hilton Road to provide water service to the residential and commercial properties that are included in the district and one water main on each side of Grand River from I-96 north to Almashy Drive. The Grand River corridor contains commercial properties for which a water main and hydrants on both sides of the road will provide adequate fire protection.

#### East Grand River

The East Grand River commercial corridor consists of the commercial properties on Old US-23, Grand River and Webber Drive. The properties that front Webber Drive are currently provided water service by means of the Country Club Annex Water System. The preliminary design does not include constructing another water main down Webber Drive to replace the existing Country Club Annex Water Main. The initial plan is for the existing customers of Country Club Annex to remain on the Country Club Annex Water System.

Water main lines are proposed to be constructed on one side of Old US-23 and Grand River with fire hydrants and service leads bored under the road to provide service and protection to the parcels on the opposite side.

**APPENDIX D**  
**Typical Grinder Pump Installation**



**TYPICAL SERVICE LEAD**  
NO SCALE

TOWNSHIP RESPONSIBILITY  
HOME OWNERS RESPONSIBILITY  
(INCLUDING CONNECTION TO GRINDER PUMP STATION)

CONTRACT  
**0115.000.00**  
SHEET  
OF

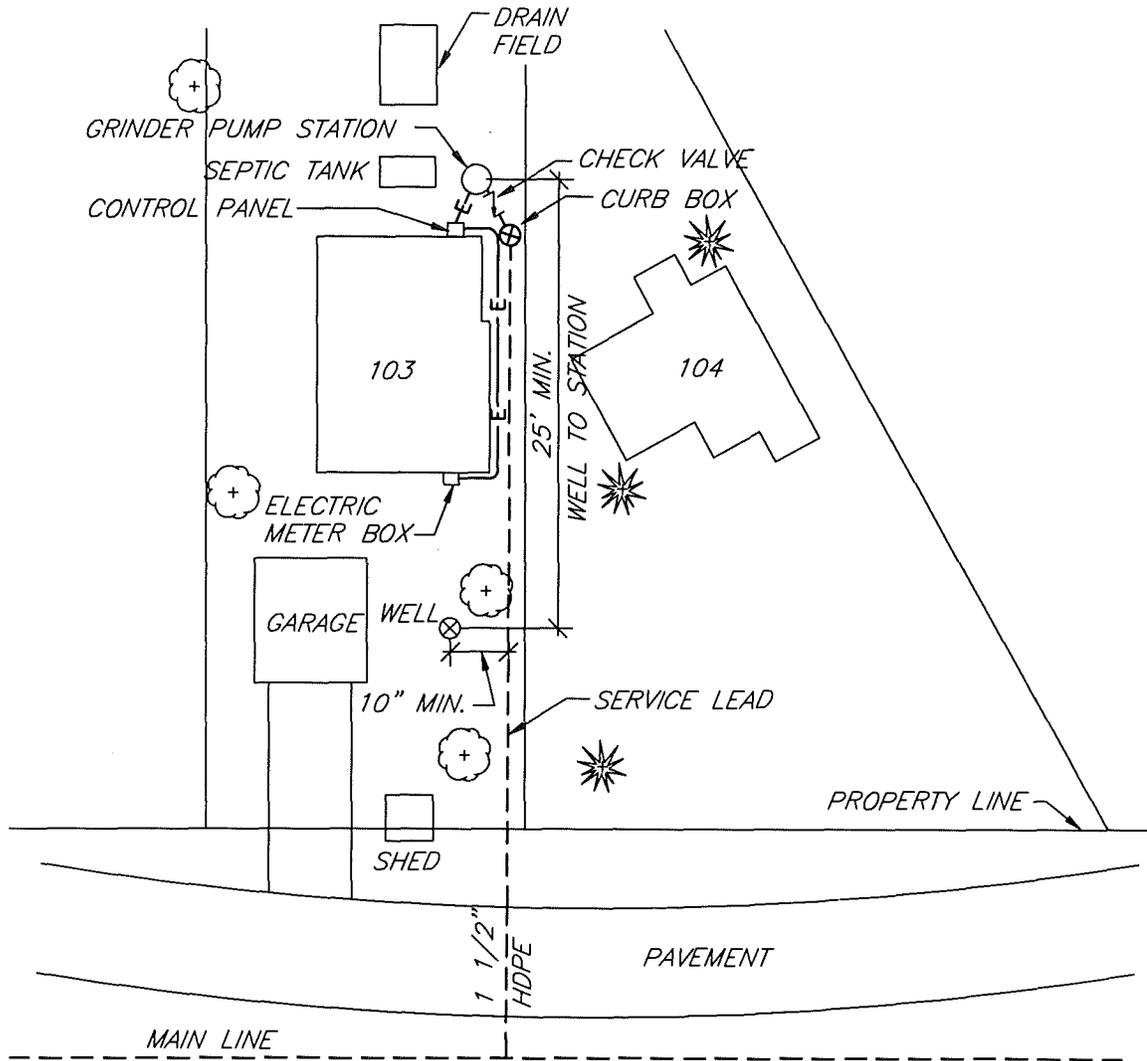
BRIGHTON TOWNSHIP  
SANITARY SEWER SYSTEM  
**TYPICAL SERVICE LEAD DETAIL**

 <b>McNAMEE &amp; SEELEY INC.</b> FIRST-CHOICE FIRM SINCE 1914	DATE <b>03-23-98</b>	CHECKED <b>NJM</b>
	SCALE: <b>NONE</b>	DESIGNED <b>JBM</b>

McNAMEE  
PORTER  
& SEELEY  
INC.

SCALE: NONE  
DESIGNED JBM

DATE 03-23-98  
CHECKED NJM



TYPICAL RESIDENTIAL SERVICE LEAD  
& GRINDER PUMP STATION SITE PLAN

03-23-98 JBM 02

CADD PART \MPS\0115\00000\SITEPLAN

McNAMEE PORTER & SEELEY INC.		 <b>McNAMEE</b> FIRST-CHOICE FIRM SINCE 1914	
SCALE: NONE	DATE 03-23-98	<h1>SERVICE LEAD AND PUMP STATION PLAN</h1>	
DESIGNED JBM	CHECKED NJM		

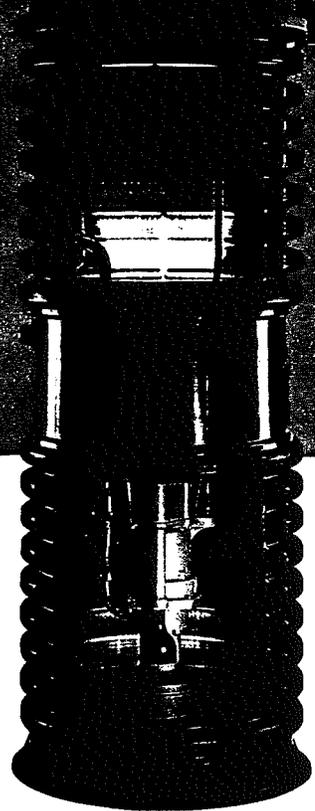
BRIGHTON TOWNSHIP SANITARY SEWER SYSTEM		CONTRACT 0115.000.00
		SHEET
		OF

is a better alternative to conventional gravity sewers for communities not built over the ideal sloping, tractable soil. These communities should consider a gravity-independent, low-pressure sewer (LPS) system, powered by Environment One Grinder Pumps.

Gravity systems are an expensive proposition, requiring intensive labor and costly materials, such as large-diameter pipe, deep trenches, safety shoring, bracing, de-watering, and restoration of property.

By pumping through small-diameter pipes buried in shallow trenches, low-pressure systems designed around E/ONE Grinder Pumps avoid these expensive problems, while transporting solid and liquid sewage safely and efficiently. Material and labor costs are greatly reduced.

The E/ONE Grinder Pump is a compact, factory-assembled and tested unit that provides wastewater storage and conditioning, while efficiently pumping through the LPS system. A single residential Grinder Pump can transport sewage through miles of pipe with elevation changes of greater than 100 feet, effectively sewer areas with high groundwater, bedrock and flat or hilly terrain.



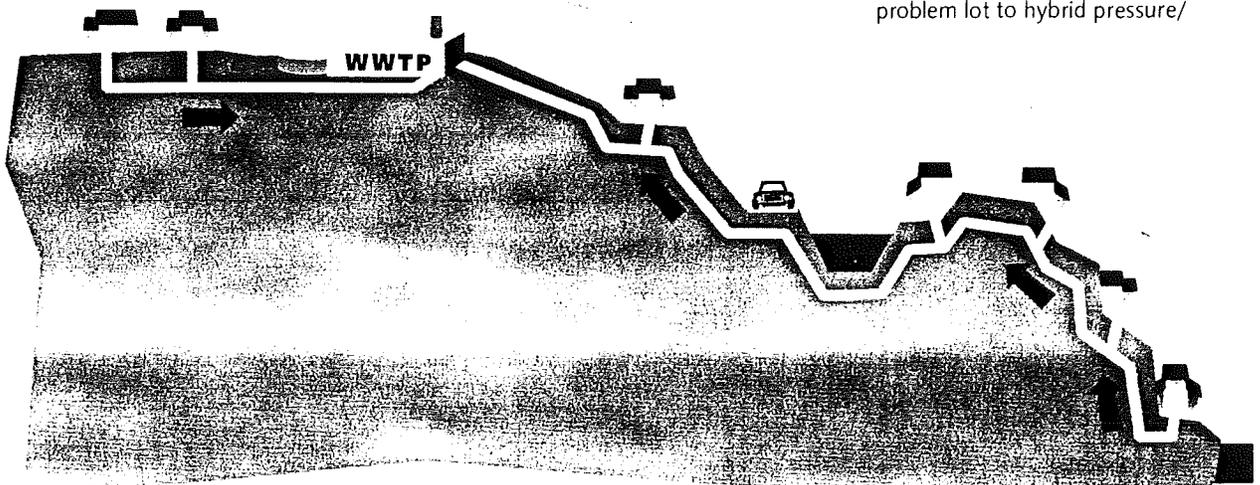
**Flat. Wet. Rocky. Hilly.** An Environment One LPS system can be specified for virtually all site conditions. In over 65,000 installations since 1969, we've saved communities millions of dollars in construction costs compared to conventional gravity systems.

With groundwater contamination endangering public health, most communities are now being forced to convert from continued septic tank use. E/ONE Grinder Pump systems are the sensible alternative, providing gravity-independent wastewater transport to a host of effective treatment options.

Installation of an E/ONE Grinder Pump system imparts minimal environmental stress on the surroundings many communities wish to preserve. Small-diameter mains can be laid alongside roadways or installed using trenchless technologies, with little damage to streets, sidewalks, lawns, driveways and underground utilities, reducing cost and right-of-way issues. Pressure-tight mains eliminate groundwater infiltration and reduce treatment plant expenditures.

For builders, developers, architects and engineers, the advantages of a low-pressure sewer system provide a new degree of freedom in land planning and an opportunity to sharply reduce front-end costs. LPS systems offer a low-cost means of solving the problem of failed septic systems.

Low-pressure systems range in size from a single Grinder Pump discharging wastewater from one problem lot to hybrid pressure/



gravity systems—where lots not economically sewerable are handled with Grinder Pumps—to complete multi-branch, low-pressure systems designed to serve entire communities.

**STAY WITH YOU  
ALL THE TIME**

The Environment One team won't vanish after the installation of your system. Beginning with facilities planning and progressing through design and construction, E/ONE provides a variety of helpful inputs. Throughout the multi-year warranty period and during the years after installation, Environment One staff remains at your side to help make operation and maintenance go smoothly. We encourage you to "check us out" by talking with any of the over 60,000 E/ONE customers worldwide.

**DEPENDABILITY:  
ALL INSIDE OUR**

Only E/ONE Grinder Pumps automatically overcome the wide variety of operating conditions that are randomly presented in low-pressure systems. Whether it's functioning at no head or abnormally high heads, the E/ONE Grinder Pump dependably performs day in and day out. Plus, E/ONE LPS systems are self-cleaning—a feature which is clearly beneficial.

The most important component of our system? Our people—dedi-

cated to delivering the best possible products and service through our commitment to our customers.

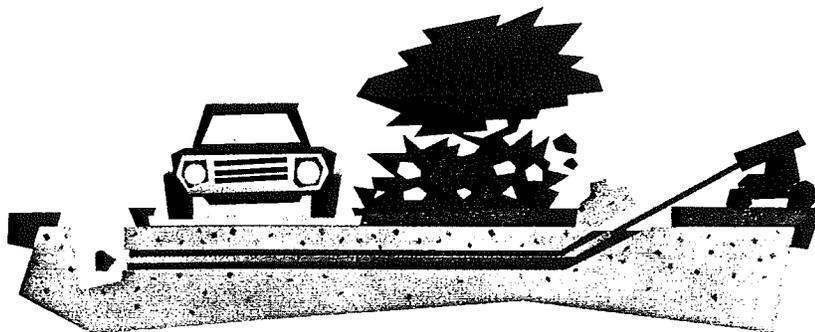
From engineering, marketing and manufacturing, to sales, accounting and customer service, everyone at Environment One works as a team. A team with one goal in mind—satisfying our customers with high value and quality products. On Time. Worldwide.

**INSTALLATION:  
EASY TO ENTER**

E/ONE Grinder Pumps are delivering safe, reliable performance in every environment under the sun—from semi-tropical ocean-front cottages to arctic mining camps on permafrost. A choice of models is available to meet the requirements imposed by local conditions.

Our product line allows flexibility in addressing job-specific issues such as indoor installation, easy all-weather outdoor access, low cost, protection from weather and vandalism, safety approvals, public versus private property considerations, bury depth, and many others. May we address your issues?

**Trenchless installation technology—**means even less surface disruption. Rights-of-way, paving, utilities and established landscaping are no longer cost-prohibitive obstructions. The result: dramatically lower restoration and installation costs.



Environment One's commitment to continuous quality improvement has produced the GP 2000 series. This grinder pump station represents a giant step forward in reliable wastewater pumping for low-pressure sewer systems. The GP 2000 series combines E/ONE's proven technologies with new technologies to provide longer life, greater ease of serviceability, trouble-free installations and lower life-cycle costs. Truly a "customer driven" product, the development team included hundreds of external teammates. In addition to cross-functional Environment One associates, these teams included supplier partners, installation contractors, maintenance personnel, and engineers representing experience with thousands of installations. The result—a new standard for the industry.

- 1 Robust, field-proven thermoplastic materials withstand "abusive" handling during shipping and installation.
- 2 Thermal fusion welding techniques assure watertight construction.
- 3 Double-wall construction increases structural integrity and insures an infiltration free station.
- 4 Specially designed base insures self-scouring of wetwell for trouble-free operation.
- 5 The industry's only wetwell/drywell configuration facilitates service and ensures safety.
- 6 Accessway is easily field-adjustable with simple hand tools to customize to actual field grades. No field penetrations are required which can result in leaking.
- 7 Low-profile lockable cover provides easy access while blending into the surroundings.
- 8 Core design facilitates quick and simple replacement in field.
- 9 Progressing cavity pump produces nearly constant flow over a wide range of conditions—even negative heads!
- 10 Pressure switches are superior to troublesome float switch controls and eliminate the costly necessity of frequent preventive maintenance required by float switches.
- 11 Solid-state relay for reliable "million-cycle" operation.
- 12 Electrical Quick Disconnect improves serviceability.
- 13 Single, direct-bury cable reduces installation cost.
- 14 Stainless steel discharge piping provides reliable corrosion free service.

## INTRODUCING THE ENVIRONMENT ONE GP 2000 SERIES GRINDER PUMP STATION.

delivering the best possible  
and service through our  
ment to our customers.  
n engineering, marketing  
ufacturing, to sales, account-  
customer service, everyone  
nment One works as a team.  
with one goal in mind—  
our customers with high  
d quality products. On Time.  
de.

Environment One  
Grinder Pumps

Environment One Grinder Pumps are deliv-  
er, reliable performance in  
Environment under the sun—  
tropical ocean-front cot-  
arctic mining camps on  
st. A choice of models is  
to meet the requirements  
by local conditions.

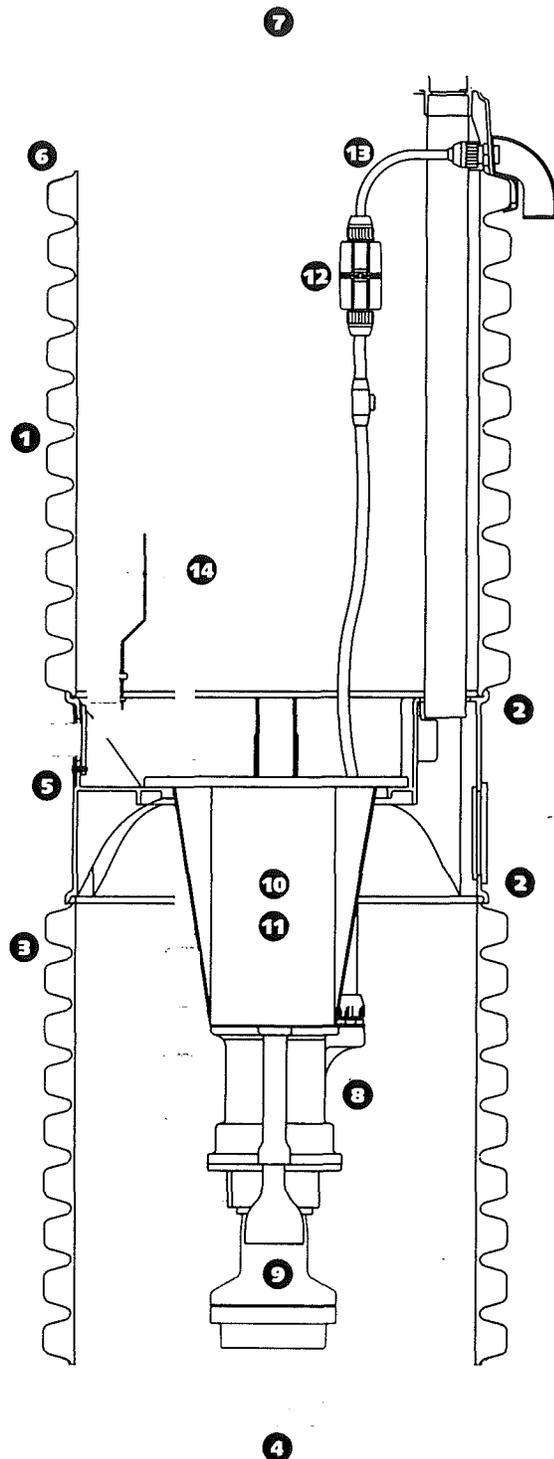
Environment One product line allows flexibility  
solving job-specific issues such  
installation, easy all-weather  
access, low cost, protection  
rater and vandalism, safety  
s, public versus private  
considerations, bury depth,  
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- 13 Single, direct-bury cable reduces installation cost.
- 14 Stainless steel discharge piping provides reliable corrosion-free service.



Inside the GP 2000 is everything  
we've learned in over 25 years of  
building the world's best performing,  
most reliable Grinder Pumps. The  
numbered callouts tell the story.



PRODUCTS OF THE E/ONE GRINDER PUMP STATIONS

Years of research, development and extensive "on system" experience have led to the many exclusive features of the E/ONE Grinder Pump Station. They make it superior for low-pressure sewer systems and ideally suited for single application uses.

In accordance with good practice, the E/ONE Grinder Pump is

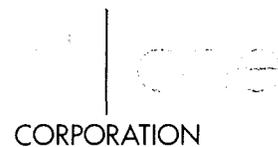
powered by a high-torque, low-speed motor. As a result, it runs quieter, lasts longer and uses less electric energy than high-speed units with more horsepower. Electric energy consumption of the Grinder Pump Station is typically less than 20 kWh per month.

The unique one-piece core assembly incorporates all of the

working and control elements of the Grinder Pump Station. The core is interchangeable throughout the entire model line, simplifying on-site service and reducing inventories.

All E/ONE Grinder Pump Stations are protected by a two-year limited warranty covering parts and labor. Extended warranties beyond two years are available.

Model Number	Power 120 or 240 VAC Phase, 60 Hz	Simplex	Duplex	Nominal Basin Capacity	UL Listed	Accessway Heights Available
GP 2010	Yes	Yes		60 Gallon	Yes	0-10'
GP 2012	Yes	Yes		120 Gallon	Yes	0-10'
GP 2014	Yes		Yes	120 Gallon	Yes	0-10'
GP 2015	Yes		Yes	250 Gallon	Yes	0-10'
GP 2016	Yes		Yes	500 Gallon	Yes	0-10'



2773 Balltown Road • Schenectady, New York 12309-1090  
 (518) 346-6161 • Fax (518) 346-6188

\*U.S. and foreign patents issued and pending.





**APPENDIX E**  
**Typical Grinder Pump Easement Document**



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**EASEMENT GRANT**

(PR/GP)

For and in consideration of One Dollar (\$1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged,

hereinafter referred to as Grantor(s) hereby grant(s) and convey(s) to the Township of \_\_\_\_\_, a general law township, whose offices are located at \_\_\_\_\_, herein after referred to as Grantee, an easement for the purposes of the construction, installation, maintenance, repair, alteration, inspection, operation, and testing of public utilities including sanitary sewers, storm sewers, and water mains in, on, and under any private or public drives, streets, or roadways used as access for the following described property ("Property") located in the Township of \_\_\_\_\_, County of Livingston, Michigan:

Grantor(s) further grant and convey an easement to install and maintain feedlines, electrical service, and grinder pumps relating to sanitary sewer service in, on and under the Property ("Grinder Pump Easement"). The easement is more specifically described as a parcel of land 15 feet wide over and upon the Property, which is measured 7.5 feet on each side of the center of the sewer system improvements as constructed pursuant to this agreement, except for electrical service lines where the easement shall be 10 feet wide, measured 5 feet on each side of the center of the electrical service lines.

Any construction, maintenance, replacement, or any other activities incident to this Easement Grant shall be performed by the Township, its agents, employees, or assigns, so as not to unreasonably

interfere with the reasonable use of the easement area by the Grantor(s) and without cost to Grantor(s). Grantor(s) shall not construct any new buildings or improvements on the easement premises or otherwise use the property in such a way as would interfere with the easement rights of the Grantee.

Upon completion of the construction, maintenance, replacement, repairs, or any other activities by the Grantee within the scope of this easement, Grantee will restore the easement property to the same condition as it was prior to such construction, maintenance, replacement, repairs, or other such activity and without cost to the Grantor(s). Grantee shall have the right at all times to go upon and use the easement for all purposes set forth in this Easement Grant.

Grantor(s) release(s) Grantee from any and all damages and claims, alleged or real, suffered by Grantor(s) by reason of any diminution to the value of the property arising out of this Easement Grant, or on account of the drain or drains or water mains to be constructed. Grantee agrees to indemnify, defend, and save and hold Grantor(s) harmless from losses or damages for personal injury and property arising out of claims made by third persons caused by the activities contemplated by this Easement Grant of the Grantee and/or its contractors or agents.

This Easement Grant shall be binding upon an inure to the benefit of the parties herein, their respective heirs, representatives, successors, or assigns. Whenever used herein, the plural nouns or pronouns shall include the singular.

WITNESSES:

Signature \_\_\_\_\_  
Name

Signature \_\_\_\_\_  
Name

SIGNED:

Signature \_\_\_\_\_  
Name

Signature \_\_\_\_\_  
Name

Signature \_\_\_\_\_  
Name

Signature \_\_\_\_\_  
Name

STATE OF MICHIGAN )

) ss

COUNTY OF \_\_\_\_\_)

On this \_\_\_\_ day of \_\_\_\_\_ 1995, before me, a Notary Public, in and for said County, State of Michigan, personally appeared \_\_\_\_\_ who being by me duly sworn, and which executed the within instrument, acknowledged that he/she/they executed the same as his/her/their free act and deed.

\_\_\_\_\_  
Notary Public  
\_\_\_\_\_, County, MI  
My commission expires:

**APPENDIX F**  
**Preliminary Special Assessment Rolls**



**BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER SYSTEM  
PRELIMINARY ASSESSMENT ROLL**

**DECEMBER 23, 1998**

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-07-100-010	CAMERON, MARIAN	Clark Lake	1	0.550	0.000
12-07-301-001	BAILEY, PAMELA	Clark Lake	1	0.331	241.000
12-07-301-008	MARTIN, JOHN & ROSEMARY	Clark Lake	1	0.238	74.000
12-07-301-010	MIODOWSKI, GEOFFREY	Clark Lake	1	0.170	52.000
12-07-301-011	SWAIN, THOMAS & JEAN	Clark Lake	1	0.376	117.000
12-07-301-014	MALYSZ, EDWARD & DOLORES	Clark Lake	1	0.028	40.000
12-07-301-015	MALYSZ, EDWARD & DOLORES	Clark Lake	1	0.028	40.000
12-07-301-016	MILDNER, ROLAND	Clark Lake	1	0.064	40.000
12-07-301-018	MALYSZ, DOLORES & EDWARD	Clark Lake	1	0.148	46.000
12-07-301-021	NOWAK, JOSEPH & BEVERLY	Clark Lake	1	0.366	91.000
12-07-301-022	KELLY, BRUCE & SHARON	Clark Lake	1	0.638	135.000
12-07-301-025	SLINDEE, CARL & JANE	Clark Lake	1	0.550	102.000
12-07-301-032	KALISH, NEAL	Clark Lake	1	0.139	41.000
12-07-301-033	MATTIELLO, JUDITH N.	Clark Lake	1	0.131	40.000
12-07-301-038	WITT, DAVID & SUSAN & ET AL	Clark Lake	1	0.155	48.000
12-07-301-039	WITT, DAVID & SUSAN & ET AL	Clark Lake	0	0.129	40.000
12-07-301-040	GOOLSBY, MICHAEL	Clark Lake	1	0.129	40.000
12-07-301-041	HINKEY, DONALD	Clark Lake	1	0.129	40.000
12-07-301-042	DUBANIK, ANTHONY & ANNETTE	Clark Lake	1	0.129	40.000
12-07-301-043	ZINK, FRANCIS O.	Clark Lake	1	0.257	80.000
12-07-301-044	ROYCE, RICHARD C.	Clark Lake	1	0.129	40.000
12-07-301-045	REEF, DONALD & ROGERS, ROBIN	Clark Lake	1	0.129	40.000
12-07-301-046	WIBERT, DIANE	Clark Lake	1	0.129	40.000
12-07-301-047	STAGE JR., CHARLES	Clark Lake	1	0.129	40.000
12-07-301-048	SMITH, JAMES	Clark Lake	1	0.129	40.000
12-07-301-049	ANDREWS, RANDALL & ROBERT	Clark Lake	1	0.129	40.000
12-07-301-050	MEEHAN, GARY & ELLEN	Clark Lake	1	0.152	47.000
12-07-301-054	NOBLE, NICOLE	Clark Lake	1	0.129	40.000
12-07-301-055	STAGE JR., CHARLES	Clark Lake	1	0.129	40.000
12-07-301-056	WILTON JR., CHARLES & SUSAN	Clark Lake	1	0.129	40.000
12-07-301-057	BELL, JAMES & MICHELLE	Clark Lake	1	0.257	80.000
12-07-301-058	ROYCE, RICHARD C.	Clark Lake	1	0.129	40.000
12-07-301-059	LAMOREAUX, MICHAEL J.	Clark Lake	1	0.129	40.000
12-07-301-060	CLIFFORD, RICHARD & DARLENE	Clark Lake	1	0.386	120.000
12-07-301-061	MOORE, ROBERT & KATHLEEN	Clark Lake	1	0.257	80.000
12-07-301-063	MATELIC, JOHN & EMMA & WITT,	Clark Lake	1	0.129	40.000
12-07-301-064	ROGALSKI, ROBERT	Clark Lake	1	0.257	80.000
12-07-301-065	BELKOWSKI, THADDEUS & PAULINE	Clark Lake	1	0.409	123.000
12-07-301-067	SPRANGER, MICHAEL & ELIZABETH	Clark Lake	1	0.260	81.000
12-07-301-068	ADAMS, VICKIE	Clark Lake	1	0.251	78.000
12-07-301-069	NEUENS, MICHAEL & JILL	Clark Lake	1	0.129	40.000
12-07-301-070	SCHILLEMAN, LEON & JENNIE	Clark Lake	1	0.257	80.000
12-07-301-071	PORTH, JOHN & JEAN ENGEL	Clark Lake	1	0.257	80.000
12-07-301-072	TIDWELL, ROY W.	Clark Lake	1	0.170	53.000
12-07-301-073	POTYSCH, WOLFGANG & SHARON	Clark Lake	1	0.280	87.000
12-07-301-075	LESNIAK, GERALD & SARAH	Clark Lake	1	0.288	95.000
12-07-301-077	SREDZINSKI, CHRIS	Clark Lake	1	0.285	80.000
12-07-301-078	PURDY, ERNESTINE & BRIAN	Clark Lake	1	0.324	100.000
12-07-301-079	ANDERSON, ROBERT & ELIZABETH	Clark Lake	1	0.386	120.000
12-07-301-083	REEF, DONALD & ROBIN ROGERS	Clark Lake	1	0.257	80.000
12-07-301-085	MURPHY, WAYNE	Clark Lake	1	0.162	47.000
12-07-301-088	BAILEY, PAMELA	Clark Lake	1	0.232	83.000
12-07-301-089	COURSEY, JAMES & RUTH	Clark Lake	1	0.271	83.000
12-07-301-090	BRISSON, ERNEST	Clark Lake	1	0.386	120.000
12-07-301-091	WAIT, CHRISTOPHER & ANDREA	Clark Lake	1	0.284	82.000
12-07-301-092	HANIFAN, RICHARD & JILL	Clark Lake	1	0.466	104.000
12-07-301-093	LEE, CHRISTINE	Clark Lake	1	0.618	176.000
12-07-301-094	MARCY LIVING TRUST	Clark Lake	1	0.241	60.000
12-07-302-002	LICATA, FRANK & PATRICIA	Clark Lake	1	0.272	80.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-07-302-004	SHERMAN LIVING TRUST	Clark Lake	1	0.152	40.000
12-07-302-005	SHERMAN LIVING TRUST	Clark Lake	1	0.129	33.000
12-07-302-009	HOLTZMANN, THOMAS & REBECCA	Clark Lake	1	0.345	80.000
12-07-302-014	BEATON, BERNARD	Clark Lake	1	0.133	40.000
12-07-302-015	KLEIN, DONALD & HOLLY	Clark Lake	1	0.129	40.000
12-07-302-016	ROBERTSON, LUCILLE	Clark Lake	1	0.124	40.000
12-07-302-020	OSBORN, EDITH	Clark Lake	1	0.115	40.000
12-07-302-021	POMERVILLE, RICHARD & BARBARA	Clark Lake	1	0.230	80.000
12-07-302-027	RANKEL, JOSEPH & CATHERINE	Clark Lake	1	0.230	80.000
12-07-302-029	PILSNER, NORMAN	Clark Lake	1	0.115	40.000
12-07-302-030	PILSNER, NORMAN	Clark Lake	1	0.115	40.000
12-07-302-031	IZZO, JAMES & TRIER, KAREN	Clark Lake	1	0.230	80.000
12-07-302-033	NORMAN, MAUREEN WIMMER	Clark Lake	1	0.115	40.000
12-07-302-034	NORMAN, BARTLETT & MAUREEN	Clark Lake	1	0.115	40.000
12-07-302-035	NORMAN, BARTLETT & MAUREEN	Clark Lake	1	0.115	40.000
12-07-302-036	KULKA, JOHN	Clark Lake	1	0.106	37.000
12-07-302-037	KULKA, JOHN	Clark Lake	1	0.106	37.000
12-07-302-046	RACZYNSKI, ANDREW	Clark Lake	1	0.316	112.000
12-07-302-047	WRIGHT, MATTHEW	Clark Lake	1	0.230	80.000
12-07-302-049	MORGAN, JAMES & MARILYN	Clark Lake	1	0.115	40.000
12-07-302-064	NELSON, CRAIG	Clark Lake	1	0.430	117.000
12-07-302-065	OVERHOLSER, JAMES	Clark Lake	1	0.295	83.000
12-07-302-066	CAMERON, MARIAN	Clark Lake	1	0.470	160.000
12-07-302-070	BOVIO, KULKA & ET AL	Clark Lake	1	0.275	95.000
12-07-302-074	TAYLOR, RONALD & BARNARD, JOANN	Clark Lake	1	0.278	97.000
12-07-302-075	O'HARA, JOHN JR & RICHARD	Clark Lake	1	0.244	85.000
12-07-302-076	PROCHT, RAYMOND & JANE	Clark Lake	1	0.230	80.000
12-07-302-081	ANGELOSANTO, PHILLIP & GINA	Clark Lake	1	0.155	45.000
12-07-302-082	HARGADON, MARY	Clark Lake	1	0.138	40.000
12-07-302-086	PALM, FREDERICK & KATHY	Clark Lake	1	0.270	84.000
12-07-302-089	DAIL, GREGORY & KIM	Clark Lake	1	0.273	95.000
12-07-302-090	GAGACKI, STANLEY & PATRICIA	Clark Lake	1	0.287	100.000
12-07-302-091	HARGADON, MARY	Clark Lake	1	0.138	40.000
12-07-302-094	PROCHT, RAYMOND & JANE	Clark Lake	1	0.115	40.000
12-07-302-097	JOHNSON, NORMAN JR	Clark Lake	1	0.665	180.000
12-07-302-098	WELICKA, VINCENT & CHONG CHA	Clark Lake	1	0.310	100.000
12-07-302-099	PRONISHEN, PAUL & CAROLYN	Clark Lake	1	0.344	100.000
12-07-302-100	DIETZE, ROBERT	Clark Lake	1	0.253	88.000
12-07-302-102	MACK, DENNIS & DEBORAH	Clark Lake	1	0.260	82.000
12-07-302-103	PILSNER, NORMAN	Clark Lake	1	0.123	40.000
12-07-302-104	NORRIS, BRYAN & LAURIE	Clark Lake	1	0.160	45.000
12-07-302-105	AVERY, PEGGY	Clark Lake	1	0.142	40.000
12-07-302-106	CHAPOFF, PAUL & BARBARA	Clark Lake	1	0.230	80.000
12-07-302-107	MACK, DENNIS & DEBORAH	Clark Lake	1	0.347	120.000
12-07-302-108	WOLFE, NAPOLEAN	Clark Lake	1	0.579	168.000
12-07-302-109	OUILLETTE, GARY & CHERYL	Clark Lake	1	0.349	80.000
12-07-302-110	ROSENAU, TED & AMANDA	Clark Lake	1	0.229	78.000
12-07-302-111	DUNN, CHARLES ANTHONY	Clark Lake	1	0.230	80.000
12-07-302-112	BRATT, DAVID & BRENDA	Clark Lake	1	0.654	190.000
12-07-302-113	OVERHOLSER, STELLA & JAMES	Clark Lake	1	0.949	285.000
12-07-302-114	VAN SLYKE, ELIZABETH & ET AL	Clark Lake	1	0.612	172.000
12-32-102-002	WALKER, RONALD B. (VACANT)	East Grand River	1		
12-32-102-015	DAVIS, KEITH G. & CAROL J.	East Grand River	1	0.230	77.000
12-32-102-054	WYLIE, ERIC & TRISHIA	East Grand River	1	0.206	68.000
12-32-102-055	DYMERSKI, ROBERT	East Grand River	1	0.197	65.000
12-32-102-056	LEMON, CHAS & ELIZABETH ANN	East Grand River	1	0.459	100.000
12-32-102-097	ASSOCIATED PROPERTIES	East Grand River	2	0.467	153.000
12-32-102-098	ALEXANDER, JAMES	East Grand River	3	0.284	95.000
12-32-102-114	R & B DEVELOPMENT	East Grand River	6	0.627	210.000
12-32-103-025	EWING TRUST	East Grand River	2	0.842	282.000
12-32-103-069	BRIGHTON, TOWNSHIP OF	East Grand River	1	0.119	40.000
12-32-103-070	BRIGHTON, TOWNSHIP OF	East Grand River	1	0.119	40.000
12-32-103-098	SCHROEPFER LIVING TRUST	East Grand River	2	0.600	201.000
12-32-104-016	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-017	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-018	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-020	WILSON, JOHN	East Grand River	1	0.122	41.000
12-32-104-021	WILSON, JOHN	East Grand River	1	0.119	40.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-32-104-022	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-023	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-077	TEASLEY, WILLIAM (VACANT)	East Grand River	1	0.604	280.000
12-32-104-081	MARSHALL'S MOVIE WORLD, INC.	East Grand River	5	0.919	182.000
12-32-104-082	PUHY, JOHN & DELORES (VACANT)	East Grand River	1	0.129	64.000
12-32-104-083	LIVINGSTON COUNTY	East Grand River	1	0.242	120.000
12-32-104-084	MITCHELL TRUST	East Grand River	8	0.579	180.000
12-32-104-085	KEENEY, BOBBY & ET AL	East Grand River	4	0.521	162.000
12-32-106-001	BULLARD, TROY & ELLA	East Grand River	4	1.681	257.000
12-32-106-002	MCKENNEY, ROBERT & DOROTHY	East Grand River	0	0.220	80.000
12-32-106-003	RITZ & BOLTZ ET AL	East Grand River	4	0.818	132.000
12-32-106-004	RITZ & BOLTZ ET AL	East Grand River	0	0.421	68.000
12-32-106-005	R & B DEVELOPMENT COMPANY	East Grand River	4	0.620	100.000
12-32-106-006	R & B DEVELOPMENT COMPANY	East Grand River	0	0.620	100.000
12-32-106-008	WHITE, RICHARD & ETHEL & ETAL	East Grand River	8	2.479	400.000
12-32-106-011	AUSTIN, JOHN & SUSAN	East Grand River	1	0.744	120.000
12-32-106-012	FIRST NATIONAL BANK OF HOWELL	East Grand River	2	0.992	160.000
12-32-106-013	BERGNER, ERWIN	East Grand River	3	0.744	120.000
12-32-106-015	W-3M & ASSOCIATES	East Grand River	1	0.220	80.000
12-32-106-016	BALUJA, SATYA PAUL	East Grand River	0	0.055	20.000
12-32-106-017	BALUJA, SATYA PAUL	East Grand River	2	0.220	80.000
12-32-106-020	LOMREE, INC	East Grand River	5	0.496	80.000
12-32-106-021	CAMPBELL, ERVIN	East Grand River	4	0.744	120.000
12-32-106-022	FIELEK, FIELEK & PIERRE ET AL	East Grand River	2	0.533	160.000
12-32-106-023	CAMPBELL, ERVIN & JEANETTE (VACANT)	East Grand River	1	0.544	160.000
12-32-106-024	RAMSEY, KENNETH & SANDRA	East Grand River	3	0.689	200.000
12-32-106-025	STARR, DAVID E. & SUE A.	East Grand River	3	0.344	100.000
12-32-106-029	KLEFSTAD, RIAN	East Grand River	1	0.172	50.000
12-32-106-031	WIDTH, MARK & MARY	East Grand River	3	0.386	140.000
12-32-106-032	DURAND, LEO AND PEARL	East Grand River	4	0.344	100.000
12-32-106-033	O & Z LIMITED PARTNERSHIP	East Grand River	4	0.620	100.000
12-32-106-034	HAGS RADIATOR CLINIC, INC.	East Grand River	1	0.138	40.000
12-32-106-035	PALMER & HERMLING	East Grand River	1	0.110	40.000
12-32-106-036	KARMO, NOORI & JORJIT	East Grand River	3	0.441	160.000
12-32-106-037	SHAMROCK LOUNGE INC.	East Grand River	11	0.620	100.000
12-32-202-009	RICE & PARMETER & PARMETER	East Grand River	1	0.517	150.000
12-32-202-010	NEEDHAM, JAMES (VACANT)	East Grand River	1	0.344	100.000
12-32-202-011	NEEDHAM, JAMES	East Grand River	1	0.379	110.000
12-32-202-033	GERSTER, KURT & KRISTINE	East Grand River	10	0.402	125.000
12-32-300-019	SOCIETY BANK	East Grand River	1	1.243	190.000
12-32-300-021	KLINE, EARL & FRANCIS (VACANT)	East Grand River	1	0.505	100.000
12-32-300-022	KLINE, EARL & FRANCIS (VACANT)	East Grand River	1	0.253	50.000
12-32-300-023	KLINE REAL ESTATE	East Grand River	1	0.505	100.000
12-32-300-024	SAMONA, NAJIB & ET AL	East Grand River	16	2.656	260.000
12-32-300-026	BREWER, JULIA	East Grand River	2	2.060	185.000
12-32-300-028	MEYER REVOCABLE LIVING TRUSTS	East Grand River	2	2.944	225.000
12-32-300-030	PUGH, BARBARA	East Grand River	1	0.978	75.000
12-32-300-031	U STORE MINI STORAGE (VACANT)	East Grand River	1		
12-32-300-032	WARNER, LAVERNE	East Grand River	1	1.995	153.000
12-32-300-044	CLORE, MARK ALLAN & JULIE J.	East Grand River	1	1.286	100.000
12-32-300-048	SHENG, STEPHEN	East Grand River	1	0.689	100.000
12-32-300-050	DETROIT DEVELOPMENT CO.	East Grand River	20	2.880	306.000
12-32-300-053	GREAT LAKES BANCORP (VACANT)	East Grand River	1	1.760	0.000
12-32-300-055	C & S INVESTMENT CO	East Grand River	2	3.103	440.000
12-32-300-056	BRIGHTON LAND GROUP	East Grand River	3	0.859	170.000
12-32-300-057	U-STORE MINI STORAGE	East Grand River	1	17.236	1074.000
12-32-300-060	EXPORT CORPORATION (VACANT)	East Grand River	1	7.710	0.000
12-32-300-061	TOPVALCO, INC.	East Grand River	30	12.829	883.000
12-32-300-062	C Z BRIGHTON ASSOCIATES, LP (VACANT)	East Grand River	1	1.313	260.000
12-32-400-003	BRIGHTON RIVER LLC	East Grand River	8	3.030	282.000
12-32-401-031	MICHIGAN ALLIED HEALTH PRO	East Grand River	3	0.499	150.000
12-32-401-042	LMC ASSOCIATES	East Grand River	1	1.752	175.000
12-32-401-043	OBERLE, RALPH & MARGARET	East Grand River	2	2.296	500.000
12-32-401-044	CHARMS 3, LTD	East Grand River	56	6.701	973.000
12-32-401-046	COGO, GUILIO & NOREEN	East Grand River	6	1.059	225.000
12-33-302-035	HUIE REV. TRUST	East Grand River	12	2.251	265.000
12-33-302-036	OLD KENT BANK -EAST	East Grand River	2	1.598	232.000
12-32-401-013	HALSTEAD, JOHN & PAULINE	Fonda Lake	1	0.456	105.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-32-401-018	CONELY, JOHN	Fonda Lake	1	0.382	98.000
12-32-401-019	BUCKLEY, TIMOTHY & JANICE	Fonda Lake	1	0.585	255.000
12-32-401-020	TUNIS, RUSSELL & MAUDE	Fonda Lake	1	0.779	97.000
12-32-401-021	TUNIS, RUSSELL & MAUDE	Fonda Lake	1	0.877	147.000
12-32-401-022	TUNIS, RUSSELL & MAUDE	Fonda Lake	1	0.517	60.000
12-32-401-023	VAN BUREN, MICHAEL & LYNN	Fonda Lake	1	0.310	90.000
12-32-401-024	ASBURY PARK LLC	Fonda Lake	9	2.204	240.000
12-32-401-027	RTJR PARTNERSHIP	Fonda Lake	20	1.300	118.000
12-32-401-035	KANE, MARY FRANCES	Fonda Lake	1	0.475	138.000
12-32-401-036	MARCH, DARIN	Fonda Lake	1	0.489	142.000
12-32-401-037	ASHER, DONNY & ROSEMARY	Fonda Lake	1	0.691	100.000
12-32-401-038	FILLMORE REV TRUST	Fonda Lake	1	0.510	120.000
12-32-401-039	REWARD, STEPHEN & BEVERLY	Fonda Lake	1	0.413	100.000
12-32-401-040	ASHER, DONNY & ROSEMARY	Fonda Lake	1	0.254	65.000
12-32-401-045	LONE, FLORENCE	Fonda Lake	1	1.099	210.000
12-32-402-001	WHITE, JAMES & MARJORIE	Fonda Lake	1	0.554	70.000
12-32-402-002	STEC, EDWARD & HELEN	Fonda Lake	1	0.833	110.000
12-32-402-003	PALMER, MARY LOU	Fonda Lake	1	0.666	100.000
12-32-402-004	GARBER, PAUL & NANCY	Fonda Lake	1	0.379	60.000
12-32-402-005	JOHNSON, CHERYL	Fonda Lake	1	0.597	100.000
12-32-402-006	MORSEHEAD, RICHARD & KATHLEEN	Fonda Lake	1	0.712	100.000
12-32-402-007	SCHEFFER, CRAIG ANSON	Fonda Lake	1	0.396	50.000
12-32-402-008	KILLEN, WILLIAM & CHRISTINE	Fonda Lake	1	0.421	54.000
12-32-402-010	WHITE, DANIEL & KATHLEEN	Fonda Lake	5	0.689	200.000
12-32-402-011	WHITE, DANIEL & KATHLEEN	Fonda Lake	1	0.280	100.000
12-32-402-015	BACHELOR, GEORGE & MAXINE	Fonda Lake	1	0.242	55.000
12-32-402-017	COMAN, RONALD	Fonda Lake	1	0.275	63.000
12-32-402-018	KRAMAR, PAUL & ANNIE	Fonda Lake	1	0.181	40.000
12-32-402-019	LABELLE, JAMES E.	Fonda Lake	1	0.293	57.000
12-32-402-020	TRASK, BRADLEY & RHONDA	Fonda Lake	1	0.199	40.000
12-32-402-021	LABELLE, JOHN & BEVERLY	Fonda Lake	1	0.175	40.000
12-32-402-024	BACHELOR, PAUL & TERESA	Fonda Lake	1	0.312	80.000
12-32-402-026	BACHELOR, GEORGE & MAXINE	Fonda Lake	1	0.158	40.000
12-32-402-027	BACHELOR, GEORGE & MAXINE	Fonda Lake	1	0.160	40.000
12-32-402-028	DAVIDSON, CHRIS	Fonda Lake	1	0.323	80.000
12-32-402-029	BONNEWELL, DEWEY & JOANN	Fonda Lake	1	0.116	37.000
12-32-402-030	DUDEK, RICHARD & DEBORAH	Fonda Lake	1	0.122	40.000
12-32-402-031	CHUBB, COLIN & JILL	Fonda Lake	1	0.137	40.000
12-32-402-032	POTYSCH, WOLFGANG & SHARON	Fonda Lake	1	0.137	40.000
12-32-402-033	POTYSCH, WOLFGANG & SHARON	Fonda Lake	1	0.134	40.000
12-32-402-034	EMERSON, ROBERT & JOAN	Fonda Lake	1	0.131	40.000
12-32-402-035	CONNELLY, D. & VANTREASE, K.	Fonda Lake	1	0.295	90.000
12-32-402-037	REAMER, GERALDINE	Fonda Lake	1	0.254	70.000
12-32-402-039	HARDESTY, ASHER, DEVINE & FORD	Fonda Lake	1	0.158	40.000
12-32-402-040	HARDESTY, ASHER, DEVINE & FORD	Fonda Lake	1	0.159	40.000
12-32-402-041	CAREY, ROBERT & DEBRA	Fonda Lake	1	0.151	40.000
12-32-402-042	GROVE, THOMAS	Fonda Lake	1	0.144	40.000
12-32-402-043	HERMLING, ROBERT & MARY	Fonda Lake	1	0.137	40.000
12-32-402-044	PALMER, WILLIAM	Fonda Lake	1	0.156	46.000
12-32-402-047	VERVAET, RONALD & GLADYS	Fonda Lake	1	0.460	120.000
12-32-402-048	ZACHMANN, ERIC & LOUISE	Fonda Lake	1	0.292	80.000
12-32-402-050	KAVANAGH, THOMAS & CASSANDRA	Fonda Lake	1	0.491	107.000
12-32-402-051	WHITE, DANIEL & KATHLEEN	Fonda Lake	1	0.294	95.000
12-32-402-052	WHITE, DANIEL & KATHLEEN	Fonda Lake	1	0.363	106.000
12-33-301-026	ZIBELL, WALTER	Fonda Lake	1	0.360	40.000
12-33-301-027	KRAUSE, DANIEL & LYNN	Fonda Lake	1	0.179	40.000
12-33-301-028	MCCLAIN, SHIRLEY	Fonda Lake	1	0.185	40.000
12-33-301-029	WOOD, CELIA B	Fonda Lake	1	0.190	40.000
12-33-301-030	SAMPLES, ABBOTT & CURRIE ET AL	Fonda Lake	1	0.195	40.000
12-33-301-031	DILLON, JANET	Fonda Lake	1	0.386	80.000
12-33-301-032	KELLER, DONALD & AUDREY	Fonda Lake	1	0.190	40.000
12-33-301-033	SEBBY, MARK & NANCY SCHROEDER	Fonda Lake	1	0.364	80.000
12-33-301-034	SEBBY, MARK	Fonda Lake	1	0.224	50.000
12-33-301-040	BAKER, JESSE & RIZZO, DONALD	Fonda Lake	1	0.411	100.000
12-33-301-042	WHITE, JAMES & MARJORIE	Fonda Lake	1	0.879	100.000
12-33-301-043	LASCZYK, ZENON & SZWARC, IRENE	Fonda Lake	1	0.206	64.000
12-33-301-070	SWARTZ, EDWARD & ET AL	Fonda Lake	1	0.181	45.000
12-33-301-071	MOZAK, TERRY	Fonda Lake	1	0.154	40.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-33-301-072	MOZAK, TERRY	Fonda Lake	1	0.140	40.000
12-33-301-073	DUFFY, DANIEL & REBECCA	Fonda Lake	1	0.289	106.000
12-33-301-074	DUFFY, DANIEL & REBECCA	Fonda Lake	1	0.159	64.000
12-33-301-103	LAY, DORIS	Fonda Lake	1	0.423	119.000
12-33-301-111	MONSTROLA, DOUGLAS & DEBORAH	Fonda Lake	1	0.565	150.000
12-33-301-112	MONSTROLA, DOUGLAS & DEBORAH	Fonda Lake	1	0.309	81.000
12-33-301-113	BALFE, SHIRLEY M.	Fonda Lake	1	0.455	120.000
12-33-301-114	ERICKSON, RALPH & CYNTHIA	Fonda Lake	1	0.322	64.000
12-33-301-115	TERNS, DONALD & JUDITH	Fonda Lake	1	1.183	160.000
12-33-201-001	MAISON, RICHARD & SANDRA	Lake of the Pines	1	0.419	97.000
12-33-201-002	MANN REVOCABLE TRUST	Lake of the Pines	1	0.337	76.000
12-33-201-003	DERSHEM, DENNIS & LOIS	Lake of the Pines	1	0.268	73.000
12-33-201-004	LEGRIS, ROGER & LORI	Lake of the Pines	1	0.241	70.000
12-33-201-005	GUSTAFSON, HOWARD & CAROLINE	Lake of the Pines	1	0.306	78.000
12-33-201-006	BAKER, JAMES & SHIRLEY	Lake of the Pines	1	0.338	74.000
12-33-201-007	GANNON, KATHLEEN	Lake of the Pines	1	0.360	75.000
12-33-201-008	KACH, ANDREW & MARSHA	Lake of the Pines	1	0.331	72.000
12-33-201-009	OBERLE, RALPH & MARGARET	Lake of the Pines	1	0.574	131.000
12-33-201-010	BROWN, DAVID & VIRGINIA	Lake of the Pines	1	0.555	130.000
12-33-201-012	MCLEAN, RAYMOND & SYLVIA	Lake of the Pines	1	0.659	148.000
12-33-201-014	KINNEER, GARY & LINDA	Lake of the Pines	1	0.500	96.000
12-33-201-015	SITKAUSKAS, RONALD & CAROL	Lake of the Pines	1	0.494	83.000
12-33-201-016	SNYDER TRUST	Lake of the Pines	1	0.492	85.000
12-33-201-017	NORRIS, DAVID & MARGARET	Lake of the Pines	1	0.574	100.000
12-33-201-018	WISCHER, WILFRED & HILDA	Lake of the Pines	1	0.503	87.000
12-33-201-019	VANDENBERG, JOHN & JANET	Lake of the Pines	1	0.423	74.000
12-33-201-020	MILLS, FRANK	Lake of the Pines	1	0.442	93.000
12-33-201-021	GOREN, JEAN	Lake of the Pines	1	0.549	104.000
12-33-201-022	MCNULTY, ROBERT & LAURE	Lake of the Pines	1	0.405	75.000
12-33-201-023	TSENG, WAN AN & CHU LAN CHANG	Lake of the Pines	1	0.384	75.000
12-33-201-024	NALEPKA TRUST	Lake of the Pines	1	0.382	75.000
12-33-201-025	JUDE, DAVID & SUZANN	Lake of the Pines	1	0.432	88.000
12-33-201-026	POMINVILLE, WILLIAM	Lake of the Pines	1	0.411	87.000
12-33-201-027	PARKER, LAWRENCE	Lake of the Pines	1	0.441	87.000
12-33-201-028	BLACK, STANLEY & VIRGINIA	Lake of the Pines	1	0.435	81.000
12-33-201-029	CARLESIMO, JOHN	Lake of the Pines	1	0.574	118.000
12-33-201-031	LANGKIL REVOCABLE TRUST	Lake of the Pines	1	0.513	108.000
12-33-201-032	MUNCE, DONALD & CAROL	Lake of the Pines	1	0.331	67.000
12-33-201-033	MORRISON, JOHN & DIANE	Lake of the Pines	1	0.339	68.000
12-33-201-034	PEYTON, GEORGE & PATSY	Lake of the Pines	1	0.321	67.000
12-33-201-035	LEARY, WILLIAM & MARCIA	Lake of the Pines	1	0.297	64.000
12-33-201-036	MARTZ, WILLIAM & PAMELA	Lake of the Pines	1	0.307	64.000
12-33-201-037	WOOD, MICHAEL & VIRGINIA	Lake of the Pines	1	0.690	103.000
12-33-201-038	HILL, ROBERT & JEANETTE	Lake of the Pines	1	0.744	135.000
12-33-201-039	SZPUK, WALTER & BONNIE	Lake of the Pines	1	0.284	69.000
12-33-201-040	NOUHAN, PATRICIA	Lake of the Pines	1	0.279	76.000
12-33-201-041	MCELLIGATT, PAUL & NANCY	Lake of the Pines	1	0.386	95.000
12-33-201-042	DEMPSTER, JOHN & AGNES	Lake of the Pines	1	0.452	97.000
12-33-202-001	SUMMERS, JAMES	Lake of the Pines	1	0.671	169.000
12-33-202-002	BOARD, JOHN & RUTH	Lake of the Pines	1	0.665	120.000
12-33-202-003	MORAN, CHARLES & LORI	Lake of the Pines	1	0.884	103.000
12-33-202-004	SCHULTE, STEVEN H & COLLEEN G	Lake of the Pines	1	0.778	103.000
12-33-202-005	FRIEDRICH, MANFRED & ALMA	Lake of the Pines	1	0.423	67.000
12-33-202-006	JONES, MICHAEL	Lake of the Pines	1	0.343	68.000
12-33-202-007	SISK TRUST	Lake of the Pines	1	0.327	75.000
12-33-202-008	PAGE, GERALD & PATRICIA	Lake of the Pines	1	0.301	75.000
12-33-202-009	NOWAK, RICHARD & DARLENE	Lake of the Pines	1	0.395	105.000
12-33-202-010	KNECHTGES, DONALD & CAROL	Lake of the Pines	1	0.423	118.000
12-33-202-011	BAMBAS, EDMUND & JOAN	Lake of the Pines	1	0.382	99.000
12-33-202-012	FAJACK, WILLIAM & JOAN	Lake of the Pines	1	0.368	89.000
12-33-202-013	LADUKE, JACK & JANET	Lake of the Pines	1	0.349	88.000
12-33-202-014	PEGAU, GORDON & JOYCE	Lake of the Pines	1	0.387	98.000
12-33-202-015	DAVIDSON TRUST	Lake of the Pines	1	0.462	106.000
12-33-202-016	LEVY, ALLAN & ANN	Lake of the Pines	1	0.511	104.000
12-33-202-017	KILARSKI, JAMES & LINDA	Lake of the Pines	1	0.433	89.000
12-33-202-018	EARL, GREGORY & JANE	Lake of the Pines	1	0.459	101.000
12-33-202-019	HAYES, VICTOR & ELEANOR	Lake of the Pines	1	0.351	83.000
12-33-202-020	BLUMENTHAL, CRAIG & NANCY	Lake of the Pines	1	0.397	96.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-33-202-021	RAPAPORT, RICHARD & JOAN	Lake of the Pines	1	0.278	70.000
12-33-202-022	HIRT, ERNEST & HELEN	Lake of the Pines	1	0.269	69.000
12-33-202-023	ISBELL, JERRY & SUE	Lake of the Pines	1	0.294	70.000
12-33-202-024	REID, CHRISTINE	Lake of the Pines	1	0.403	101.000
12-33-202-025	LOUIS-PRESCOTT, JAY & LEE	Lake of the Pines	1	0.382	111.000
12-33-202-026	BRANDT, DIRK ALLEN & BARBARA	Lake of the Pines	1	0.468	103.000
12-33-202-027	WILKINSON, BARRY & LORA	Lake of the Pines	1	0.461	103.000
12-33-202-028	WALCOTT, MARK & KALLY	Lake of the Pines	1	0.454	103.000
12-33-202-029	KELLY, GLENN & SHIRLEY	Lake of the Pines	1	0.708	152.000
12-33-202-030	COLLINS, DANIEL & LEAH	Lake of the Pines	1	0.475	109.000
12-33-202-031	MURRAY, JAMES & ALICE	Lake of the Pines	1	0.437	110.000
12-33-202-032	DECKER, MELVIN & AMELIA	Lake of the Pines	1	0.450	112.000
12-33-202-033	DONNER, CARL & DAWN	Lake of the Pines	1	0.424	112.000
12-33-202-034	EARL, WINIFRED ELINOR	Lake of the Pines	1	0.478	117.000
12-33-202-035	WILLIAMS, JOHN & MARY	Lake of the Pines	1	0.720	137.000
12-33-202-036	JORDAN, RAYMOND & SONDR	Lake of the Pines	1	0.760	117.000
12-33-202-037	NESTOR, CHARLES & CYNTHIA	Lake of the Pines	1	0.776	117.000
12-33-202-038	PJETER, FERENC & MARGARET	Lake of the Pines	1	0.719	120.000
12-33-202-039	FITCHETT, THOMAS & DARLENE	Lake of the Pines	1	0.530	103.000
12-33-202-040	RANDALL, LIISA	Lake of the Pines	1	0.447	103.000
12-33-202-041	ROBERTS, STEVEN & BARBARA	Lake of the Pines	1	0.419	103.000
12-33-202-042	PAULASKI, DENNIS & DARLENE	Lake of the Pines	1	0.494	112.000
12-33-202-043	WEILER, MARY	Lake of the Pines	1	0.615	117.000
12-33-202-044	HUFF, GORDON & NANCY	Lake of the Pines	1	0.717	114.000
12-33-202-045	ANDERSON, EDEL & THERESA	Lake of the Pines	1	0.696	111.000
12-33-202-046	SPRINGSTEAD, EARL & INEZ	Lake of the Pines	1	0.517	102.000
12-33-203-001	CAMPBELL, SANDRA	Lake of the Pines	1	0.555	107.000
12-33-203-002	LEACH, JAMES & TONNIE	Lake of the Pines	1	0.464	100.000
12-33-203-003	LANDACRE, RICHARD & KEVIN	Lake of the Pines	1	0.485	104.000
12-33-203-004	BOROWIAK, JAMES R.	Lake of the Pines	1	0.523	118.000
12-33-203-005	SEABAUGH, STEVEN & JEANMARIE	Lake of the Pines	1	0.407	108.000
12-33-203-006	FUDALA, GARY & PATRICIA	Lake of the Pines	1	0.441	113.000
12-33-203-007	PALMER, GUY & MARY	Lake of the Pines	1	0.532	126.000
12-33-203-008	SCOTT, GERALD & JOANNE	Lake of the Pines	1	0.500	117.000
12-33-203-009	DUVA, ANTHONY	Lake of the Pines	1	0.459	115.000
12-33-203-010	JOHNSON, RANDY & DORIS	Lake of the Pines	1	0.420	113.000
12-33-203-011	PANEK, WALTER & LOUISE	Lake of the Pines	1	0.401	115.000
12-33-203-012	SEXTON, MARK & PAMELA	Lake of the Pines	1	0.347	105.000
12-33-203-013	CATES, ROBERT	Lake of the Pines	1	0.331	100.000
12-33-203-014	GIENAPP, DAVID & BARBARA	Lake of the Pines	1	0.342	100.000
12-33-203-015	MAHON, ROBERT & JEANE	Lake of the Pines	1	0.337	100.000
12-33-203-016	GRIFFITH, DALE & PATRICIA	Lake of the Pines	1	0.364	107.000
12-33-203-017	KILLEWALD, VINCENT & BARBARA	Lake of the Pines	1	0.409	100.000
12-33-203-018	STORK, GLENN & VALERIE	Lake of the Pines	1	0.465	96.000
12-33-203-019	WHALEN, MICHAEL & KATHLEEN	Lake of the Pines	1	0.533	121.000
12-33-203-020	STRAND, JAMES & JOAN	Lake of the Pines	1	0.526	147.000
12-33-203-021	FORTUNA, ROCKY & RODRIGUES, D	Lake of the Pines	1	0.580	108.000
12-33-203-022	SCHROEDER, JOSEPH & STEPHANIE	Lake of the Pines	1	0.362	105.000
12-33-203-023	RIDLEY, JAMES & MARYANN	Lake of the Pines	1	0.304	115.000
12-33-203-024	HOCKING, GARY & KATHLEEN	Lake of the Pines	1	0.290	108.000
12-33-203-025	SCHREIBER, WILLIAM & CAROL	Lake of the Pines	1	0.283	90.000
12-33-203-026	JOHNSON, DAVID & WENDY	Lake of the Pines	1	0.409	130.000
12-33-203-027	RITTER, RANDALL & NANCY	Lake of the Pines	1	0.285	90.000
12-33-203-028	MATSCHKE, GREGG & NANCY	Lake of the Pines	1	0.285	90.000
12-33-203-029	COLLARD, WALTER & HELEN	Lake of the Pines	1	0.371	107.000
12-33-203-030	SMITH, WILLIAM & FRANCES	Lake of the Pines	1	0.433	111.000
12-33-203-031	DOBRY, GARY & MARGARET	Lake of the Pines	1	0.592	133.000
12-33-203-032	WOLFF, CAMILLA	Lake of the Pines	1	0.850	161.000
12-33-203-033	SLIWA TRUST	Lake of the Pines	1	0.501	124.000
12-33-203-034	WILTON, CARL & JANET	Lake of the Pines	1	0.303	100.000
12-33-203-036	SPADE, JEFFREY & ENGRID	Lake of the Pines	1	0.461	116.000
12-33-203-037	LEPATOUREL, JOHN & RUTH	Lake of the Pines	1	0.283	62.000
12-33-203-038	LAKE OF THE PINES IMPROVEMENT (PARK)	Lake of the Pines	0	0.000	0.000
12-33-203-039	CHAPMAN, ROBERT & VERONICA	Lake of the Pines	1	0.234	88.000
12-33-203-040	THOMPSON, WILLIAM & ELIZABETH	Lake of the Pines	1	0.268	92.000
12-33-203-041	BUTZ, ROY & BERYLE	Lake of the Pines	1	0.488	118.000
12-33-203-042	TRAFTON, KARL & ELAINE	Lake of the Pines	1	0.361	85.000
12-33-203-046	BOBBY, DAVID & DIERDRE	Lake of the Pines	1	0.387	87.000

TAX ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-33-203-047	RUNNALS, SCOTT & MARIE	Lake of the Pines	1	0.399	87.000
12-33-203-048	TRIMBORN, PHILLIP & FAITH	Lake of the Pines	1	0.398	98.000
12-33-203-049	BOSSORY, DAVID & J.A.	Lake of the Pines	1	0.489	105.000
12-33-203-050	SAARISTO, HUBERT & BARBARA	Lake of the Pines	1	0.490	109.000
12-33-203-051	WOOD, JAMES & LAURA	Lake of the Pines	1	0.437	103.000
12-33-203-052	STEFANIAK, WILLIAM & ELLEN	Lake of the Pines	1	0.455	93.000
12-33-203-053	HUNT, MICHAEL & HEATHER	Lake of the Pines	1	0.396	85.000
12-33-203-054	YUHAS REVOCABLE TRUST	Lake of the Pines	1	0.396	110.000
12-33-203-055	KONKEL, JAMES & MARGUERITE	Lake of the Pines	1	0.243	76.000
12-33-203-056	ROY, JOHN & BARTSHE, SANDRA	Lake of the Pines	1	0.431	92.000
12-33-203-057	POTTS REVOCABLE TRUST	Lake of the Pines	1	0.505	94.000
12-33-203-058	HAMWAY, THOMAS & MARY LOUISE	Lake of the Pines	1	0.840	171.000
12-33-203-060	CHEVALIER, JAMES & LINDA	Lake of the Pines	1	0.629	135.000
12-33-203-061	CLAUER, RONALD & NANCY	Lake of the Pines	1	0.666	177.000
12-33-203-062	GELLER, SAMUEL & KATHLEEN	Lake of the Pines	1	0.747	104.000
12-33-203-063	HERBST, THOMAS & EILEEN	Lake of the Pines	1	0.840	127.000
12-33-203-066	FLUHART, MARC & JANICE	Lake of the Pines	1	0.586	110.000
12-33-203-068	SZYMANSKI, DIANE	Lake of the Pines	1	0.841	187.000
12-33-203-069	WALKER, BRUCE & BERNADINE	Lake of the Pines	1	0.396	98.000
12-33-203-070	BYRD, DAVID & EVA	Lake of the Pines	1	0.414	93.000
12-33-203-071	MILLER, W. & DOROTHY	Lake of the Pines	1	0.453	87.000
12-33-203-072	BUDNICK, DAVID & DIANE	Lake of the Pines	1	0.538	93.000
12-33-203-073	DAY, PHILIP & SUSAN	Lake of the Pines	1	0.562	100.000
12-33-203-074	PRINCE, DOUGLAS & DORIS	Lake of the Pines	1	0.530	100.000
12-33-203-075	COHEN, GREGORY	Lake of the Pines	1	0.512	100.000
12-33-203-076	O'DONNELL JR., STEPHEN	Lake of the Pines	1	0.489	100.000
12-33-203-077	CUMMINS, KATHLEEN	Lake of the Pines	1	0.450	100.000
12-33-203-078	HILL, JAMES & GAIL	Lake of the Pines	1	0.399	100.000
12-33-203-079	WEINGARTZ, RONALD & MARGARET	Lake of the Pines	1	0.358	100.000
12-33-203-080	BARNES, GENE & MARQUETTA	Lake of the Pines	1	0.340	100.000
12-33-203-081	NORTON, DANIEL J.	Lake of the Pines	1	0.352	101.000
12-33-203-082	GLASER, BARRY R.	Lake of the Pines	1	0.386	102.000
12-33-203-083	GOGOLEWSKI, RICHARD & KATHRYN	Lake of the Pines	1	0.433	102.000
12-33-203-084	BROWDER, ROBERT	Lake of the Pines	1	0.482	102.000
12-33-203-085	LAW, RAYMOND & ANNE	Lake of the Pines	1	0.529	102.000
12-33-203-086	PEROTTI, JAMES & SHARON	Lake of the Pines	1	0.611	110.000
12-33-203-087	STAMKOFF LIVING TRUST	Lake of the Pines	1	0.726	127.000
12-33-203-088	KISH, GERALD & KATHLEEN	Lake of the Pines	1	0.468	93.000
12-33-203-089	YOUNGBLUTT, THOMAS & SANDRA	Lake of the Pines	1	0.399	108.000
12-33-203-090	KRAUTER, LEONARD AND SYLVIA	Lake of the Pines	1	0.530	148.000
12-33-203-091	THEODORE, DENNIS & SUSAN	Lake of the Pines	1	0.535	201.000
12-33-203-092	THEODORE TRUST	Lake of the Pines	1	0.459	100.000
12-33-203-093	BUCHHOLZ, CHARLES & JODY	Lake of the Pines	1	0.459	100.000
12-33-203-094	DANIELS, HAROLD & JERRIE	Lake of the Pines	1	0.459	100.000
12-33-203-095	LACCA, SILVESTRO & HELEN	Lake of the Pines	1	0.459	100.000
12-33-203-096	SCOTT, LAWRENCE & LISA	Lake of the Pines	1	0.545	87.000
12-33-203-097	SCHILLINGER, EDWARD & PAMELA	Lake of the Pines	1	0.538	108.000
12-33-203-098	MILLER, HENRY & ROBERT	Lake of the Pines	1	1.341	332.000
12-33-204-001	MACDONALD, VASSEL & BERTOLINO	Lake of the Pines	1	0.350	87.000
12-33-204-002	PETERSEN, SUSANNE	Lake of the Pines	1	0.350	87.000
12-33-204-003	DUDZIK, THOMAS & REBECCA	Lake of the Pines	1	0.402	100.000
12-33-204-004	OUTCALT, THOMAS & DEBORAH	Lake of the Pines	1	0.402	100.000
12-33-204-005	SLATER, BRIAN & JILL	Lake of the Pines	1	0.402	100.000
12-33-204-006	SAVELA, RONALD & CAROLYN	Lake of the Pines	1	0.402	100.000
12-33-204-007	O'BRIEN, LESTER & PHYLLIS	Lake of the Pines	1	0.402	100.000
12-33-204-008	FINNERTY, TIMOTHY & MAUREEN	Lake of the Pines	1	0.402	100.000
12-33-204-009	STEFANKO, CHRISTOPHER & T.	Lake of the Pines	1	0.402	100.000
12-33-204-010	FLETCHER, JAMES & DANIELLE	Lake of the Pines	1	0.402	100.000
12-33-204-011	LEDERER, RICHARD & KATHLEEN	Lake of the Pines	1	0.402	100.000
12-33-204-012	BERZSENYI, RICHARD & CAROL	Lake of the Pines	1	0.402	100.000
12-33-204-013	CRAIG, ROBERT & MARY LOU	Lake of the Pines	1	0.402	100.000
12-33-204-014	KENT, BEN & SANDRA	Lake of the Pines	1	0.402	100.000
12-33-204-015	SANTAVY, SYDNEY & TERRI	Lake of the Pines	1	0.402	100.000
12-33-204-016	PANEK, JOHN & JULIA	Lake of the Pines	1	0.402	100.000
12-33-204-017	ALM, WILLIAM & KIMBERLY	Lake of the Pines	1	0.402	100.000
12-33-204-018	POMELLA, DAVID & LINDA	Lake of the Pines	1	0.402	100.000
12-33-204-019	DEGROAT, ALBERT & IRENE	Lake of the Pines	1	0.402	100.000
12-33-204-020	BROWN, HENRY	Lake of the Pines	1	0.857	232.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-33-204-021	DENSMORE, JAY & CHRISTINE	Lake of the Pines	1	0.507	100.000
12-33-204-022	CONAHAN, HUGH & PATRICIA	Lake of the Pines	1	0.450	100.000
12-33-204-023	MOORE, CHESTER & JOYCE	Lake of the Pines	1	0.419	106.000
12-33-204-024	MARSHALL REV. LIVING TRUST	Lake of the Pines	1	0.356	100.000
12-33-204-025	LASK, GARY R.	Lake of the Pines	1	0.349	100.000
12-33-204-026	ALFONSO, NORMA	Lake of the Pines	1	0.367	100.000
12-33-204-027	CAREY, SUSAN	Lake of the Pines	1	0.376	100.000
12-33-204-028	SHEA, STEPHEN & BARBARA	Lake of the Pines	1	0.344	100.000
12-33-204-029	DORAIS, LUC & DENISE	Lake of the Pines	1	0.715	177.000
12-33-204-030	BELCZYNSKI, CARL & JOYCE	Lake of the Pines	1	0.451	105.000
12-33-204-031	ELKINS, GORDON & CLAUDIA	Lake of the Pines	1	0.396	97.000
12-33-204-032	TURNBULL, BRYAN & JUDITH	Lake of the Pines	1	0.318	90.000
12-33-204-033	SOYA, CLEMENT & ANNE	Lake of the Pines	1	0.287	85.000
12-33-204-034	MC KENNEY, ROBERT	Lake of the Pines	1	0.369	103.000
12-33-204-035	ZAIDI, ADEEL & FIRDOUS	Lake of the Pines	1	0.592	149.000
12-33-204-036	SAPIKOWSKI, THOMAS & CLAUDIA	Lake of the Pines	1	0.868	153.000
12-33-204-037	SHAKARJIAN, JR., JOHN & LAURA	Lake of the Pines	1	1.082	205.000
12-33-204-038	YALES, MICHEL & PATRICIA	Lake of the Pines	1	0.351	84.000
12-33-204-039	TEASLEY, WILLIAM	Lake of the Pines	1	0.390	79.000
12-33-204-040	SORBY, JOHN & JOANNE	Lake of the Pines	1	0.398	85.000
12-33-204-041	HAAN, EDWARD & MARY	Lake of the Pines	1	0.376	88.000
12-33-204-042	GIELDA, THOMAS & PEGGY	Lake of the Pines	1	0.444	92.000
12-33-204-043	SCHUMAN LIVING TRUST	Lake of the Pines	1	0.882	119.000
12-33-204-044	MELLIN REVOCABLE TRUST	Lake of the Pines	1	0.872	113.000
12-33-204-045	HAMES, HERBERT & ALLEN, SUSAN	Lake of the Pines	1	0.757	117.000
12-33-204-046	TUROWSKI TRUST	Lake of the Pines	1	0.447	87.000
12-33-204-047	KAYE, JAMES & SANDRA	Lake of the Pines	1	0.381	79.000
12-33-204-048	SELBY, BENJAMIN	Lake of the Pines	1	0.324	74.000
12-33-204-049	WHITE, GEORGE & LOIS	Lake of the Pines	1	0.306	71.000
12-33-204-050	KARPCZUK, KENNETH & DONNA	Lake of the Pines	1	0.512	112.000
12-33-204-052	BEAUCHENE, MARK & JUDY	Lake of the Pines	1	0.495	124.000
12-33-204-053	HAUTAMAKI, DAVID & ROBIN	Lake of the Pines	1	0.267	82.000
12-33-204-054	SEKERAK, DALE & MARTHA	Lake of the Pines	1	0.315	108.000
12-33-204-055	MIKA, EDWIN & LOLA	Lake of the Pines	1	0.336	97.000
12-33-204-056	BOMIRETO, PETER & PATRICIA	Lake of the Pines	1	0.488	120.000
12-33-204-057	MOORE, ROGER & PAMELA	Lake of the Pines	1	0.473	103.000
12-33-204-058	PLOUFFE, JAMES	Lake of the Pines	1	0.585	94.000
12-33-204-059	LAKE OF THE PINES IMPROVEMENT (PARK)	Lake of the Pines	0	0.000	0.000
12-33-204-060	FRAME, CHARLES	Lake of the Pines	1	0.372	91.000
12-33-204-061	FULKS, GARY & VICTORIA	Lake of the Pines	1	0.350	75.000
12-33-204-062	GOODRICH, JOHN & MARY JEANNE	Lake of the Pines	1	0.350	75.000
12-33-204-063	DAHMER, JOHN & ALICE	Lake of the Pines	1	0.357	73.000
12-33-204-064	PADGET, ROBERT & CATHY	Lake of the Pines	1	0.619	107.000
12-33-204-065	WALTZ, ROBERT & CYNTHIA	Lake of the Pines	1	0.545	90.000
12-33-204-066	CIOLFI, JOSEPH & MARYANN	Lake of the Pines	1	0.506	90.000
12-33-204-067	KOSS, MARTIN & KAREN	Lake of the Pines	1	0.305	79.000
12-33-204-068	TAIT, RUTH	Lake of the Pines	1	0.425	95.000
12-33-204-069	CLARK, HUGH & SUZANNE	Lake of the Pines	1	0.435	87.000
12-33-204-070	QUINNAN, ROGER & PENNY	Lake of the Pines	1	0.276	86.000
12-33-204-071	LONGWISH, ROBERT & LAURA	Lake of the Pines	1	0.379	110.000
12-33-204-072	MOSKAL, JAMES & COLEEN	Lake of the Pines	1	0.379	110.000
12-33-204-073	FISCHER, CHARLES & SUSAN	Lake of the Pines	1	0.379	110.000
12-33-204-074	KULINSKI, RONALD & REBECCA	Lake of the Pines	1	0.379	110.000
12-33-204-075	BISOSKI, HOWARD & SYNTHIA	Lake of the Pines	1	0.379	110.000
12-33-204-076	FLAMMERSFELD, KARL & MARGARET	Lake of the Pines	1	0.379	110.000
12-33-204-077	FETTERMAN, MICHAEL & JULIA	Lake of the Pines	1	0.379	110.000
12-33-204-078	LAKE OF THE PINES IMPROVEMENT (PARK)	Lake of the Pines	0	0.000	0.000
12-33-204-079	MOODY, DANIEL & SUZANNE	Lake of the Pines	1	0.534	99.000
12-33-204-080	PATRICK, JOBIE & LISA	Lake of the Pines	1	0.496	90.000
12-33-204-081	CRONIN, JACK & MARY	Lake of the Pines	1	0.506	90.000
12-33-204-082	VERONA, JEFFREY & PATRICIA	Lake of the Pines	1	0.517	90.000
12-33-204-083	GAUGLER, GREGORY & JANIECE	Lake of the Pines	1	0.527	90.000
12-33-204-084	PUHY, JOHN & DOLORES	Lake of the Pines	1	0.535	90.000
12-33-204-085	BRETZ, NANCY	Lake of the Pines	1	0.362	90.000
12-33-204-086	LAGINESS, GARY LEE & JUSTINA	Lake of the Pines	1	0.362	90.000
12-33-204-087	HATFIELD, DAVID & SANDRA	Lake of the Pines	1	0.354	88.000
12-18-300-003	HALE TRUST	West Grand River	1	0.467	84.000
12-18-300-013	SEASER, PAUL & KATHERINE	West Grand River	1	0.515	103.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONT
12-18-300-014	BROOKS, RAYMOND & SUSAN	West Grand River	1	0.526	120.000
12-18-300-015	MOORE, JOHN & GEORGINA	West Grand River	1	0.444	121.000
12-18-300-018	SONNANSTINE, GREG	West Grand River	1	0.854	157.000
12-18-300-025	SONNANSTINE, GREG	West Grand River	50	8.237	520.000
12-18-300-026	HALLER, JEFFREY & GAIL	West Grand River	1	0.544	100.000
12-19-100-006	RIEBLING, PAUL & KAREN	West Grand River	1	0.652	167.000
12-19-100-007	First of America Bank	West Grand River	2		
12-19-100-008	PIGGINS, WILLIAM	West Grand River	5	1.880	210.000
12-19-100-010	ROYCE PROPERTIES I, L.L.C.	West Grand River	1	0.367	100.000
12-19-100-011	SINGH, HARBHAJAN & SHANTI	West Grand River	0	0.149	50.000
12-19-100-012	SINGH, HARBHAJAN & SHANTI	West Grand River	0	0.379	209.000
12-19-100-013	GRIFFITH, RICHARD & MARY JO	West Grand River	0	0.032	83.000
12-19-100-014	DAVIS, STEPHEN	West Grand River	1	1.877	83.000
12-19-100-016	GARDNER, RICHARD	West Grand River	1	0.479	75.000
12-19-100-018	WOODLAND LAKE MOTEL	West Grand River	4	2.223	199.000
12-19-100-019	SINUTKO, VERONICA	West Grand River	1	0.414	95.000
12-19-100-025	OGONOWSKI, CASMER & ANN	West Grand River	3	0.623	50.000
12-19-100-026	MEIER, JAMES & HELEN & ET AL	West Grand River	0	0.503	146.000
12-19-100-027	MEIER & ANDERSEN & ET AL	West Grand River	1	2.410	210.000
12-19-100-029	SCHULTHEIS, JOSEPH & DIANE	West Grand River	1	0.453	70.000
12-19-100-031	KIEWICZ, DONALD & LOIS	West Grand River	1	0.612	82.000
12-19-100-033	CASCIO, SYLVESTER	West Grand River	1	1.157	140.000
12-19-100-036	ROKA PROPERTIES LLC	West Grand River	1	0.207	45.000
12-19-100-037	SERBAY JR, MYRON W.	West Grand River	1	0.330	0.000
12-19-100-038	FRASER, RICK & ANN	West Grand River	1	0.350	0.000
12-19-100-039	FRASER, RICK & ANN	West Grand River	1	0.370	0.000
12-19-100-040	SERBAY JR, MYRON W.	West Grand River	2	0.318	99.000
12-19-100-041	MEIER, JAMES & HELEN	West Grand River	1	1.067	150.000
12-19-100-042	RADEL, EVELYN	West Grand River	1	0.760	92.000
12-19-100-043	CASCIO, DENNIS	West Grand River	1	0.420	0.000
12-19-100-045	NRH INC BIG ACRES STORES	West Grand River	1	1.309	190.000
12-19-100-047	STARBIRD, ROY	West Grand River	1	0.545	47.000
12-19-100-049	GRANSDEN, JEFFREY & SHERRY	West Grand River	1	0.430	0.000
12-19-100-050	MISTAK, WALTER & MICHAELINE	West Grand River	1	2.686	260.000
12-19-100-054	WOODLAND LAKE ORGANIZATION OF	West Grand River	0	0.000	0.000
12-19-100-055	CASCIO, SYLVESTER	West Grand River	1	0.884	115.000
12-19-100-056	NILES, GORDON & SANDRA	West Grand River	1	0.661	130.000
12-19-100-057	EARNEST, RONALD & MARNEY	West Grand River	1	0.329	70.000
12-19-100-060	BEATTY, JOHN & CAROL	West Grand River	1	0.836	207.000
12-19-100-061	COURSEY, JAMES & CHARLENE	West Grand River	1	0.483	117.000
12-19-100-062	KERR REVOCABLE TRUST	West Grand River	1	0.689	100.000
12-19-100-063	GTTD PROPERTIES, LLC (VACANT)	West Grand River	1	1.178	100.000
12-19-100-064	WOODLAND ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-065	WOODLAND ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-066	WOODLAND ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-067	WOODLAND ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-068	P M ONE ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-069	P M ONE ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-072	PARK PLACE SHOPPING CENTER,INC	West Grand River	7	1.810	186.000
12-19-100-073	ABE'S AUTO GLASS, INC.	West Grand River	1	1.492	130.000
12-19-100-074	GRAND RIVER REAL ESTATE CORP	West Grand River	12	9.559	460.000
12-19-100-075	KULPA, GERTRUDE G. (VACANT)	West Grand River	1	0.631	91.000
12-19-100-076	KULPA, GERTRUDE G.	West Grand River	1	1.473	207.330
12-19-100-077	Gaelic Financial Services, LLC	West Grand River	7	2.173	333.000
12-19-100-078	GRAND RIVER REAL ESTATE CORP (VACANT)	West Grand River	1	3.847	277.000
12-19-100-079	STARBIRD, ROY & LOUISE	West Grand River	1	0.735	103.000
12-19-100-080	STARBIRD, ROY & LOUISE	West Grand River	1	0.494	83.000
12-19-101-001	WELKA, THOMAS & NANCY	West Grand River	1	0.659	99.000
12-19-101-004	SCHULER, RUTH	West Grand River	1	1.612	135.000
12-19-101-005	MOONEY, KEITH	West Grand River	1	0.634	60.000
12-19-101-006	MICHAEL, KEITH & ARDIS	West Grand River	1	0.905	95.000
12-19-101-007	JANDASEK, VLADIMIR & CAROLYN	West Grand River	1	0.436	50.000
12-19-101-008	JANDASEK, JOSEPH & JOANNE	West Grand River	1	0.382	45.000
12-19-101-009	JANDASEK, JOHN & LINDA	West Grand River	1	0.763	95.000
12-19-101-010	BROOKS, R&S & DOLL, R&C	West Grand River	1	0.746	100.000
12-19-101-011	CAMILLERI, PAUL & VICTORIA	West Grand River	1	0.698	95.000
12-19-101-012	WISE, ERNEST & BERNHARDT, CHRIS	West Grand River	1	0.642	82.000
12-19-101-013	MARTEL, EDWINA & BRENDA	West Grand River	1	0.977	115.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-19-101-014	GRAVEL TRUCKING COMPANY	West Grand River	3	0.723	90.000
12-19-101-015	MUSCH, GENE	West Grand River	1	1.090	115.000
12-19-101-016	MUSCH, GENE	West Grand River	1	0.482	100.000
12-19-101-017	LEMING, DALE & SUSAN	West Grand River	1	1.374	235.000
12-19-300-002	MCINTYRE, R. & RICHARDS, P.	West Grand River	4	2.066	200.000
12-19-300-005	SHENG, LUKE & STELLA & PAUL (VACANT)	West Grand River	1	19.800	0.000
12-19-300-008	MICHIGAN GAS STORAGE CO	West Grand River	0	0.574	100.000
12-19-300-010	CHRYSLER, RICHARD	West Grand River	1	5.682	750.000
12-19-300-016	MCINTYRE, DONALD	West Grand River	1	2.640	250.000
12-19-300-017	MAXWELL, ARLIE & DENISE	West Grand River	1	0.698	80.000
12-19-300-018	OLEKSYN, JOSEPH & RITA	West Grand River	1	0.685	80.000
12-19-300-019	WESLEY, JAMES	West Grand River	1	0.672	80.000
12-19-300-021	PIZZA HUT OF AMERICA	West Grand River	10	0.852	140.000
12-19-300-022	BARLUM, KATHLEEN	West Grand River	1	0.716	120.000
12-19-300-023	SHENG, LUKE & STELLA (VACANT)	West Grand River	1	6.440	0.000
12-19-300-024	BRIGHTON, TOWNSHIP OF (VACANT)	West Grand River	1	31.580	0.000
12-19-300-025	TAYLOR, HORACE & YVONEE	West Grand River	1	4.885	380.000
12-19-300-026	AMOCO OIL COMPANY	West Grand River	2	1.030	325.000
12-19-300-027	ATLANTIC NORTHWEST CORPORATIO	West Grand River	0	0.192	45.000
12-19-300-028	U S RESTAURANT PROPERTIES	West Grand River	10	0.723	137.000
12-19-300-030	CHRYSLER, RICHARD & KATHIE (VACANT)	West Grand River	1	9.040	0.000
12-19-300-032	GRAND RIVER REAL ESTATE CORP	West Grand River	1	7.429	665.000
12-19-300-033	SHERMAN, ROBERT & CATHERINE	West Grand River	6	3.643	478.000
12-19-300-034	SHERMAN, ROBERT & CATHERINE	West Grand River	1	1.462	174.000
12-19-300-035	INTERNATIONAL SOCIETY	West Grand River	1	1.080	285.000
12-19-300-036	S.T.E.P. REAL ESTATE HOLDINGS (VACANT)	West Grand River	1	1.601	332.000
12-19-300-037	CHRYSLER II, RICHARD & KRISTEN	West Grand River	1	2.050	0.000
12-19-300-038	CHRYSLER, CHRISTIE	West Grand River	1	2.420	0.000
12-19-300-039	CHRYSLER, PHILLIP R.	West Grand River	1	3.490	0.000
12-19-301-001	WINDEL, KENNETH	West Grand River	1	0.552	62.000
12-19-301-006	WAKELAND OIL COMPANY	West Grand River	2	0.792	350.000
12-19-301-009	TOFIL & DOMBROWSKI & ET AL	West Grand River	1	0.752	78.000
12-19-301-011	TOFIL & DOMBROWSKI & ET AL	West Grand River	1	0.358	39.000
12-19-301-012	WEGRECKI, WALTER	West Grand River	1	0.337	38.000
12-19-301-013	SANTIONI REV. LIVING TRUST	West Grand River	1	0.325	38.000
12-19-301-017	KAY CON, L.L.C.	West Grand River	4		
12-19-301-019	OSWALT INC	West Grand River	1	1.484	240.000
12-19-301-020	OSWALT INC	West Grand River	1	1.002	239.000
12-19-301-021	MILES, CHESTER	West Grand River	1	0.649	79.000
12-19-400-013	CHRYSLER, RICHARD	West Grand River	0	9.000	0.000
12-07-303-001	PRICE, STEVEN & ANDREA	Woodland Lake	1	0.600	83.000
12-07-303-036	HUNSINGER, JOSEPH	Woodland Lake	1	0.613	157.000
12-17-300-009	LAUZON, ROBERT & DINA	Woodland Lake	1	2.260	0.000
12-17-300-014	GRAVEL, LESLIE & ELIZABETH	Woodland Lake	1	2.340	0.000
12-17-300-015	MARTHUR, DOUGLAS & DIANA R	Woodland Lake	1	2.620	0.000
12-18-100-004	MATLOCK, JEFFREY & MICHELLE	Woodland Lake	1	0.540	0.000
12-18-100-005	KAUCHECK, RUDOLPH & JEAN	Woodland Lake	1	0.410	0.000
12-18-100-006	WALLACE, ROBERT & JOAN	Woodland Lake	1	0.260	0.000
12-18-100-007	MOON, HAROLD & DOROTHY	Woodland Lake	1	0.360	0.000
12-18-100-008	SCHULTZ, DAVID	Woodland Lake	1	0.590	0.000
12-18-100-010	SHEPHERD OF THE LAKES LUTH CH	Woodland Lake	1	10.000	0.000
12-18-100-017	DORER, JAMES & M. TERESA	Woodland Lake	1	0.920	0.000
12-18-100-018	DORER, JAMES & M. TERESA	Woodland Lake	1	1.880	0.000
12-18-100-021	PENDLETON, CHARLES & JANE	Woodland Lake	1	0.562	160.000
12-18-100-022	BRIGHTON, TOWNSHIP OF	Woodland Lake	1	10.170	0.000
12-18-100-026	HOMMEL, DOUGLAS W.	Woodland Lake	1	2.030	0.000
12-18-100-027	PULLUKAT, PHILIP	Woodland Lake	1	2.920	0.000
12-18-100-028	GARITY, THOMAS & JANE	Woodland Lake	1	2.250	0.000
12-18-100-029	SHETH, JYOTIKA & PRAVIN	Woodland Lake	1	2.190	0.000
12-18-100-030	WOODLAND LAKE ESTATES (VACANT)	Woodland Lake	1	1.200	0.000
12-18-100-031	SPELOS, DAMON	Woodland Lake	1		
12-18-101-001	BORTELS, KURT	Woodland Lake	1	0.842	166.000
12-18-101-002	MONEMENT, ROBERT & DONNA	Woodland Lake	1	0.808	160.000
12-18-101-003	MESSNER, MARK & CARRIE	Woodland Lake	1	2.174	231.000
12-18-101-004	RENSWICK, JOHN & ROSEMARY	Woodland Lake	1	1.217	212.000
12-18-101-005	RIFFEL, MARC & ANNETTE	Woodland Lake	1	1.061	210.000
12-18-101-006	OTT, WILLIAM & JUDITH	Woodland Lake	1	0.818	155.000
12-18-101-007	GOMEZ, JOHN & GRACE	Woodland Lake	1	0.840	124.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-18-101-008	KNUST, MICHAEL & PATRICIA	Woodland Lake	1	0.959	144.000
12-18-101-009	MADLEY, FRED & NANCY	Woodland Lake	1	0.649	202.000
12-18-101-010	ST GERMAIN, THOMAS & JACQUELINE	Woodland Lake	1	0.733	133.000
12-18-101-011	BROWNELL, CHERYL	Woodland Lake	1	0.569	129.000
12-18-101-012	JAHSAN, JOHN & NANCY	Woodland Lake	1	0.716	189.000
12-18-102-001	WOODLAND LAKE ESTATES	Woodland Lake	1	1.220	216.000
12-18-102-002	CAMPBELL, ROBERT & SHARON	Woodland Lake	1	1.335	171.000
12-18-102-003	RUTKOWSKI, MICHAEL & GAIL JO	Woodland Lake	1	1.237	171.000
12-18-102-004	KUNSTEL, JAMES	Woodland Lake	1	0.981	150.000
12-18-102-005	MODJESKI, ROBERT & CAROLE	Woodland Lake	1	0.820	140.000
12-18-102-006	ZALEWSKI, WILLIAM & DONNA	Woodland Lake	1	0.916	140.000
12-18-102-007	BANFIELD, RICHARD & JOYCE	Woodland Lake	1	0.901	133.000
12-18-102-008	WOODLAND LAKE ESTATES	Woodland Lake	1	0.790	135.000
12-18-102-009	WOODLAND LAKE ESTATES	Woodland Lake	1	0.948	140.000
12-18-102-010	GERMAN, DANIEL & TAMARA	Woodland Lake	1	1.015	130.000
12-18-102-011	WOODLAND LAKE ESTATES	Woodland Lake	1	1.712	320.000
12-18-102-012	WOODLAND LAKE ESTATES	Woodland Lake	1	1.598	290.000
12-18-102-013	WOODLAND LAKE ESTATES	Woodland Lake	1	1.102	160.000
12-18-102-014	WOODLAND LAKE ESTATES	Woodland Lake	1	1.358	170.000
12-18-103-001	HENDERLONG, VERNON & LEONIE	Woodland Lake	1	0.615	100.000
12-18-103-002	BROWN, KEVIN & CHRISTINA	Woodland Lake	1	0.624	100.000
12-18-103-003	LITTLE, MICHAEL & TERRI	Woodland Lake	1	0.694	110.000
12-18-103-004	WOODLAND LAKE ESTATES	Woodland Lake	1	0.991	151.000
12-18-103-005	WOODLAND LAKE ESTATES	Woodland Lake	1	1.329	176.000
12-18-103-006	WOODLAND LAKE ESTATES	Woodland Lake	1	1.121	165.000
12-18-103-007	WOODLAND LAKE ESTATES	Woodland Lake	1	0.897	129.000
12-18-103-008	WOODLAND LAKE ESTATES	Woodland Lake	1	0.802	127.000
12-18-103-024	WOODLAND LAKE ESTATES	Woodland Lake	1	1.401	195.000
12-18-103-025	WOODLAND LAKE ESTATES	Woodland Lake	1	0.916	150.000
12-18-103-026	WOODLAND LAKE ESTATES	Woodland Lake	1	0.977	160.000
12-18-103-027	WOODLAND LAKE ESTATES	Woodland Lake	1	0.862	184.000
12-18-103-028	MECHIGIAN, ROBERT & ALLYSON	Woodland Lake	1	0.785	133.000
12-18-103-029	BUCKMAN, LEONARD & ANNE	Woodland Lake	1	1.182	198.000
12-18-103-030	WELLINGS, TIMOTHY & ELIZABETH	Woodland Lake	1	0.902	144.000
12-18-103-031	MIGLIORE, WADE & CHRISTINE	Woodland Lake	1	0.897	138.000
12-18-103-032	CREEHAN, JAMES & ROSELYN	Woodland Lake	1	0.959	144.000
12-18-103-033	WOODLAND LAKE ESTATES	Woodland Lake	1	0.869	127.000
12-18-104-073	ROBERTS, GARY	Woodland Lake	1	0.574	102.000
12-18-104-074	ROBERTS, GARY	Woodland Lake	1	0.667	94.000
12-18-104-075	SCHIMECK, DAVID & CYNTHIA	Woodland Lake	1	0.461	100.000
12-18-104-076	RESSEGUIE, DAVID & DIANA	Woodland Lake	1	0.526	114.000
12-18-104-077	SMITH, BARNEY & MARLENE	Woodland Lake	1	0.601	127.000
12-18-104-078	NOVAK, GARY & JOHANNA	Woodland Lake	1	0.421	87.000
12-18-104-079	RAVINES TWO ASSOCIATES LLC	Woodland Lake	1		
12-18-104-080	ROBERTS, GARY	Woodland Lake	1	0.613	170.000
12-18-104-081	MOONEY, TIMOTHY & GOWAN, DEBORAH	Woodland Lake	1	0.529	161.000
12-18-104-082	COLL, STEVEN & MARCIA	Woodland Lake	1	0.463	114.000
12-18-104-083	WILKIN, WILLIAM & SUSAN	Woodland Lake	1	0.456	103.000
12-18-104-084	ADLER BUILDING & DEVELOPMENT	Woodland Lake	1	0.456	103.000
12-18-104-085	WALTERS, RICHARD & IZABELA	Woodland Lake	1	0.456	103.000
12-18-104-086	SARGEANT, SCOTT & LAURI	Woodland Lake	1	0.476	108.000
12-18-104-087	MOORHEAD, DAVID & BARBARA	Woodland Lake	1	0.456	103.000
12-18-104-088	ADLER BUILDING & DEVELOPMENT	Woodland Lake	1	0.457	101.000
12-18-104-089	EMERSON, DOUGLAS & XINA	Woodland Lake	1	0.459	113.000
12-18-104-090	RAVINES TWO ASSOCIATES LLC	Woodland Lake	1		
12-18-104-091	GORMLEY, JOSEPH & ROBIN	Woodland Lake	1	0.609	130.000
12-18-104-092	COTTON, RICHARD & PATRICIA	Woodland Lake	1	0.533	111.000
12-18-104-093	RAVINES TWO ASSOCIATES LLC	Woodland Lake	1		
12-18-104-094	ROBERTS, GARY	Woodland Lake	1	0.471	100.000
12-18-104-095	ROBERTS, GARY	Woodland Lake	1	0.468	100.000
12-18-104-096	GEER, DANIEL RAY & LORI L.	Woodland Lake	1	0.633	126.000
12-18-104-097	RAVINES TWO ASSOCIATES LLC	Woodland Lake	1		
12-18-104-098	ROBERTS, GARY	Woodland Lake	1	0.474	97.000
12-18-104-099	MACK, JACK & TRACY	Woodland Lake	1	0.661	117.000
12-18-104-100	HOLYSZKO, KEVIN & JERYLYN	Woodland Lake	1	0.776	178.000
12-18-104-101	ADLER BUILDING & DEVELOPMENT	Woodland Lake	1	0.629	142.000
12-18-104-102	ROBERTS, GARY	Woodland Lake	1	0.549	100.000
12-18-104-103	RAVINES TWO ASSOCIATES LLC	Woodland Lake	1		

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-18-104-104	SPIRES, LONNIE & CHRISTINE	Woodland Lake	1	0.576	100.000
12-18-104-105	ADLER BUILDING & DEVELOPMENT	Woodland Lake	1	0.652	110.000
12-18-104-106	ROBERTS, GARY	Woodland Lake	1	0.705	103.000
12-18-104-107	WOODS, MARK & LYNN	Woodland Lake	1	0.585	102.000
12-18-104-108	RAY, CLINTON R. & VICKIE L.	Woodland Lake	1	0.566	122.000
12-18-104-109	ROBERTS, GARY	Woodland Lake	1	0.490	118.000
12-18-104-110	ROBERTS, GARY	Woodland Lake	1	0.482	110.000
12-18-104-111	ROBERTS, GARY	Woodland Lake	1	0.459	100.000
12-18-104-112	RAVINES TWO ASSOCIATES LLC	Woodland Lake	1		
12-18-104-113	RAVINES TWO ASSOCIATES LLC	Woodland Lake	1		
12-18-104-114	WEDEKEMPER, DONALD E.	Woodland Lake	1	0.756	136.000
12-18-104-115	ROBERTS, GARY	Woodland Lake	1	0.657	130.000
12-18-104-116	ADLER BUILDING & DEVELOPMENT	Woodland Lake	1	0.494	97.000
12-18-104-117	ROBERTS, GARY	Woodland Lake	1	0.556	103.000
12-18-104-118	DOMBROWSKI, KEVIN & MARY	Woodland Lake	1	0.469	130.000
12-18-104-119	ADLER BUILDING & DEVELOPMENT	Woodland Lake	1	0.532	126.000
12-18-104-120	ADLER BUILDING & DEVELOPMENT	Woodland Lake	1	0.464	108.000
12-18-104-121	ROBERTS, GARY (PARK)	Woodland Lake	0	1.010	125.000
12-18-300-001	BONNER, LEON & MARILYN	Woodland Lake	3	0.620	0.000
12-18-300-004	GRIFFITH, RICHARD & MARY JO	Woodland Lake	14	0.588	200.000
12-18-300-005	ANDAL INVESTMENT INC	Woodland Lake	41	5.280	460.000
12-18-300-006	KALVENAS, RONALD & DOREEN	Woodland Lake	1	0.162	58.000
12-18-300-007	KANAKRY, JOSEPH & EARLE, YVON	Woodland Lake	1	0.165	48.000
12-18-300-008	BRONIKOWSKI, CLARENCE & STELL	Woodland Lake	1	0.185	48.000
12-18-300-009	FULLER, TIMOTHY & BARBARA	Woodland Lake	1	0.184	46.000
12-18-300-011	SHENG, LUKE & STELLA (VACANT)	Woodland Lake	1	27.600	0.000
12-18-300-012	GRIFFITH, RICHARD & MARY JO	Woodland Lake	5	0.811	186.000
12-18-300-016	KOVACH, TIM	Woodland Lake	1	0.515	67.000
12-18-301-001	SENTERS, MARC	Woodland Lake	1	1.102	75.000
12-18-301-002	VARCOE, BRIAN	Woodland Lake	1	1.009	75.000
12-18-301-003	ARTHUR, JOHN	Woodland Lake	2	0.916	75.000
12-18-301-004	SIMOFF REVOCABLE LIVING TRUST	Woodland Lake	1	0.823	75.000
12-18-301-005	MATLOCK, PATRICK & MARY	Woodland Lake	1	0.583	60.000
12-18-301-006	FAIRFIELD, ED & JUDD, MELINDA	Woodland Lake	1	0.964	115.000
12-18-301-007	HAAS, JOHN & SCHMOEKEL, RENEE	Woodland Lake	1	0.344	50.000
12-18-301-008	MICHAEL, CHARLES JR & TERESA	Woodland Lake	1	0.449	75.000
12-18-301-009	PANEK, ANGEL	Woodland Lake	1	0.631	100.000
12-18-301-012	WASILEWSKI, WALTER & JANE	Woodland Lake	1	0.382	75.000
12-18-301-013	WASILEWSKI, WALTER & JANE	Woodland Lake	1	1.231	145.000
12-18-301-014	CALDERONE, CHARLES JR & JUDIT	Woodland Lake	1	0.624	60.000
12-18-301-015	AGOSTA, JOSEPH & GINA	Woodland Lake	1	0.586	58.000
12-18-301-016	MONTGOMERY, JOHN & CATHLEEN	Woodland Lake	1	1.047	125.000
12-18-301-017	BUTTE, RICHARD & GAVIN, SANDRA	Woodland Lake	0	0.505	110.000
12-18-302-001	HAMILL, ROBIN A.	Woodland Lake	1	0.306	89.000
12-18-302-002	CLARK, ROBERT	Woodland Lake	1	0.207	60.000
12-18-302-003	JONES, RONALD & DONNA	Woodland Lake	1	0.207	60.000
12-18-302-004	THICK, ROBERT C.	Woodland Lake	1		
12-18-302-005	MCCOY, LARRY & BILLIE	Woodland Lake	1	0.207	60.000
12-18-302-006	JOHNSON, GLEN	Woodland Lake	1	0.207	60.000
12-18-302-007	CASCIO, DENNIS	Woodland Lake	1	0.207	60.000
12-18-302-008	LEE, RONALD & KATHARYN	Woodland Lake	1	0.207	60.000
12-18-302-009	KUPSKY, SUE	Woodland Lake	1		
12-18-302-010	PLACE, JERALD & JOYCE	Woodland Lake	1	0.230	100.000
12-18-302-011	RIVETTE, JOHN	Woodland Lake	1	0.207	60.000
12-18-302-014	CRYSLER, DOYLE & AGNES	Woodland Lake	1	0.207	60.000
12-18-302-015	WEASE, TRESSIE & NEWMAN, J M	Woodland Lake	1	0.207	60.000
12-18-302-016	CASCIO, SYLVESTER & DENNIS	Woodland Lake	1	0.207	60.000
12-18-302-017	BAYLIFF, WILLIAM	Woodland Lake	1	0.413	120.000
12-18-302-019	MILITELLO, RICHARD & DOLLY	Woodland Lake	1		
12-18-302-020	VACHON, PHILLIP	Woodland Lake	1		
12-18-302-021	SINGER, PAUL MICHAEL	Woodland Lake	1	0.207	60.000
12-18-302-022	MOLL, DONALD ROBERT	Woodland Lake	1	0.207	60.000
12-18-302-023	LONG, LOIS	Woodland Lake	1	0.207	60.000
12-18-302-024	JARVI, EUGENE & MARILYN	Woodland Lake	1	0.207	60.000
12-18-302-025	REECE, JAMES - ESTATE	Woodland Lake	1	0.207	60.000
12-18-302-026	BALOGH, RONALD MICHAEL	Woodland Lake	1	0.207	60.000
12-18-302-027	MILITELLO, RICHARD & DOLLY	Woodland Lake	1	0.207	60.000
12-18-302-028	HULETT, KENT SCOTT	Woodland Lake	1	0.207	60.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-18-302-029	BURGETT, MABEL & MILITELLO, D	Woodland Lake	1	0.207	60.000
12-18-302-030	ALBERT, GEOFFREY & JOANNA	Woodland Lake	1		
12-18-302-031	SAWYER, NIEVES	Woodland Lake	1	0.207	60.000
12-18-302-032	BRANT, CHARLES & CAROL	Woodland Lake	1	0.207	60.000
12-18-302-033	PERO, JENNIFER L.	Woodland Lake	1	0.207	60.000
12-18-302-034	LANE, MERRITT	Woodland Lake	1	0.207	60.000
12-18-302-035	ROMES, JERRY	Woodland Lake	1		
12-18-302-036	SCHWEDT, STEVEN A.	Woodland Lake	1	0.207	60.000
12-18-302-037	WAGGONER, ROBERT & BETTY	Woodland Lake	1	0.230	100.000
12-18-302-038	WOODLAND LK MOBILE HOME ASSOC. (PAR	Woodland Lake	0	0.000	0.000
12-18-302-039	ROMES, LOIS	Woodland Lake	1	0.370	62.000
12-18-302-040	LACO, JAMES & SANDRA	Woodland Lake	1	0.347	64.000
12-18-302-041	MOFFAT, PETER & CATHERINE	Woodland Lake	1	0.297	65.000
12-18-302-042	DAVIES, DENNIS & TERESA	Woodland Lake	1	0.261	65.000
12-18-302-043	TOMECEK, TOM	Woodland Lake	1	0.265	68.000
12-18-302-044	HANCHETT, DARYLE & CAROL	Woodland Lake	1	0.269	67.000
12-18-302-045	BIELOUS, KENNETH & LISA	Woodland Lake	1	0.281	67.000
12-18-302-046	KRAUSE, PAUL EDWARD	Woodland Lake	1	0.252	61.000
12-18-302-047	SHAW, ALBERT & IRIS ELAINE	Woodland Lake	1	0.234	61.000
12-18-302-048	CLINTON, JERRY R.	Woodland Lake	1	0.220	61.000
12-18-302-049	FINCH, PATRICK J.	Woodland Lake	1	0.213	61.000
12-18-302-050	JORDAN, ARTHUR & CHRISTINE	Woodland Lake	1	0.207	60.000
12-18-302-051	WOODLAND LAKE MOBILE HOME (PARK)	Woodland Lake	0	0.000	0.000
12-18-302-052	DAW, ALLEN & JUDITH	Woodland Lake	1	0.207	60.000
12-18-302-053	HOOK, ANNA & JOHN	Woodland Lake	1	0.207	60.000
12-18-302-056	KIGHTLINGER, RICHARD & DIANE	Woodland Lake	1	0.207	60.000
12-18-302-057	KOVACH, TOM J.	Woodland Lake	1	0.207	60.000
12-18-302-058	LAGRANT, SYLVIA	Woodland Lake	1	0.207	60.000
12-18-302-059	MAY, LUCIUS & LINDA	Woodland Lake	1	0.207	60.000
12-18-302-060	BERGUM, PAUL & MARY	Woodland Lake	1	0.207	60.000
12-18-302-061	FREDERIKSEN, PIA & JHANA	Woodland Lake	1	0.207	60.000
12-18-302-062	POWELL, JAMES WILLIAM	Woodland Lake	1	0.207	60.000
12-18-302-063	OSBORNE, JACK & SYLVIA	Woodland Lake	1	0.258	75.000
12-18-302-064	GRAHAM, MAURICE	Woodland Lake	1		
12-18-302-065	SMITH, JACK	Woodland Lake	1	0.373	123.000
12-18-302-066	SAWYER, LAWRENCE & DAWN	Woodland Lake	1	0.187	68.000
12-18-302-067	GARCIA, KELLY & ROBERT	Woodland Lake	1	0.252	60.000
12-18-302-068	WALTERS, DWIGHT & SUEAN	Woodland Lake	1	0.231	60.000
12-18-302-069	BIGGS, WILLIAM & PROCTOR, ROSIE	Woodland Lake	1	0.204	60.000
12-18-302-070	HRIGORA, EVELYN	Woodland Lake	1	0.248	120.000
12-18-302-071	SKAGGS, ELMER & VERA	Woodland Lake	1	0.413	120.000
12-18-302-072	MILLER, BRIAN L.	Woodland Lake	1	0.413	120.000
12-18-303-001	MOORE, HAZEN & HELEN	Woodland Lake	1	0.212	60.000
12-18-303-002	MACZIK, MADELINE	Woodland Lake	1	0.213	60.000
12-18-303-003	SCHLEICHER, DONALD H.	Woodland Lake	1	0.215	60.000
12-18-303-004	BROWN, KEITH & VICKI	Woodland Lake	1	0.216	60.000
12-18-303-005	SMITH, GEORGE & KATHLEEN	Woodland Lake	1	0.218	60.000
12-18-303-006	STONE, LIZBETH ANN	Woodland Lake	1	0.257	70.000
12-18-303-007	DALEY, HARRY	Woodland Lake	1	0.259	70.000
12-18-303-008	WOODLAND LAKE ASSOCIATES, INC.	Woodland Lake	1	0.260	70.000
12-18-303-009	HOWE, EDWARD J.	Woodland Lake	1	0.262	70.000
12-18-303-010	REYNOLDS, JAMES & HARRIET	Woodland Lake	1	0.264	70.000
12-18-303-011	ROBINS, FRANK & ARMINTA	Woodland Lake	1	0.207	60.000
12-18-303-012	JONES, ULANDA	Woodland Lake	1	0.207	60.000
12-18-303-013	HARHOLD, SALLY T.	Woodland Lake	1	0.207	60.000
12-18-303-014	MANGUS, VIRGINIA	Woodland Lake	1	0.207	60.000
12-18-303-015	MILITELLO, RICHARD & DOLLY	Woodland Lake	1	0.207	60.000
12-18-303-016	RUSSELL, VIVIAN	Woodland Lake	1	0.207	60.000
12-18-303-017	MASON, TUYON	Woodland Lake	1	0.207	60.000
12-18-303-018	BADOWSKI, RAYMOND & SANDRA	Woodland Lake	1		
12-18-303-019	KOSTELIC, MINNIE	Woodland Lake	1	0.207	60.000
12-18-303-020	KIRBY, BENNIE & MORRINE	Woodland Lake	1	0.207	60.000
12-18-303-021	MILITELLO, RICHARD & DOLLY	Woodland Lake	1	0.207	60.000
12-18-303-022	KOVACH, TOD J.	Woodland Lake	1	0.207	60.000
12-18-303-023	WHITFORD, EVAN & LISA	Woodland Lake	1	0.207	60.000
12-18-303-024	REEDY, CHAS & MARY	Woodland Lake	1	0.207	60.000
12-18-303-025	TOOHEY, MARGARET	Woodland Lake	1	0.207	60.000
12-18-303-026	LEE, RONALD & KATHARYN	Woodland Lake	1	0.207	60.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-18-303-027	NORRIS, BOBBIE	Woodland Lake	1	0.207	60.000
12-18-303-028	LACY, SUSAN D. & LOU	Woodland Lake	1	0.207	60.000
12-18-303-029	GOULET, LAWRENCE J.	Woodland Lake	1	0.207	60.000
12-18-303-030	SONNANSTINE, GREG	Woodland Lake	1	0.207	60.000
12-18-303-031	LEE, RONALD C & KATHRYN M	Woodland Lake	1	0.207	60.000
12-18-303-032	CLAUSEN, JAMES M.	Woodland Lake	1	0.207	60.000
12-18-303-033	WARD, MICHAEL D.	Woodland Lake	1	0.207	75.000
12-18-303-034	WHITE, VIRGINIA & GARY	Woodland Lake	1	0.207	75.000
12-18-303-035	BOIK, BYRON G.	Woodland Lake	1	0.207	75.000
12-18-303-036	BROWN, MICHAEL & DAWN	Woodland Lake	1	0.207	75.000
12-18-303-039	D'ANGELO, T. & VANZO, M.	Woodland Lake	1	0.413	120.000
12-18-303-040	MOSHER, ROSE	Woodland Lake	1	0.413	120.000
12-18-303-041	DAVIS, CALVIN & CAROLYN	Woodland Lake	1	0.413	120.000
12-18-303-043	TRIGLIA, PAUL & MAGDALENE	Woodland Lake	1	0.207	60.000
12-18-303-044	RICE, RAYMOND & ALICE	Woodland Lake	1	0.207	60.000
12-18-303-046	STOLL, VICKI	Woodland Lake	1	0.207	60.000
12-18-303-047	BOUGH, ROBERT & NOELLE	Woodland Lake	1	0.207	60.000
12-18-303-048	PETERSON, JAMES & LOIS	Woodland Lake	1	0.413	120.000
12-18-303-049	HARMS, DORIS	Woodland Lake	1	0.207	60.000
12-18-303-050	KELLER, HAROLD VICTOR	Woodland Lake	1	0.207	60.000
12-18-303-051	HILL, LAWRENCE	Woodland Lake	1	0.413	120.000
12-18-303-052	HARRISON & HARRSION ET AL	Woodland Lake	1	0.207	60.000
12-18-303-053	CASCIO, JIMMY	Woodland Lake	1	0.207	60.000
12-18-303-054	DUFRESNE, DAVID & COX, LOUISE	Woodland Lake	1	0.413	120.000
12-18-303-055	LAURIDSEN, LEROY	Woodland Lake	1	0.413	120.000
12-18-303-056	MANN, ADA	Woodland Lake	1	0.413	120.000
12-18-303-057	GENDRON, GERALD & CHERYL	Woodland Lake	1	0.413	120.000
12-18-303-058	SHEKELL, ROBERT E.	Woodland Lake	1	0.207	60.000
12-18-303-059	MALE, LEONARD	Woodland Lake	1	0.207	60.000
12-18-303-060	PIKE, A.J.	Woodland Lake	1	0.207	60.000
12-18-303-061	CISSNEY, HELEN & REXANN	Woodland Lake	1	0.207	60.000
12-18-303-062	NOLAN, JOANN	Woodland Lake	1	0.413	120.000
12-18-303-063	SCHEFKA, GEORGE & JUNE	Woodland Lake	1	0.413	120.000
12-18-303-065	MUNRATH, L. & EGGRAAT, L.	Woodland Lake	1	0.413	120.000
12-18-303-067	CAFINI, CARLYLE & LYNNE	Woodland Lake	1	0.413	120.000
12-18-303-068	NELSON, THOMPSON & CROSS	Woodland Lake	1	0.207	60.000
12-18-303-069	CUMMINGS, FAITH S.	Woodland Lake	1		
12-18-303-070	FIFER, JACK R.	Woodland Lake	1	0.207	75.000
12-18-303-071	DEMSKI, RICHARD	Woodland Lake	1		
12-18-303-072	MOORE, BARBARA & DUWAYNE	Woodland Lake	1	0.310	90.000
12-18-303-073	GOWER, GEORGE	Woodland Lake	1	0.258	75.000
12-18-303-074	UNDERWOOD, JACKIE & MICKEY	Woodland Lake	1	0.258	75.000
12-18-303-075	ALLEN, FLOYD & JOANNE	Woodland Lake	1	0.413	120.000
12-18-303-076	PORR, CARL	Woodland Lake	1	0.413	120.000
12-18-303-078	SWEET, CLARENCE & JUNE	Woodland Lake	1	0.413	120.000
12-18-303-079	HOWARD, RAYMOND & JENNIE	Woodland Lake	1	0.413	120.000
12-18-303-080	PAWLAK, BRIAN & CAROLYN	Woodland Lake	1	0.207	60.000
12-18-303-081	HUBERT, CYNTHIA	Woodland Lake	1	0.413	120.000
12-18-303-082	HUBERT, CYNTHIA	Woodland Lake	1	0.413	120.000
12-18-303-086	LINHART, MARY	Woodland Lake	1	0.207	60.000
12-18-303-087	ROWAN, MICHAEL & LINDA	Woodland Lake	1	0.207	60.000
12-18-303-088	TRIGLIA, PAUL	Woodland Lake	1	0.207	60.000
12-18-303-089	PAZIK, ROGER	Woodland Lake	1	0.207	60.000
12-18-303-090	FIRST NATIONAL ACCEPTANCE CO.	Woodland Lake	1	0.207	60.000
12-18-303-091	LAMBDIN, VERA	Woodland Lake	1	0.413	120.000
12-18-303-092	HUBERT, CYNTHIA	Woodland Lake	1	0.482	140.000
12-18-303-093	HUBERT, WANDA	Woodland Lake	1	0.344	100.000
12-18-304-001	SIMMERING, LINDA	Woodland Lake	1	0.216	56.000
12-18-304-004	LOVELAND, ANNE	Woodland Lake	1	0.496	107.000
12-18-304-005	DAVIS, DONALD & DEBORAH	Woodland Lake	1	0.310	60.000
12-18-304-006	GEISLER, DEBORAH & WILSON, JOHN	Woodland Lake	1	0.275	55.000
12-18-304-009	SWEESO, MARK & JILL	Woodland Lake	1	0.187	50.000
12-18-304-010	ROBERTSON, JAMES	Woodland Lake	1	0.199	55.000
12-18-304-011	PRATT TRUST	Woodland Lake	1	0.174	50.000
12-18-304-012	SULKOWSKI, MARIAN	Woodland Lake	1	0.173	50.000
12-18-304-013	SULKOWSKI, MARIAN	Woodland Lake	1	0.172	50.000
12-18-304-014	OWOC, DALLAS W.	Woodland Lake	1	0.171	50.000
12-18-304-015	HAMLIN, GARY & THERESA	Woodland Lake	1	0.170	50.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-18-304-016	FENNER, BARBARA	Woodland Lake	1	0.169	50.000
12-18-304-017	ZABROSKY, JOSEPH & CHRISTINE	Woodland Lake	1	0.168	50.000
12-18-304-018	FRANKFORD, ELMER & JOYCE	Woodland Lake	1	0.166	50.000
12-18-304-019	MITTER, DAVID & KARRIE	Woodland Lake	1	0.174	50.000
12-18-304-020	COREY, RICHARD, ELEANOR, GAIL	Woodland Lake	1	0.192	50.000
12-18-304-021	MITTER, GARY SR & MARGARET	Woodland Lake	1	0.210	50.000
12-18-304-022	TREMAINE, DORIS	Woodland Lake	1	0.208	49.000
12-18-304-023	EVANS, WILLIAM & VIRGINIA	Woodland Lake	1	0.215	57.000
12-18-304-024	PETERSON, RONALD & CAROL	Woodland Lake	1	0.163	53.000
12-18-304-025	TENGEL, DEAN & CAROL	Woodland Lake	1	0.131	55.000
12-18-304-026	MASHNI, JOSEPH & HARRIET	Woodland Lake	1	0.101	71.000
12-18-304-027	MASHNI, JOSEPH & HARRIET	Woodland Lake	1	0.148	76.000
12-18-304-028	GUARD, DEAN & CHERYL	Woodland Lake	1	0.185	76.000
12-18-304-029	MOORE, ROBERT & PATRICIA	Woodland Lake	1	0.144	54.000
12-18-304-030	GODDARD, RALPH & PATRICIA	Woodland Lake	1	0.305	53.000
12-18-304-031	GIGNAC, DAVID & VICKY	Woodland Lake	1	0.281	57.000
12-18-304-032	RESTAURI, DONALD A.	Woodland Lake	1	0.216	50.000
12-18-304-033	SMITH, JEANNE	Woodland Lake	1	0.195	50.000
12-18-304-034	MOORE, BRUCE & BARBARA	Woodland Lake	1	0.174	50.000
12-18-304-035	MOORE, BRUCE & BARBARA	Woodland Lake	1	0.157	50.000
12-18-304-036	MURAV, AVERY & SUSAN	Woodland Lake	1	0.157	50.000
12-18-304-037	MARK MUSSELMAN	Woodland Lake	1		
12-18-304-038	DOLL, ROGER & CYNTHIA	Woodland Lake	1	0.201	50.000
12-18-304-039	ADAMS, JOHN & MARY ANN	Woodland Lake	1	0.211	50.000
12-18-304-040	ADAMS, THOMAS & JOAN	Woodland Lake	1	0.223	50.000
12-18-304-041	SZKRYBALO, KENNETH	Woodland Lake	1	0.233	50.000
12-18-304-042	BROOKS, SUSAN MARIE	Woodland Lake	1	0.242	50.000
12-18-304-043	UTLEY, DANIEL & HELEN	Woodland Lake	1	0.248	50.000
12-18-304-044	KIRK, RONALD W.	Woodland Lake	1	0.244	50.000
12-18-304-045	SARNA, JAMES & SUZANNE	Woodland Lake	1	0.242	50.000
12-18-304-046	RONEWICZ, STELLA	Woodland Lake	1	0.240	50.000
12-18-304-047	SHONER, DENNIS & BRENDA	Woodland Lake	1	0.236	50.000
12-18-304-048	ALLEN, MARIE AGNES	Woodland Lake	1	0.234	50.000
12-18-304-049	CHIPPI, RICHARD	Woodland Lake	1	0.245	53.000
12-18-304-050	PERKINS, BRUCE	Woodland Lake	1	0.223	55.000
12-18-304-051	BARTH, WALTER & SUSAN	Woodland Lake	1	0.289	62.000
12-18-304-053	MILITELLO, EDWARD	Woodland Lake	1	0.206	56.000
12-18-304-054	MILITELLO, EDWARD	Woodland Lake	1	0.222	55.000
12-18-305-001	DURKEE, PAUL	Woodland Lake	1	0.258	75.000
12-18-305-002	METZ, GARY & FARNSWORTH, BARB	Woodland Lake	1	0.258	75.000
12-18-305-003	AMRHEIN, WILLIAM & BETTY	Woodland Lake	1	0.258	75.000
12-18-305-004	HOFF, DUANE & PATRICIA	Woodland Lake	1	0.258	75.000
12-18-305-005	CORBAY, STEVEN & SHAW, AMY	Woodland Lake	1	0.258	75.000
12-18-305-006	CHENEVERT, MARK	Woodland Lake	1	0.258	75.000
12-18-305-007	RICKARD, DARELL & CHRISTINE	Woodland Lake	1	0.258	75.000
12-18-305-008	GRISDELA, PAUL & KATHLEEN	Woodland Lake	1	0.285	80.000
12-18-305-009	BRENNAN, JEANNE & RUSS, MARK	Woodland Lake	1	0.258	75.000
12-18-305-010	WOODLAND LAKE ESTATES PROP OW (PAR	Woodland Lake	0	0.000	0.000
12-18-305-011	MCHENRY, PATRICK & DONNA	Woodland Lake	1	0.250	75.000
12-18-305-012	LARUE, JACK & FRANCES	Woodland Lake	1	0.277	75.000
12-18-305-013	MATEWICZ, NICK & STELLA	Woodland Lake	1	0.277	75.000
12-18-305-014	COYKENDALL, JEFFREY & TRACY	Woodland Lake	1	0.279	75.000
12-18-305-015	WOODLAND LAKE ESTATES PROP OW (PAR	Woodland Lake	0	0.000	0.000
12-18-305-016	FOX, EDWARD & CHERIE (VACANT)	Woodland Lake	1	3.200	0.000
12-18-305-017	NASIATKA, MICHAEL & JILL	Woodland Lake	1	0.258	75.000
12-18-305-018	SPINALE, CHARLES & CAROL	Woodland Lake	1	0.258	75.000
12-18-305-019	HAWKENS, LEO & DOROTHY	Woodland Lake	1	0.258	75.000
12-18-305-020	GARDNER, JEAN	Woodland Lake	1	0.258	75.000
12-18-305-021	KRAFT, GREGORY & SUSAN	Woodland Lake	1	0.258	75.000
12-18-305-022	CARROLL, JOHN & ANNE	Woodland Lake	1	0.258	75.000
12-18-305-023	CAMPBELL, JESSE & GEORGENE	Woodland Lake	1	0.258	75.000
12-18-305-024	CISMAN, ALBERT MARVIN	Woodland Lake	1	0.258	75.000
12-18-305-025	DUMAN, MICHAEL & PAMELA	Woodland Lake	1	0.296	75.000
12-18-305-026	FULLER, RICHARD T.	Woodland Lake	1	0.270	75.000
12-18-305-027	HUFFINE, DOUGLAS & SHANNON	Woodland Lake	1	0.258	75.000
12-18-305-028	COURSEY, JAMES & CHARLENE	Woodland Lake	1		
12-18-305-029	ORLANDO, DOMENICO & MARIA	Woodland Lake	1	0.258	75.000
12-18-305-030	SLOBIN, IRENE	Woodland Lake	1	0.258	75.000

TAX ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-18-305-031	BELL, MICHAEL & LINDA	Woodland Lake	1	0.258	75.000
12-18-305-032	TURNBLOM, LINDA	Woodland Lake	1	0.258	75.000
12-18-305-033	LEVI, JAMES & DENISE	Woodland Lake	1	0.258	75.000
12-18-305-034	REDDEMAN, MARY ANNE	Woodland Lake	1	0.207	60.000
12-18-305-035	LOMBARDO, CATHRINE	Woodland Lake	1	0.614	107.000
12-18-305-036	DUQUETTE, ROBERT & ARLENE	Woodland Lake	1	0.483	78.000
12-18-305-038	BARNES, KENNETH & MARLENE	Woodland Lake	1	0.481	80.000
12-18-305-039	LOVE, LARRY & NANCY	Woodland Lake	1	0.438	72.000
12-18-400-026	HIDEAWAY WOODS DEVELOPMENT, INC (VA	Woodland Lake	1	9.209	0.000
12-18-400-027	JOHNSON, CLARENCE (VACANT)	Woodland Lake	1	12.181	0.000
12-19-102-001	BALMER, DAVID & ANITA	Woodland Lake	1	0.279	152.000
12-19-102-002	ROCHE, LAURENCE T.	Woodland Lake	1	0.137	50.000
12-19-102-003	YOUNG, JOHN & DEBORAH	Woodland Lake	1	0.137	50.000
12-19-102-006	ALBRECHT, ROBERT & CARLA	Woodland Lake	1	0.273	100.000
12-19-102-009	DENNIS, BETTY	Woodland Lake	1	0.273	100.000
12-19-102-011	MILITELLO, RICHARD & DOLLY	Woodland Lake	1	0.299	109.000
12-19-102-012	MILITELLO, RICHARD, DOLLY & TONY	Woodland Lake	1	0.165	60.000
12-19-102-013	VAUGHT, THOMAS & LINDA	Woodland Lake	1	0.215	85.000
12-19-102-014	MANKE, LISA, A.	Woodland Lake	1	0.209	65.000
12-19-102-015	PEAT, JOHN WILLIAM	Woodland Lake	1	0.172	50.000
12-19-102-016	CARTER, MICHELLE & WARR, JASON	Woodland Lake	1	0.172	50.000
12-19-102-017	LUCAS, MAURICE & LOIS	Woodland Lake	1	0.344	100.000
12-19-102-019	GAUSS, DAVID & JACQUELINE	Woodland Lake	1	0.344	100.000
12-19-102-021	SEGLER, JOSEPH & SALLY	Woodland Lake	1	0.279	81.000
12-19-102-022	DUCATO, FRANK & PATRICIA	Woodland Lake	1	0.544	50.000
12-19-102-023	ROGERS, JOHN	Woodland Lake	1	0.541	50.000
12-19-102-024	HOWARD, JENNIE & RAYMOND	Woodland Lake	1	0.498	50.000
12-19-102-025	DAVIS, RAYMOND & CYNTHIA	Woodland Lake	1	0.418	50.000
12-19-102-026	CARLISI, RUTH & GARDNER, FRED.	Woodland Lake	1	0.367	55.000
12-19-102-027	ST JOHN, CLARENCE	Woodland Lake	1	0.285	55.000
12-19-102-028	HARRIS TRUST	Woodland Lake	1	0.223	55.000
12-19-102-029	SCHMITT, RAYMOND	Woodland Lake	1	0.199	57.000
12-19-102-031	CAMPBELL, JEANETTE B.	Woodland Lake	1	0.364	114.000
12-19-102-034	MILITELLO, EDWARD	Woodland Lake	1	0.225	53.000
12-19-102-035	MONTGOMERY, JAMES & CELESTE	Woodland Lake	1	0.331	60.000
12-19-102-036	O'HARA, DONNA & TERRY M	Woodland Lake	1	0.359	63.000
12-19-102-037	SZYMANSKI, SIGMUND & VIRGINIA	Woodland Lake	1	0.386	60.000
12-19-102-038	LESNIAK, MARK & DENISE	Woodland Lake	1	0.366	52.000
12-19-102-039	FARRELL, BRIAN & MARYETTA	Woodland Lake	1	0.273	100.000
12-19-102-040	BENNETT, STEVEN & CLAUDIA	Woodland Lake	1	0.218	73.000
12-19-102-041	LEADER, DARLINE HUGHES	Woodland Lake	1	0.227	71.000
12-19-103-001	LINENGER, DONALD & FRANCES	Woodland Lake	1	0.220	69.000
12-19-103-002	PUFFPAFF, ALBERT & DOROTHY	Woodland Lake	1	0.215	68.000
12-19-103-003	LINENGER, ROBERT & JUNE	Woodland Lake	1	0.375	109.000
12-19-103-004	TOMPKINS, EFFIE	Woodland Lake	1	0.256	120.000
12-19-103-005	PITT, TERRY & CYNTHIA	Woodland Lake	1	0.207	120.000
12-19-103-006	BARR, WANDA	Woodland Lake	1	0.155	65.000
12-19-103-007	VAN ANTWERP, PAUL & DONNA	Woodland Lake	1	0.152	92.000
12-19-103-008	DENSMORE, SYLVIA KATHLEEN	Woodland Lake	1	0.211	91.000
12-19-103-009	HALBROOK, DENNIS & KAREN	Woodland Lake	1	0.248	80.000
12-19-103-010	MITCHELL, STEPHEN & BARBARA	Woodland Lake	1	0.216	100.000
12-19-103-011	ROBERTS, JOSEPH	Woodland Lake	1	0.141	61.000
12-19-103-012	KAY TRUST	Woodland Lake	1	0.262	95.000
12-19-103-013	BEAMISH, DALE	Woodland Lake	1	0.058	42.000
12-19-103-014	BEAMISH, EVELYN & DALE	Woodland Lake	1	0.160	35.000
12-19-200-002	WEGRZYN FAMILY TRUST	Woodland Lake	4	39.837	400.000
12-19-200-006	FIELD TRUST	Woodland Lake	1	0.059	15.000
12-19-200-007	GREGOR, JOHN & DIANE	Woodland Lake	0	0.996	140.000
12-19-200-008	WATERS, PAMELA LYNN	Woodland Lake	1	0.964	120.000
12-19-200-012	VARJABEDIAN, GREGORY	Woodland Lake	1	1.688	132.000
12-19-201-003	MCEVOY, KIM MARIE	Woodland Lake	1	0.171	62.000
12-19-201-004	TESCHKER, JENNIFER	Woodland Lake	1		
12-19-201-005	GARING, MARY	Woodland Lake	1	0.142	50.000
12-19-201-006	MEGAL, CAROLYN & YAVER, PERRY	Woodland Lake	1	0.317	100.000
12-19-201-008	DENKHAUS, DAVID & DIANE	Woodland Lake	1	0.158	50.000
12-19-201-009	DOLL, ROGER & CYNTHIA	Woodland Lake	1	0.158	50.000
12-19-201-010	DOLL, ROGER & CYNTHIA	Woodland Lake	1	0.193	61.000
12-19-201-017	CERVENAN, RONALD & SHIRLEY	Woodland Lake	1	0.273	40.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-19-201-018	CERVENAN, RONALD & SHIRLEY	Woodland Lake	1	0.287	39.000
12-19-201-019	ROBERTS, GORDON	Woodland Lake	1	0.362	52.000
12-19-201-020	TAYLOR, DOUGLAS JR	Woodland Lake	1	0.277	50.000
12-19-201-024	PIZZUTI, MICHAEL & PAMELA	Woodland Lake	1	0.185	42.000
12-19-201-025	MOORE, GAIL	Woodland Lake	1	0.176	48.000
12-19-201-026	STEPHENS, GARY	Woodland Lake	1	0.184	50.000
12-19-201-027	VINCENT & ETAL	Woodland Lake	1	0.184	50.000
12-19-201-028	BENSON, DANIEL	Woodland Lake	1	0.184	50.000
12-19-201-029	LAWRENCE, STANLEY & PAULA	Woodland Lake	1	0.431	102.000
12-19-201-030	HENRY, MARION	Woodland Lake	1	0.231	61.000
12-19-201-031	SCHULKE, TERESA	Woodland Lake	1	0.203	57.000
12-19-201-032	BUSLEPP, KENNETH	Woodland Lake	1	0.337	113.000
12-19-201-034	MOONEY, TIMM	Woodland Lake	1	0.198	65.000
12-19-201-036	SIMONE, KEVIN PATRICK	Woodland Lake	1	0.116	38.000
12-19-201-037	HARRISON, JULIE LYNN	Woodland Lake	1	0.203	52.000
12-19-201-038	JACK B. ANGLIN COMPANY	Woodland Lake	1	0.421	102.000
12-19-201-042	JERUZAL, THOMAS	Woodland Lake	1	0.408	101.000
12-19-201-043	SNYDER, TED & ALICE	Woodland Lake	1	0.370	100.000
12-19-201-044	FRANCHI LIVING TRUST	Woodland Lake	1	0.169	47.000
12-19-201-045	MCKNIGHT, KENNETH & KAREN	Woodland Lake	1	0.191	48.000
12-19-201-046	SMITH, THOMAS & ANN	Woodland Lake	1	0.193	51.000
12-19-201-047	CAIN, LEO & HELEN	Woodland Lake	1	0.181	51.000
12-19-201-048	ORAN, KENNETH & MARY	Woodland Lake	1	0.191	53.000
12-19-201-049	NIEBRZYDOWSKI, STEPHEN	Woodland Lake	1	0.213	53.000
12-19-201-050	TARRY, JACK & BETH	Woodland Lake	1	0.247	55.000
12-19-201-051	HATFIELD, DONALD & DIANE	Woodland Lake	1	0.248	51.000
12-19-201-052	HOUSTON, VIRGINIA	Woodland Lake	1	0.306	65.000
12-19-201-053	BUCALO, BARBARA	Woodland Lake	1	0.157	53.000
12-19-201-054	STEPHENS, J.E. & CHRISTINE A.	Woodland Lake	1	0.174	62.000
12-19-201-055	ALLEN, NORMAN & LUCILLE	Woodland Lake	1	0.187	76.000
12-19-201-056	SWAMBA, EDWARD	Woodland Lake	1	0.210	89.000
12-19-201-057	TEEPLE, WILLIAM & PAULA	Woodland Lake	1	0.246	103.000
12-19-201-060	GRAHAM, JERRY	Woodland Lake	1	0.250	63.000
12-19-201-061	VEILLEUX, GERALDINE	Woodland Lake	1	0.925	173.000
12-19-201-062	WATERS, PAMELA LYNN	Woodland Lake	1	0.308	133.000
12-19-201-063	FIELD TRUST	Woodland Lake	1	0.525	127.000
12-19-201-064	MAHONEY, TIMOTHY & SUE	Woodland Lake	1	0.579	180.000
12-19-201-065	NICHOLAS, SUE & JENKINS, DAVID	Woodland Lake	1	0.481	131.000
12-19-201-066	GRIMA, JOHN & FLORENCE	Woodland Lake	1	0.376	100.000
12-19-201-067	QUEENER, DOUGLAS & JANICE	Woodland Lake	1	0.370	127.000
12-19-202-001	LOWELL, MARK JONATHAN	Woodland Lake	1	0.904	160.000
12-19-202-002	CONNOR, PATRICK & VICTORIA	Woodland Lake	1	0.924	165.000
12-19-202-003	SULLIVAN, DAVID & ROBERTA FAY	Woodland Lake	1	0.911	164.000
12-19-202-004	SEREMJIAN, CHARLES & BRENDA	Woodland Lake	1	1.302	162.000
12-19-202-005	LINHART, RONALD & SHEILA	Woodland Lake	1	1.293	176.000
12-19-202-006	FENECH, ALAN & ROBERTA	Woodland Lake	1	1.140	170.000
12-19-202-007	TREPANIER, RAYMOND & CYNTHIA	Woodland Lake	1	0.964	170.000
12-19-202-008	TAYLOR, RUSSELL & JOANN	Woodland Lake	1	0.868	210.000
12-19-202-009	BOLAND, ELIZABETH	Woodland Lake	1	0.973	163.000
12-19-202-010	LOUGHEAD, WILLIAM & SHARON	Woodland Lake	1	0.505	220.000
12-19-202-011	HAWKER, CRAIG & JOAN	Woodland Lake	1	0.663	170.000
12-19-202-012	BRUCKMAN, JACK & LYNN	Woodland Lake	1	0.766	145.000
12-19-202-013	THORNE, ROBERT & HUSKEY, ROBERT	Woodland Lake	1	0.799	145.000
12-19-202-014	WARNER, OLIVER & JEAN	Woodland Lake	1	0.773	132.000
12-19-202-015	GRAPENTIEN, FRANK & ANITA	Woodland Lake	1	0.855	149.000
12-19-202-016	FOLLMER TRUST	Woodland Lake	1	0.732	145.000
12-19-202-017	NASTANSKI, JAMES & SANDRA	Woodland Lake	1	0.882	155.000
12-19-202-018	HALE, R. STEVEN & MARY	Woodland Lake	1	0.926	142.000
12-19-202-019	PERLBERG, RICHARD & KATHLEEN	Woodland Lake	1	0.904	134.000
12-19-202-020	MCMANUS, MICHAEL & JANE	Woodland Lake	1	0.838	146.000
12-19-202-021	SITAREK, EDWARD & AMELIA	Woodland Lake	1	1.065	160.000
12-19-202-023	AMMON, KEITH & JUDITH	Woodland Lake	1	1.119	212.000
12-19-202-024	KRAMER, MICHAEL & DONNA	Woodland Lake	1	1.325	156.000
12-19-202-025	SUYAK, JOHN	Woodland Lake	1	0.758	220.000
12-19-202-026	TRAPPERS COVE (PARK)	Woodland Lake	0	0.000	0.000
12-19-203-001	TAYLOR, NORMAN & STURM, WENDY	Woodland Lake	1	0.686	148.000
12-19-203-002	COCHRANE, WILLIAM & BARBARA	Woodland Lake	1	0.673	143.000
12-19-203-003	KLENK, LAWRENCE & MELANIE	Woodland Lake	1	0.727	148.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-19-203-004	JACOBS, JEFFREY & KAREN LYNN	Woodland Lake	1	0.768	157.000
12-19-203-005	SAXMAN, BRAD & LEANNE	Woodland Lake	1	0.750	270.000
12-19-203-006	VARJABEDIAN, G. & LEPOUDRE, C.	Woodland Lake	1	0.815	132.000
12-19-203-007	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.826	155.000
12-19-203-008	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.757	113.000
12-19-203-009	BOAL, BRETT & SHEPPARD, LISA M	Woodland Lake	1	0.801	192.000
12-19-203-010	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.834	136.000
12-19-203-011	TOPOLSKI, WILLIAM & COLLEEN	Woodland Lake	1	0.836	155.000
12-19-203-012	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.514	94.000
12-19-203-013	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.822	141.000
12-19-203-014	CARRUTHERS, DALE & SUSAN	Woodland Lake	1	0.880	154.000
12-19-203-015	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	1.146	157.000
12-19-203-016	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.947	83.000
12-19-203-017	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	1.085	153.000
12-19-203-018	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.616	109.000
12-19-203-019	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.566	113.000
12-19-203-020	HANNER, PATRICK & CAROL	Woodland Lake	1	0.673	137.000
12-19-203-021	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.592	120.000
12-19-203-022	WOODLAND BLUFFS DEVELOPMENT	Woodland Lake	1	0.590	120.000
12-19-203-023	WOODLAND BLUFFS DEVELOPMENT (PARK)	Woodland Lake	0	0.000	0.000
12-19-203-024	WOODLAND BLUFFS DEVELOPMENT (PARK)	Woodland Lake	0	0.000	0.000
12-19-400-009	FRAKES, KELLY	Woodland Lake	1	1.300	0.000
12-19-400-010	DEPARTMENT NATURAL RESOURCES	Woodland Lake	1	3.500	0.000
12-19-400-011	STONE QUIGLEY PROPERTIES	Woodland Lake	3	0.821	275.000
12-19-400-014	SANDERS, JOSEPH & MARY	Woodland Lake	1	1.200	0.000
12-19-400-015	ZABROSKY, THOMAS	Woodland Lake	1	1.970	0.000
12-19-400-016	WISE, ERNEST E.	Woodland Lake	3	0.275	60.000
12-19-400-017	WISE, ERNEST E.	Woodland Lake	0	0.257	56.000
12-19-400-018	DOMBROWSKI, SCOTT & JULIE	Woodland Lake	1	1.000	0.000
12-19-400-019	GNADT, FREDERICK & YVONNE	Woodland Lake	0	0.000	0.000
12-20-100-004	DEVLIN, BRUCE & CHRISTINE	Woodland Lake	1	0.771	100.000
12-20-100-005	WALLA, OLGA & TAPPEN, JUDITH	Woodland Lake	1	0.668	82.000
12-20-100-006	HARRISON, LAWRENCE & FAY	Woodland Lake	1	0.847	100.000
12-20-100-007	HALABU, SHAMIL & LAURA	Woodland Lake	1	0.624	160.000
12-20-100-008	GOBEILLE, PAUL & DEBRA	Woodland Lake	1	0.344	100.000
12-20-100-009	NEEDHAM, JILL	Woodland Lake	1	0.425	75.000
12-20-100-010	ROBERTS, TIMOTHY JR & ALI	Woodland Lake	1	0.398	75.000
12-20-100-011	BASINGER, EMERSON & JEANNINE	Woodland Lake	1	0.441	80.000
12-20-100-012	LEE, SCOTT K.	Woodland Lake	1	0.643	70.000
12-20-100-013	PRINCE, THOMAS & VALERIE	Woodland Lake	1	1.377	150.000
12-20-100-014	JOHNSON, WILLIAM & SUSAN	Woodland Lake	1	2.571	280.000
12-20-100-015	WEGRZYN, WALTER & BEATRICE	Woodland Lake	1	5.216	284.000
12-20-100-016	WOYCIK, PAUL & DOROTHY	Woodland Lake	1	0.803	100.000
12-20-100-017	THURSTON, JOHN & YEOMANS, MARY	Woodland Lake	1	0.735	100.000
12-20-100-018	TEACHOUT, JACK & HUNT, CATHERI	Woodland Lake	1	0.624	90.000
12-20-100-020	KURNIK, CASIMER & FRANCES	Woodland Lake	1	0.448	50.000
12-20-100-021	SAMPBELL, CHARLES A.	Woodland Lake	1		
12-20-100-022	LANE, DONALD & MARIA	Woodland Lake	1	0.121	35.000
12-20-100-023	TOTH, ROBERT	Woodland Lake	1	0.671	75.000
12-20-100-028	MANCINI, DOUGLAS	Woodland Lake	1	2.548	300.000
12-20-100-029	ADAMS, JAMES & WENDY	Woodland Lake	1	0.735	100.000
12-20-100-030	BOSAK, MICHAEL & DIANNE	Woodland Lake	1	1.800	0.000
12-20-100-031	JONES, SANDRA JANE	Woodland Lake	1	1.150	0.000
12-20-100-033	LOVE, ROBERT & JOYCE	Woodland Lake	1	0.735	80.000
12-20-100-035	GRIFFITH, DAVID & BELINDA	Woodland Lake	1	1.091	167.000
12-20-100-036	WOYCIK, PAUL & DOROTHY	Woodland Lake	1	0.689	100.000
12-20-100-038	LOOS, HOWARD	Woodland Lake	1	0.230	50.000
12-20-100-044	COLLINS, JAMES & JUDITH	Woodland Lake	1	0.607	135.000
12-20-100-048	CORNERSTONE EVANGELICAL CHURCH	Woodland Lake	8	19.340	0.000
12-20-100-051	BULLARD, TROY	Woodland Lake	1	2.858	150.000
12-20-100-053	KRIST, WILLIAM & DONNA	Woodland Lake	1	2.100	0.000
12-20-100-054	KRIST, WILLIAM & CHERYL	Woodland Lake	1	1.430	0.000
12-20-100-055	CORRIVEAU, MARC RICHARD	Woodland Lake	2		
12-20-100-057	JONES, SANDRA JANE	Woodland Lake	1	3.290	0.000
12-20-100-058	MULLALY, BRIAN A.	Woodland Lake	1		
12-20-100-059	MULLALY, BRIAN A.	Woodland Lake	1		
12-20-300-001	STOCKLINE, LARRY & KATHLEEN	Woodland Lake	1	8.020	0.000
12-20-300-016	BELCHER, CHARLES	Woodland Lake	1	0.500	100.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-20-300-017	REESE, SUSAN	Woodland Lake	1	1.000	0.000
12-20-300-046	YOUNG TRUST	Woodland Lake	1	0.831	166.000
<b>TOTALS =</b>	<b>1,189 CUSTOMERS</b>		<b>1646</b>	<b>916.286</b>	<b>118839.33</b>



**BRIGHTON TOWNSHIP, MICHIGAN  
WEST GRAND RIVER WATER SYSTEM  
PRELIMINARY ASSESSMENT ROLL**

**DECEMBER 23, 1998**

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-18-300-003	HALE TRUST	West Grand River	1	0.467	84.000
12-18-300-013	SEASER, PAUL & KATHERINE	West Grand River	1	0.515	103.000
12-18-300-014	BROOKS, RAYMOND & SUSAN	West Grand River	1	0.526	120.000
12-18-300-015	MOORE, JOHN & GEORGINA	West Grand River	1	0.444	121.000
12-18-300-018	SONNANSTINE, GREG	West Grand River	1	0.854	157.000
12-18-300-025	SONNANSTINE, GREG	West Grand River	50	8.237	520.000
12-18-300-026	HALLER, JEFFREY & GAIL	West Grand River	1	0.544	100.000
12-19-100-006	RIEBLING, PAUL & KAREN	West Grand River	1	0.652	167.000
12-19-100-007	First of America Bank	West Grand River	2		
12-19-100-008	PIGGINS, WILLIAM	West Grand River	5	1.880	210.000
12-19-100-010	ROYCE PROPERTIES I, L.L.C.	West Grand River	1	0.367	100.000
12-19-100-011	SINGH, HARBHAJAN & SHANTI	West Grand River	0	0.149	50.000
12-19-100-012	SINGH, HARBHAJAN & SHANTI	West Grand River	0	0.379	209.000
12-19-100-013	GRIFFITH, RICHARD & MARY JO	West Grand River	0	0.032	83.000
12-19-100-014	DAVIS, STEPHEN	West Grand River	1	1.877	83.000
12-19-100-016	GARDNER, RICHARD	West Grand River	1	0.479	75.000
12-19-100-018	WOODLAND LAKE MOTEL	West Grand River	4	2.223	199.000
12-19-100-019	SINUTKO, VERONICA	West Grand River	1	0.414	95.000
12-19-100-025	OGONOWSKI, CASMER & ANN	West Grand River	3	0.623	50.000
12-19-100-026	MEIER, JAMES & HELEN & ET AL	West Grand River	0	0.503	146.000
12-19-100-027	MEIER & ANDERSEN & ET AL	West Grand River	1	2.410	210.000
12-19-100-029	SCHULTHEIS, JOSEPH & DIANE	West Grand River	1	0.453	70.000
12-19-100-031	KIEWICZ, DONALD & LOIS	West Grand River	1	0.612	82.000
12-19-100-033	CASCIO, SYLVESTER	West Grand River	1	1.157	140.000
12-19-100-036	ROKA PROPERTIES LLC	West Grand River	1	0.207	45.000
12-19-100-037	SERBAY JR, MYRON W.	West Grand River	1	0.330	0.000
12-19-100-038	FRASER, RICK & ANN	West Grand River	1	0.350	0.000
12-19-100-039	FRASER, RICK & ANN	West Grand River	1	0.370	0.000
12-19-100-040	SERBAY JR, MYRON W.	West Grand River	2	0.318	99.000
12-19-100-041	MEIER, JAMES & HELEN	West Grand River	1	1.067	150.000
12-19-100-042	RADEL, EVELYN	West Grand River	1	0.760	92.000
12-19-100-043	CASCIO, DENNIS	West Grand River	1	0.420	0.000
12-19-100-045	NRH INC BIG ACRES STORES	West Grand River	1	1.309	190.000
12-19-100-047	STARBIRD, ROY	West Grand River	1	0.545	47.000
12-19-100-049	GRANSDEN, JEFFREY & SHERRY	West Grand River	1	0.430	0.000
12-19-100-050	MISTAK, WALTER & MICHAELINE	West Grand River	1	2.686	260.000
12-19-100-054	WOODLAND LAKE ORGANIZATION OF	West Grand River	0	0.000	0.000
12-19-100-055	CASCIO, SYLVESTER	West Grand River	1	0.884	115.000
12-19-100-056	NILES, GORDON & SANDRA	West Grand River	1	0.661	130.000
12-19-100-057	EARNEST, RONALD & MARNEY	West Grand River	1	0.329	70.000
12-19-100-060	BEATTY, JOHN & CAROL	West Grand River	1	0.836	207.000
12-19-100-061	COURSEY, JAMES & CHARLENE	West Grand River	1	0.483	117.000
12-19-100-062	KERR REVOCABLE TRUST	West Grand River	1	0.689	100.000
12-19-100-063	GTDD PROPERTIES, LLC (VACANT)	West Grand River	1	1.178	100.000
12-19-100-064	WOODLAND ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-065	WOODLAND ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-066	WOODLAND ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-067	WOODLAND ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-068	P M ONE ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-069	P M ONE ASSOCIATES	West Grand River	1	1.063	147.000
12-19-100-072	PARK PLACE SHOPPING CENTER, INC	West Grand River	7	1.810	186.000
12-19-100-073	ABE'S AUTO GLASS, INC.	West Grand River	1	1.492	130.000
12-19-100-074	GRAND RIVER REAL ESTATE CORP	West Grand River	12	9.559	460.000
12-19-100-075	KULPA, GERTRUDE G. (VACANT)	West Grand River	1	0.631	91.000
12-19-100-076	KULPA, GERTRUDE G.	West Grand River	1	1.473	207.330
12-19-100-077	GAELIC FINANCIAL SERVICES, LLC	West Grand River	7	2.173	333.000
12-19-100-078	GRAND RIVER REAL ESTATE CORP (VACANT)	West Grand River	1	3.847	277.000
12-19-100-079	STARBIRD, ROY & LOUISE	West Grand River	1	0.735	103.000
12-19-100-080	STARBIRD, ROY & LOUISE	West Grand River	1	0.494	83.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-19-101-001	WELKA, THOMAS & NANCY	West Grand River	1	0.659	99.000
12-19-101-004	SCHULER, RUTH	West Grand River	1	1.612	135.000
12-19-101-005	MOONEY, KEITH	West Grand River	1	0.634	60.000
12-19-101-006	MICHAEL, KEITH & ARDIS	West Grand River	1	0.905	95.000
12-19-101-007	JANDASEK, VLADIMIR & CAROLYN	West Grand River	1	0.436	50.000
12-19-101-008	JANDASEK, JOSEPH & JOANNE	West Grand River	1	0.382	45.000
12-19-101-009	JANDASEK, JOHN & LINDA	West Grand River	1	0.763	95.000
12-19-101-010	BROOKS, R&S & DOLL, R&C	West Grand River	1	0.746	100.000
12-19-101-011	CAMILLERI, PAUL & VICTORIA	West Grand River	1	0.698	95.000
12-19-101-012	WISE, ERNEST & BERNHARDT,CHRIS	West Grand River	1	0.642	82.000
12-19-101-013	MARTEL, EDWINA & BRENDA	West Grand River	1	0.977	115.000
12-19-101-014	GRAVEL TRUCKING COMPANY	West Grand River	3	0.723	90.000
12-19-101-015	MUSCH, GENE	West Grand River	1	1.090	115.000
12-19-101-016	MUSCH, GENE	West Grand River	1	0.482	100.000
12-19-101-017	LEMING, DALE & SUSAN	West Grand River	1	1.374	235.000
12-19-300-002	MCINTYRE, R. & RICHARDS, P.	West Grand River	4	2.066	200.000
12-19-300-005	SHENG, LUKE & STELLA & PAUL (VACANT)	West Grand River	1	19.800	0.000
12-19-300-008	MICHIGAN GAS STORAGE CO	West Grand River	0	0.574	100.000
12-19-300-010	CHRYSLER, RICHARD	West Grand River	1	5.682	750.000
12-19-300-016	MCINTYRE, DONALD	West Grand River	1	2.640	250.000
12-19-300-017	MAXWELL, ARLIE & DENISE	West Grand River	1	0.698	80.000
12-19-300-018	OLEKSYN, JOSEPH & RITA	West Grand River	1	0.685	80.000
12-19-300-019	WESLEY, JAMES	West Grand River	1	0.672	80.000
12-19-300-021	PIZZA HUT OF AMERICA	West Grand River	10	0.852	140.000
12-19-300-022	BARLUM, KATHLEEN	West Grand River	1	0.716	120.000
12-19-300-023	SHENG, LUKE & STELLA (VACANT)	West Grand River	1	6.440	0.000
12-19-300-024	BRIGHTON, TOWNSHIP OF (VACANT)	West Grand River	1	31.580	0.000
12-19-300-025	TAYLOR, HORACE & YVONEE	West Grand River	1	4.885	380.000
12-19-300-026	AMOCO OIL COMPANY	West Grand River	2	1.030	325.000
12-19-300-027	ATLANTIC NORTHWEST CORPORATIO	West Grand River	0	0.192	45.000
12-19-300-028	U S RESTAURANT PROPERTIES	West Grand River	10	0.723	137.000
12-19-300-030	CHRYSLER, RICHARD & KATHIE (VACANT)	West Grand River	1	9.040	0.000
12-19-300-032	GRAND RIVER REAL ESTATE CORP	West Grand River	1	7.429	665.000
12-19-300-033	SHERMAN, ROBERT & CATHERINE	West Grand River	6	3.643	478.000
12-19-300-034	SHERMAN, ROBERT & CATHERINE	West Grand River	1	1.462	174.000
12-19-300-035	INTERNATIONAL SOCIETY	West Grand River	1	1.080	285.000
12-19-300-036	S.T.E.P. REAL ESTATE HOLDINGS (VACANT)	West Grand River	1	1.601	332.000
12-19-300-037	CHRYSLER II, RICHARD & KRISTEN	West Grand River	1	2.050	0.000
12-19-300-038	CHRYSLER, CHRISTIE	West Grand River	1	2.420	0.000
12-19-300-039	CHRYSLER, PHILLIP R.	West Grand River	1	3.490	0.000
12-19-301-001	WINDEL, KENNETH	West Grand River	1	0.552	62.000
12-19-301-006	WAKELAND OIL COMPANY	West Grand River	2	0.792	350.000
12-19-301-009	TOFIL & DOMBROWSKI & ET AL	West Grand River	1	0.752	78.000
12-19-301-011	TOFIL & DOMBROWSKI & ET AL	West Grand River	1	0.358	39.000
12-19-301-012	WEGRECKI, WALTER	West Grand River	1	0.337	38.000
12-19-301-013	SANTONI REV. LIVING TRUST	West Grand River	1	0.325	38.000
12-19-301-017	KAY CON, L.L.C.	West Grand River	4		
12-19-301-019	OSWALT INC	West Grand River	1	1.484	240.000
12-19-301-020	OSWALT INC	West Grand River	1	1.002	239.000
12-19-301-021	MILES, CHESTER	West Grand River	1	0.649	79.000
12-19-400-013	CHRYSLER, RICHARD	West Grand River	0	9.000	0.000
<b>TOTALS =</b>	<b>102 CUSTOMERS</b>		<b>218</b>	<b>207.065</b>	<b>14943.33</b>

**BRIGHTON TOWNSHIP, MICHIGAN  
EAST GRAND RIVER WATER SYSTEM  
PRELIMINARY ASSESSMENT ROLL**

**DECEMBER 23, 1998**

TAX ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-32-102-002	WALKER, RONALD B. (VACANT)	East Grand River	1		
12-32-102-015	DAVIS, KEITH G. & CAROL J.	East Grand River	1	0.230	77.000
12-32-102-054	WYLIE, ERIC & TRISHIA	East Grand River	1	0.206	68.000
12-32-102-055	DYMERSKI, ROBERT	East Grand River	1	0.197	65.000
12-32-102-056	LEMON, CHAS & ELIZABETH ANN	East Grand River	1	0.459	100.000
12-32-102-097	ASSOCIATED PROPERTIES	East Grand River	2	0.467	153.000
12-32-102-098	ALEXANDER, JAMES	East Grand River	3	0.284	95.000
12-32-102-114	R & B DEVELOPMENT	East Grand River	6	0.627	210.000
12-32-103-025	EWING TRUST	East Grand River	2	0.842	282.000
12-32-103-069	BRIGHTON, TOWNSHIP OF	East Grand River	1	0.119	40.000
12-32-103-070	BRIGHTON, TOWNSHIP OF	East Grand River	1	0.119	40.000
12-32-103-098	SCHROEPFER LIVING TRUST	East Grand River	2	0.600	201.000
12-32-104-016	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-017	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-018	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-020	WILSON, JOHN	East Grand River	1	0.122	41.000
12-32-104-021	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-022	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-023	WILSON, JOHN	East Grand River	1	0.119	40.000
12-32-104-077	TEASLEY, WILLIAM (VACANT)	East Grand River	1	0.604	280.000
12-32-104-081	MARSHALL'S MOVIE WORLD, INC.	East Grand River	5	0.919	182.000
12-32-104-082	PUHY, JOHN & DELORES (VACANT)	East Grand River	1	0.129	64.000
12-32-104-083	LIVINGSTON COUNTY	East Grand River	1	0.242	120.000
12-32-104-084	MITCHELL TRUST	East Grand River	8	0.579	180.000
12-32-104-085	KEENEY, BOBBY & ET AL	East Grand River	4	0.521	162.000
12-32-106-001	BULLARD, TROY & ELLA	East Grand River	4	1.681	257.000
12-32-106-002	MCKENNEY, ROBERT & DOROTHY	East Grand River	0	0.220	80.000
12-32-106-003	RITZ & BOLTZ ET AL	East Grand River	4	0.818	132.000
12-32-106-004	RITZ & BOLTZ ET AL	East Grand River	0	0.421	68.000
12-32-106-005	R & B DEVELOPMENT COMPANY	East Grand River	4	0.620	100.000
12-32-106-006	R & B DEVELOPMENT COMPANY	East Grand River	0	0.620	100.000
12-32-106-008	WHITE, RICHARD & ETHEL & ETAL	East Grand River	8	2.479	400.000
12-32-106-011	AUSTIN, JOHN & SUSAN	East Grand River	1	0.744	120.000
12-32-106-012	FIRST NATIONAL BANK OF HOWELL	East Grand River	2	0.992	160.000
12-32-106-013	BERGNER, ERWIN	East Grand River	3	0.744	120.000
12-32-106-015	W-3M & ASSOCIATES	East Grand River	1	0.220	80.000
12-32-106-016	BALUJA, SATYA PAUL	East Grand River	0	0.055	20.000
12-32-106-017	BALUJA, SATYA PAUL	East Grand River	2	0.220	80.000
12-32-106-020	LOMREE, INC	East Grand River	5	0.496	80.000
12-32-106-021	CAMPBELL, ERVIN	East Grand River	4	0.744	120.000
12-32-106-022	FIELEK, FIELEK & PIERRE ET AL	East Grand River	2	0.533	160.000
12-32-106-023	CAMPBELL, ERVIN & JEANETTE (VACANT)	East Grand River	1	0.544	160.000
12-32-106-024	RAMSEY, KENNETH & SANDRA	East Grand River	3	0.689	200.000
12-32-106-025	STARR, DAVID E. & SUE A.	East Grand River	3	0.344	100.000
12-32-106-029	KLEFSTAD, RIAN	East Grand River	1	0.172	50.000
12-32-106-031	WIDTH, MARK & MARY	East Grand River	3	0.386	140.000
12-32-106-032	DURAND, LEO AND PEARL	East Grand River	4	0.344	100.000
12-32-106-033	O & Z LIMITED PARTNERSHIP	East Grand River	4	0.620	100.000
12-32-106-034	HAGS RADIATION CLINIC, INC.	East Grand River	1	0.138	40.000
12-32-106-035	PALMER & HERMLING	East Grand River	1	0.110	40.000
12-32-106-036	KARMO, NOORI & JORJIT	East Grand River	3	0.441	160.000
12-32-106-037	SHAMROCK LOUNGE INC.	East Grand River	11	0.620	100.000
12-32-202-009	RICE & PARMETER & PARMETER	East Grand River	1	0.517	150.000
12-32-202-010	NEEDHAM, JAMES (VACANT)	East Grand River	1	0.344	100.000
12-32-202-011	NEEDHAM, JAMES	East Grand River	1	0.379	110.000
12-32-202-033	GERSTER, KURT & KRISTINE	East Grand River	10	0.402	125.000
12-32-300-019	SOCIETY BANK	East Grand River	1	1.243	190.000
12-32-300-021	KLINE, EARL & FRANCIS (VACANT)	East Grand River	1	0.505	100.000
12-32-300-022	KLINE, EARL & FRANCIS (VACANT)	East Grand River	1	0.253	50.000

TAX_ID	OWNERS NAME	DISTRICT	REUs	ACREAGE	FRONTAGE
12-32-300-023	KLINE REAL ESTATE	East Grand River	1	0.505	100.000
12-32-300-024	SAMONA, NAJIB & ET AL	East Grand River	16	2.656	260.000
12-32-300-026	BREWER, JULIA	East Grand River	2	2.060	185.000
12-32-300-028	MEYER REVOCABLE LIVING TRUSTS	East Grand River	2	2.944	225.000
12-32-300-030	PUGH, BARBARA	East Grand River	1	0.978	75.000
12-32-300-031	U STORE MINI STORAGE (VACANT)	East Grand River	1		
12-32-300-032	WARNER, LAVERNE	East Grand River	1	1.995	153.000
12-32-300-044	CLORE, MARK ALLAN & JULIE J.	East Grand River	1	1.286	100.000
12-32-300-048	SHENG, STEPHEN	East Grand River	1	0.689	100.000
12-32-300-050	DETROIT DEVELOPMENT CO.	East Grand River	20	2.880	306.000
12-32-300-053	GREAT LAKES BANCORP (VACANT)	East Grand River	1	1.760	0.000
12-32-300-055	C & S INVESTMENT CO	East Grand River	2	3.103	440.000
12-32-300-056	BRIGHTON LAND GROUP	East Grand River	3	0.859	170.000
12-32-300-057	U-STORE MINI STORAGE	East Grand River	1	17.236	1074.000
12-32-300-060	EXPORT CORPORATION (VACANT)	East Grand River	1	7.710	0.000
12-32-300-061	TOPVALCO, INC.	East Grand River	30	12.829	883.000
12-32-300-062	C Z BRIGHTON ASSOCIATES, LP (VACANT)	East Grand River	1	1.313	260.000
12-32-400-003	BRIGHTON RIVER LLC	East Grand River	8	3.030	282.000
12-32-401-031	MICHIGAN ALLIED HEALTH PRO	East Grand River	3	0.499	150.000
12-32-401-042	LMC ASSOCIATES	East Grand River	1	1.752	175.000
12-32-401-043	OBERLE, RALPH & MARGARET	East Grand River	2	2.296	500.000
12-32-401-044	CHARMS 3, LTD	East Grand River	56	6.701	973.000
12-32-401-046	COGO, GUILIO & NOREEN	East Grand River	6	1.059	225.000
12-33-302-035	HUIE REV. TRUST	East Grand River	12	2.251	265.000
12-33-302-036	OLD KENT BANK -EAST	East Grand River	2	1.598	232.000
<b>TOTALS =</b>	<b>80 CUSTOMERS</b>		<b>315</b>	<b>107.627</b>	<b>13825</b>

**APPENDIX G**  
**REU Determination for Properties with Multiple REUs**



**BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER AND WATER SYSTEMS  
REU DETERMINATION FOF PROPERTIES WITH MULTIPLE REUs**

**DECEMBER 24, 1998**

TAX_ID	OWNERS NAME	REU	UNIT	REU FORMULA	COMMENTS
12-32-102-002	WALKER, RONALD B.	1			Vacant
12-32-102-097	ASSOCIATED PROPERTIES	3	5000	0.50 per 1,000 sq. ft	
12-32-102-098	ALEXANDER, JAMES	3	6200	0.50 per 1,000 sq. ft	
12-32-102-114	R & B DEVELOPMENT	6	9800	1.0 per shop plus 0.5 per 1,000 sq. ft.	Auto Repair
12-32-103-025	EWING TRUST	2	3952	0.50 per 1,000 sq. ft	
12-32-103-098	SCHROEPFER LIVING TRUST	2	3200	0.5 per 1,000 sq. ft.	Grinding Technology
12-32-104-077	TEASLEY, WILLIAM	1			Vacant
12-32-104-081	MARSHALL'S MOVIE WORLD, INC.	3	6384	0.5 per 1,000 sq. ft.	
12-32-104-084	MITCHELL TRUST				Automotive Fitness Center
	Quick Lube		2.1 2250	1.0 per shop plus 0.5 per 1,000 sq. ft.	
	Perfect Tune		2.1 2250	1.0 per shop plus 0.5 per 1,000 sq. ft.	
	Ultimate Body		2.1 2250	1.0 per shop plus 0.5 per 1,000 sq. ft.	
	Diamond Brake		2.1 2250	1.0 per shop plus 0.5 per 1,000 sq. ft.	
	TOTAL	9			
12-32-104-085	KEENEY, BOBBY & ET AL	4	6500	1.0 per shop plus 0.5 per 1,000 sq. ft.	Auto Repair
12-32-106-001	BULLARD, TROY & ELLA	4	11200	0.40 per 1,000 sq.ft	approximate sq. ft.
12-32-106-003	RITZ & BOLTZ ET AL	4	8925	0.40 per 1,000 sq.ft	approximate sq. ft.
12-32-106-005	R & B DEVELOPMENT COMPANY	4	3100	0.40 per 1,000 sq.ft	Chrysler Used Car
12-32-106-008	WHITE, RICHARD & ETHEL & ETAL	8	24	0.16 per alley, 4.0 per 1,000 sq. ft	Bowling Alley, approx. 1000 sq.ft. bar
12-32-106-012	FIRST NATIONAL BANK OF HOWELL	2		0.25 per employee station	
12-32-106-013	BERGNER, ERWIN		1.6 3280	0.50 per 1,000 sq. ft	
			1.8 1200	1.50 per 1,000 sq. ft.	Dominos
	TOTAL	3			
12-32-106-017	BALUJA, SATYA PAUL	2	3600	0.50 per 1,000 sq. ft	Office
12-32-106-020	LOMREE, INC			0.35 per 1,000 sq. ft.	
	Schwin Shop		0.3 750	0.35 per 1,000 sq. ft.	
	Tanning Salon		3.3 13	0.25 per chair	
	Shop		0.3 750	0.35 per 1,000 sq. ft.	
	Shop		0.3 750	0.35 per 1,000 sq. ft.	
	Shop		0.3 750	0.35 per 1,000 sq. ft.	
	Shop		0.3 750	0.35 per 1,000 sq. ft.	
	Shop		0.3 750	0.35 per 1,000 sq. ft.	
	TOTAL	5			
12-32-106-021	CAMPBELL, ERVIN	5	7000	1.0 per shop plus 0.5 per 1,000 sq. ft.	Auto Repair
12-32-106-022	FIELEK, FIELEK & PIERRE ET AL	2	4000	0.50 per 1,000 sq. ft.	Real Estate
12-32-106-023	CAMPBELL, ERVIN & JEANETTE	1			Vacant (next to Real Estate)

**BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER AND WATER SYSTEMS  
REU DETERMINATION FOF PROPERTIES WITH MULTIPLE REUs**

**DECEMBER 24, 1998**

TAX_ID	OWNERS NAME	REU	UNIT	REU FORMULA	COMMENTS
12-32-106-024	RAMSEY, KENNETH & SANDRA	3	4800	1.0 per shop plus 0.5 per 1,000 sq. ft.	Auto Repair
12-32-106-025	STARR, DAVID E. & SUE A.	4	5000	1.0 per shop plus 0.5 per 1,000 sq. ft.	Auto Repair
12-32-106-029	KLEFSTAD, RIAN	1	1025	0.50 per 1,000 sq. ft.	Office
12-32-106-031	WIDTH, MARK & MARY	3	5100	0.50 per 1,000 sq. ft.	Office
12-32-106-032	DURAND, LEO AND PEARL	4	6000	1.0 per shop plus 0.5 per 1,000 sq. ft.	Auto Repair
12-32-106-033	O & Z LIMITED PARTNERSHIP				
	Office	1.5	3000	0.50 per 1,000 sq. ft.	
	Auto Repair	2.5	3000	1.0 per shop plus 0.5 per 1,000 sq. ft.	
	TOTAL	4			
12-32-106-036	KARMO, NOORI & JORJIT	3	3900	1.0 per shop plus 0.5 per 1,000 sq. ft.	Auto Repair
12-32-106-037	SHAMROCK LOUNGE INC.	11	2800	4.0 per 1,000 sq. ft.	dinner and/or drink
12-32-202-033	GERSTER, KURT & KRISTINE	10	5	2.00 per veterinarian	Vet Clinic
12-32-300-021	KLINE, EARL & FRANCIS	1			Vacant
12-32-300-024	SAMONA, NAJIB & ET AL				
	Bank	1.3	5	0.25 per employee station	Corner of US 23 & Grand River
	Video Store	1.9	5400	0.35 per 1,000 sq. ft.	
	Smokers Depot	0.6	1660	0.35 per 1,000 sq. ft.	
	Retail	0.6	1660	0.35 per 1,000 sq. ft.	
	Salon	1.5	6	0.25 per chair	
	Cleaners	0.7	4	0.166 per employee	pickup only
	Grecian Island Restaurant	8.3	3325	2.50 per 1,000 sq. ft.	Meals with service and dishes
	Retail	1.2	3325	0.35 per 1,000 sq. ft.	
	TOTAL	16			
12-32-300-026	BREWER, JULIA	2	8	0.30 per pump	Total Gas Station
12-32-300-028	MEYER REVOCABLE LIVING TRUSTS	2	8	0.25 per double bed	Abandoned Motel
12-32-300-048	SHENG, STEPHEN	1		0.5 per doctor, 1.0 minimum	Dentist next to mall w/ Tubby's
12-32-300-050	DETROIT DEVELOPMENT CO.				
	Office	0.5	1350	0.35 per 1,000 sq. ft.	
	Toarmina's Pizza	1.8	1200	1.50 per 1,000 sq. ft.	take-out
	Tubby's	1.8	1200	1.50 per 1,000 sq. ft.	take-out
	Hair Salon	2.5	10	0.25 per chair	
	Florest	0.5	1350	0.35 per 1,000 sq. ft.	
	Jewery Shop	0.5	1350	0.35 per 1,000 sq. ft.	
	Office Equipment	0.5	1350	0.35 per 1,000 sq. ft.	
	Office	0.7	1350	0.50 per 1,000 sq. ft.	
	Tax Service	0.7	1350	0.50 per 1,000 sq. ft.	take-out

**BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER AND WATER SYSTEMS  
REU DETERMINATION FOF PROPERTIES WITH MULTIPLE REUs**

**DECEMBER 24, 1998**

TAX_ID	OWNERS NAME	REU	UNIT	REU FORMULA	COMMENTS	
	Weight Watchers		1.9	6	0.32 per employee	
	Matress Plus		0.5	1350	0.35 per 1,000 sq. ft.	
	Physical Theropy		1.0	3	0.32 per employee	
	Optical		0.5	1350	0.35 per 1,000 sq. ft.	
	Repair Shop		0.5	1350	0.35 per 1,000 sq. ft.	
	Wong Express		6.0	2400	5.50 per 1,000 sq. ft.	take-out
	TOTAL	20				
12-32-300-053	GREAT LAKES BANCORP	1				Vacant
12-32-300-055	C & S INVESTMENT CO	3		5	0.5 per doctor, 1.0 minimum	Charlick Dentist
12-32-300-056	BRIGHTON LAND GROUP	3		6414		Kellog Eye Care
12-32-300-060	EXPORT CORPORATION	1				Vacant
12-32-300-061	TOPVALCO, INC.	30		59000	0.5 per 1,000 sq. ft.	Kroger
12-32-300-062	C Z BRIGHTON ASSOCIATES, LP	1				Vacant
12-32-400-003	BRIGHTON RIVER LLC	8		16300	0.50 per 1,000 sq. ft.	Next to Vet Clinc
12-32-401-031	MICHIGAN ALLIED HEALTH PRO					
	Physical Therapy		1.0	1	0.5 per doctor, 1.0 minimum	
	Dental		1.0	1	0.5 per doctor, 1.0 minimum	
	Optical		1.0	1	0.5 per doctor, 1.0 minimum	
	TOTAL	3				
12-32-401-042	LMC ASSOCIATES	1		2	0.5 per doctor, 1.0 minimum	
12-32-401-044	CHARMS 3, LTD					
	Powerhouse		11.3	7500	1.50 per 1,000 sq. ft.	
	Great China		7.5	5000	1.5 per 1,000 sq. ft.	carry out
	Law Office		1.7	3400	0.50 per 1,000 sq. ft.	
	Salon		2.3	9	0.25 per chair	
	Cleaners		0.3	2	0.166 per employee	pickup only
	Office		1.7	3400	0.50 per 1,000 sq. ft.	
	Bagel Palooza		5.1	3400	1.50 per 1,000 sq. ft.	take-out
	Physical Therapy		1.0	1	0.5 per doctor, 1.0 minimum	
	Office		1.7	3400	0.50 per 1,000 sq. ft.	
	Pizza Hut		13.6	3400	4.00 per 1,000 sq. ft.	dinner and/or drink
	Cajon Joes		5.1	3400	1.50 per 1,000 sq. ft.	dinner and/or drink
	Pet Shop		1.2	3400	0.35 per 1,000 sq. ft.	
	Drug Store		1.4	3400	0.40 per 1,000 sq. ft. (1.0 minimum)	
	Comerica		2.0		0.25 per employee station	
	TOTAL	56				

**BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER AND WATER SYSTEMS  
REU DETERMINATION FOF PROPERTIES WITH MULTIPLE REUs**

DECEMBER 24, 1998

TAX_ID	OWNERS NAME	REU	UNIT	REU FORMULA	COMMENTS
12-32-401-046	COGO, GUILIO & NOREEN				
	Foot Care	1.0	1	0.5 per doctor, 1.0 minimum	
	Chiropractor	1.0	1	0.5 per doctor, 1.0 minimum	
	Dentist	2.0	4	0.5 per doctor, 1.0 minimum	
	Family Care (check on this)	2.5	5	0.5 per doctor, 1.0 minimum	
	TOTAL	7			
12-33-302-035	HUIE REV. TRUST				
	Party Store	0.5	1300	0.40 per 1,000 sq. ft. (1.0 minimum)	
	Subway	2.0	1300	1.50 per 1,000 sq. ft.	
	Shop	0.5	1300	0.35 per 1,000 sq. ft.	
	Papa Ramanos	2.0	1300	1.50 per 1,000 sq. ft.	
	Tanning Salon	2.0	8	0.25 per chair	
	Shop	0.5	1300	0.35 per 1,000 sq. ft.	
	Shop	0.5	1300	0.35 per 1,000 sq. ft.	
	Office	0.7	1300	0.50 per 1,000 sq. ft.	
	Office	0.7	1300	0.50 per 1,000 sq. ft.	
	Nail/Beauty Shop	1.5	6	0.25 per chair	
	Shop	0.5	1300	0.35 per 1,000 sq. ft.	
	Printing Shop	0.7	1300	0.50 per 1,000 sq. ft.	
	TOTAL	12			
12-33-302-036	OLD KENT BANK -EAST	2		0.25 per employee station	
12-32-401-024	ASBURY PARK LLC				Hipp & Grand River
12-32-401-027	RTJR PARTNERSHIP	20	5100	4.0 per 1,000 sq. ft	JB's Brighton House
12-32-402-010	WHITE, DANIEL & KATHLEEN	5	9204	0.50 per 1,000 sq. ft	Hipp & Grand River
12-18-300-001	BONNER, LEON & MARILYN	3			Residential House
12-18-300-004	GRIFFITH, RICHARD & MARY JO	14			Apartment Units
12-18-300-005	ANDAL INVESTMENT INC	41	3900	8 Apt. + MHP	Apartment Units
12-18-300-011	SHENG, LUKE & STELLA	1			Vacant
12-18-300-012	GRIFFITH, RICHARD & MARY JO	5	4000		LK Shore Dr. & Vistaview
12-18-300-016	KOVACH, TIM	1			Residential House
12-18-300-025	SONNANSTINE, GREG	50		0.77 per pad	
12-18-301-003	ARTHUR, JOHN	2			Residential House
12-18-305-016	FOX, EDWARD & CHERIE	1			Vacant (on Almarshy)
12-18-400-026	HIDEAWAY WOODS DEVELOPMENT, INC	1			Vacant
12-18-400-027	JOHNSON, CLARENCE	1			Vacant
12-19-100-007		2		0.25 per employee station	National City Bank

**BRIGHTON TOWNSHIP, MICHIGAN  
SANITARY SEWER AND WATER SYSTEMS  
REU DETERMINATION FOF PROPERTIES WITH MULTIPLE REUs**

**DECEMBER 24, 1998**

TAX_ID	OWNERS NAME	REU	UNIT	REU FORMULA	COMMENTS
12-19-100-008	PIGGINS, WILLIAM	5	14900	0.35 per 1,000 sq. ft	Bike Shop
12-19-100-018	WOODLAND LAKE MOTEL	5	18	0.25 per double bed	
12-19-100-025	OGONOWSKI, CASMER & ANN	3			Residential House
12-19-100-038	FRASER, RICK & ANN	1			Residential House
12-19-100-039	FRASER, RICK & ANN	1			Residential House
12-19-100-056	NILES, GORDON & SANDRA	1	1	0.5 per doctor, 1.0 minimum	
12-19-100-057	EARNEST, RONALD & MARNEY	1	1	0.5 per doctor, 1.0 minimum	
12-19-100-058		0			Combined with FOA (National City)
12-19-100-060	BEATTY, JOHN & CAROL	1	1	0.5 per doctor, 1.0 minimum	Beatry Chiropractor
12-19-100-061	COURSEY, JAMES & CHARLENE	1	3000	0.40 per 1,000 sq. ft. (1.0 minimum)	
12-19-100-063	GTTD PROPERTIES, LLC	1			Vacant
12-19-100-072	PARK PLACE SHOPPING CENTER, INC				
	Office	0.7	1360	0.50 per 1,000 sq. ft	
	Office	0.7	1360	0.50 per 1,000 sq. ft	
	Salon	1.5	6	0.25 per chair	
	Office	0.7	1360	0.50 per 1,000 sq. ft	
	Shop	0.5	1360	0.35 per 1,000 sq. ft	Spa
	Office	0.7	1360	0.50 per 1,000 sq. ft	
	Office	0.7	1360	0.50 per 1,000 sq. ft	
	Dolly's Pizza	2.0	1360	1.5 per 1,000 sq. ft.	Carry Out
	TOTAL	7			
12-19-100-074	GRAND RIVER REAL ESTATE CORP	12	28900	0.40 per 1,000 sq. ft.	Brighton Ford
12-19-100-075	KULPA, GERTRUDE G.	1			Vacant (driveway)
12-19-100-077	GAELIC FINANCIAL SERVICES, LLC	7	14000	0.5 per 1,000 sq. ft.	Gordan Food Services
12-19-100-078	GRAND RIVER REAL ESTATE CORP	1			Vacant
12-19-101-014	GRAVEL TRUCKING COMPANY	3	5522	0.5 per 1,000 sq. ft.	Health Care Innovation
12-19-200-002	WEGRZYN FAMILY TRUST	4			Residential House
12-19-300-002	MCINTYRE, R. & RICHARDS, P.	4	11000	0.40 per 1,000 sq. ft.	GMC Truck Center
12-19-300-005	SHENG, LUKE & STELLA & PAUL	1			Vacant (near Hilton)
12-19-300-021	PIZZA HUT OF AMERICA	10	2500	4.00 per 1,000 sq. ft.	dinner and/or drink
12-19-300-023	SHENG, LUKE & STELLA	1			Vacant
12-19-300-026	AMOCO OIL COMPANY	2	8	0.30 per pump	Next to I96
12-19-300-028	U S RESTAURANT PROPERTIES	10		10.00 per restaurant	Arby's
12-19-300-030	CHRYSLER, RICHARD & KATHIE	1			Vacant
12-19-300-033	SHERMAN, ROBERT & CATHERINE	6			Residential House
12-19-300-036	S.T.E.P. REAL ESTATE HOLDINGS	1			Vacant (Hilton & Grand River)

**BRIGHTON TOWNSHIP, MICHIGAN  
 SANITARY SEWER AND WATER SYSTEMS  
 REU DETERMINATION FOF PROPERTIES WITH MULTIPLE REUs**

**DECEMBER 24, 1998**

TAX_ID	OWNERS NAME	REU	UNIT	REU FORMULA	COMMENTS	
12-19-301-006	WAKELAND OIL COMPANY	2	8	0.30 per pump	Shell Gas Station	
12-19-301-017	KAY CON, L.L.C.					
	KC Cookery		3.8	2500	1.5 per 1,000 sq. ft.	Carry Out
	Salon		0.8	3	0.25 per chair	
	TOTAL	5				
12-19-400-011	STONE QUIGLEY PROPERTIES	3			Apartment and House	
12-19-400-016	WISE, ERNEST E.	3			Residential House	
12-20-100-048	CORNERSTONE EVANGELICAL CHURCH	8		0.01 per seat		
12-20-100-055	CORRIVEAU, MARC RICHARD	2			Residential House	
	<b>TOTAL</b>	<b>544</b>				

**APPENDIX H**

**Vacant Properties with Potentially More than One REU/Unbuildable Vacant Properties**



Table 1

Brighton Township, Michigan  
Sanitary Sewer and Water Systems

**VACANT PROPERTIES**  
(With Potentially More Than One REU)

Tax ID Number	District	Property Owner	Estimated REUs
12-19-100-063	West Grand River	GTTD Properties LLC	2
12-19-100-075	West Grand River	Kulpa, Gertrude G.	2
12-19-100-078	West Grand River	Grand River Real Estate Corp.	8
12-19-300-005	West Grand River	Sheng, Luke & Stella & Paul	40
12-19-300-023	West Grand River	Sheng, Luke & Stella	2
12-19-300-024	West Grand River	Brighton Township	1
12-19-300-030	West Grand River	Chrysler, Richard & Kathie	18
12-19-300-036	West Grand River	S.T.E.P. Real Estate Holdings	2
12-32-102-002	East Grand River	Walker, Ronald	3
12-32-104-077	East Grand River	Teasley, William	1
12-32-104-082	East Grand River	Puhy, John & Delores	1
12-32-106-023	East Grand River	Campbell, Ervin & Jeanette	1
12-32-202-010	East Grand River	Needham, James	1
12-32-300-021	East Grand River	Kline, Earl & Francis	1
12-32-300-022	East Grand River	Kline, Earl & Francis	1
12-32-300-031	East Grand River	U Store Mini Storage	2
12-32-300-053	East Grand River	Great Lakes Bancorp.	4
12-32-300-060	East Grand River	Export Corporation	16
12-32-300-062	East Grand River	C Z Brighton Associates, LP	3
12-18-100-022	Woodland Lake	Brighton Township	1
12-18-300-011	Woodland Lake	Sheng, Luke & Stella	20
12-18-305-016	Woodland Lake	Fox, Edward & Cherie	12
12-18-400-026	Woodland Lake	Hideaway Woods Development	8
12-18-400-027	Woodland Lake	Johnson, Clarence	5

Table 2

Brighton Township, Michigan  
Sanitary Sewer and Water Systems

## UNBUILDABLE VACANT PROPERTIES

<u>Tax ID Number</u>	<u>District</u>	<u>Property Owner</u>	<u>REUs Currently Assigned</u>
12-07-301-014	Clark	Malysz, Edward & Dolores	1
12-07-301-015	Clark	Malysz, Edward & Dolores	1
12-07-301-039	Clark	Witt, David & Susan & ET AL	0
12-07-302-094	Clark	Procht, Raymond & Jane	1
12-19-100-011	West Grand River	Singh, Harbhajan & Shanti	0
12-19-100-012	West Grand River	Singh, Harbhajan & Shanti	0
12-19-100-013	West Grand River	Griffith, Richard & Mary Jo	0
12-19-100-026	West Grand River	Meier, James & Helen & ET AL	0
12-19-300-008	West Grand River	Michigan Gas Storage Co	0
12-19-300-027	West Grand River	Atlantic Northwest Corporation	0
12-19-400-013	West Grand River	Chrysler, Richard	0
12-32-104-082	East Grand River	Puhy, John & Delores	1
12-32-106-006	East Grand River	R & B Development Company	0
12-32-106-016	East Grand River	Baluja, Satya Paul	0
12-32-300-053	East Grand River	Great Lakes Bancorp.	1
12-18-301-017	Woodland Lake	Butte, Richard & Gavin, Sandra	0
12-19-100-054	Woodland Lake	Woodland Lake, Organization of	0
12-19-200-007	Woodland Lake	Gregor, John & Diane	0
12-19-201-004	Woodland Lake	Teschker, Jennifer	1
12-19-201-005	Woodland Lake	Garing, Mary	1
12-19-400-013	Woodland Lake	Chrysler, Richard	0
12-19-400-017	Woodland Lake	Wise, Ernest E.	0
12-19-400-019	Woodland Lake	Gnadt, Fredrick & Yvonne	0

**APPENDIX I**  
**Engineer's Opinion of Probable Costs**



# ENGINEER'S OPINION OF PROBABLE PROJECT COST

## McNAMEE, PORTER & SEELEY, INC.

512 E. Grand River, Brighton, Michigan 48116

Telephone: (810) 220-2112 FAX: (810) 220-0094

PROJECT: Brighton Township - Sanitary Sewer Systems DATE: 12/1/98  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL ESTIMATOR: J. Markstrom  
 WORK: Cost of Local Collection Sewers, Transmission Sewer and CHECKED BY: J. Moore  
0.44 MG Wastewater Treatment Plant.  
 (All Costs are Reported in 1st Quarter 2000 Dollars.)

ITEM NO.	DESCRIPTION	TOTAL AMOUNT
<b>LOCAL COLLECTION SEWERS</b>		
1	Woodland Lake Sanitary Sewer Construction Cost	\$4,652,200.00
2	Clark Lake Sanitary Sewer Construction Cost	\$968,200.00
3	West Grand River Sanitary Sewer Construction Cost	\$1,453,800.00
4	East Grand River Sanitary Sewer Construction Cost	\$999,400.00
5	Fonda Lake Sanitary Sewer Construction Cost	\$791,100.00
6	Lake of the Pines Sanitary Sewer Construction Cost	\$2,397,400.00
	<b>CONSTRUCTION SUBTOTAL =</b>	<b>\$11,262,100.00</b>
	Construction Contingencies (10 %)	\$1,125,900.00
	Engineering (15 %)	\$1,690,000.00
	Financing, Legal and Administration (5%)	\$563,000.00
	Easements	\$100,000.00
	<b>LOCAL COLLECTION SEWERS PROJECT COST =</b>	<b>\$14,741,000.00</b>
<b>TRANSMISSION SEWER</b>		
1	Transmission Sewer Construction Cost	\$2,784,800.00
	Construction Contingencies (10 %)	\$278,480.00
	Engineering (15 %)	\$417,480.00
	Financing, Legal and Administration (5%)	\$139,240.00
	<b>TRANSMISSION SEWER PROJECT COST =</b>	<b>\$3,620,000.00</b>
<b>WASTEWATER TREATMENT PLANT</b>		
1	Wastewater Treatment Plant (0.44 Million Gallon per Day Capacity) Construction Cost	\$3,250,000.00
	Construction Contingencies (10 %)	\$325,000.00
	Engineering (15 %)	\$487,500.00
	Financing, Legal and Administration (5%)	\$162,500.00
	Land Acquisition	\$1,300,000.00
	<b>WASTEWATER TREATMENT PLANT PROJECT COST =</b>	<b>\$5,525,000.00</b>
<b>TOTAL PROJECT COST</b>		<b>\$23,886,000.00</b>

# ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

**McNAMEE, PORTER & SEELEY, INC.**

512 E. Grand River, Brighton, Michigan 48116

Telephone: (810) 220-2112 FAX: (810) 220-0094

PROJECT: Brighton Township - Woodland Lake Sanitary Sewers  
 LOCATION: Woodland Lake Area  
 BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL  
 WORK: Local Collection Sanitary Sewers serving properties around  
Woodland Lake.  
(Total Construction Cost Reported in 1st Quarter 2000 Dollars)

DATE: 12/1/98  
 PROJECT NO. 0115.272.30  
 ESTIMATOR: J. Markstrom  
 CHECKED BY: J. Moore

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	2" HDPE Force Main Directionally Drilled	7,615	LF	\$15.00	\$114,225.00
2	3" HDPE Force Main Directionally Drilled	6,450	LF	\$18.00	\$116,100.00
3	4" HDPE Force Main Directionally Drilled	7,620	LF	\$21.00	\$160,020.00
4	6" HDPE Force Main Directionally Drilled	18,225	LF	\$24.00	\$437,400.00
5	Simplex Grinder Pumps Installs	385	EA	\$5,000.00	\$1,925,000.00
6	2" Gate Valve with Box	14	EA	\$300.00	\$4,200.00
7	3" Gate Valve with Box	12	EA	\$375.00	\$4,500.00
8	4" Gate Valve with Box	9	EA	\$450.00	\$4,050.00
9	6" Gate Valve with Box	16	EA	\$500.00	\$8,000.00
10	Terminal Flushing Connection	26	EA	\$1,100.00	\$28,600.00
11	8" PVC SDR 26 Sewer	11,075	LF	\$24.00	\$265,800.00
12	8" x 6" Wye Branch Connection	163	EA	\$120.00	\$19,560.00
13	Standard 48" Manhole	43	EA	\$1,600.00	\$68,800.00
14	Submersible Pump Station (210 GPM)	1	EA	\$180,000.00	\$180,000.00
15	Service Connections	385	EA	\$750.00	\$288,750.00
16	1-1/2-inch Service Leads	51,490	LF	\$12.00	\$617,880.00
17	6-inch Service Lead, SDR 26	3,235	LF	\$25.00	\$80,875.00
18	Bituminous Road Replacement	100	LF	\$50.00	\$5,000.00
19	Gravel Road Replacement	3,750	LF	\$15.00	\$56,250.00
20	Gravel Driveway Replacement	875	LF	\$15.00	\$13,125.00
21	Bituminous Driveway Replacement	550	LF	\$30.00	\$16,500.00
22	Concrete Driveway Replacement	400	LF	\$40.00	\$16,000.00
	<b>CONSTRUCTION SUBTOTAL =</b>				<b>\$4,430,635.00</b>
	Forward Costs to 1st Quarter 2000 Dollars (5 % of Construction Subtotal) =				<b>\$221,565.00</b>
	<b>TOTAL CONSTRUCTION COST</b>				<b>\$4,652,200.00</b>













# ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

## McNAMEE, PORTER & SEELEY, INC.

512 E. Grand River, Brighton, Michigan 48116

Telephone: (810) 220-2112

FAX: (810) 220-0094

PROJECT: Brighton Township WWTP

DATE: 11/30/98

LOCATION: Hidden Valley Partner's Property at Pleasant Valley Rd and Grand River

PROJECT NO. 0115

BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL

ESTIMATOR: TS/KMH

WORK: 440,000 Gallon per Day Wastewater Treatment Plant with Surface Water

CHECKED BY: J. Moore

Discharge (Total Construction Cost Reported in 1st Quarter 2000 Dollars)

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
1	<b>Mobilization and General Requirements</b>	1	LS	\$220,000.00	\$220,000.00
2	<b>Influent Flow Monitoring</b>	1	LS	\$30,000.00	\$30,000.00
3	<b>Preliminary Treatment - Influent Screening</b>	1	LS	\$110,000.00	\$110,000.00
4	<b>Oxidation Ditch</b>				
5	Concrete Floors	1	LS	\$40,000.00	\$40,000.00
6	Concrete Walls	1	LS	\$90,000.00	\$90,000.00
7	Equipment, Walkways and Accessories	1	LS	\$190,000.00	\$190,000.00
8	<b>Secondary Clarifiers</b>				
9	Concrete	1	LS	\$80,000.00	\$80,000.00
10	Equipment, Walkways and Accessories	1	LS	\$100,000.00	\$100,000.00
11	Ferric Chloride Addition for P Removal	1	LS	\$35,000.00	\$35,000.00
12	<b>Sand Filtration</b>				
13	Concrete	1	LS	\$55,000.00	\$55,000.00
14	Equipment, Walkways and Accessories	1	LS	\$140,000.00	\$140,000.00
15	<b>UV Disinfection</b>				
16	Concrete	1	LS	\$15,000.00	\$15,000.00
17	Equipment	1	LS	\$75,000.00	\$75,000.00
18	<b>Sludge Storage</b>				
19	Precast Concrete	1	LS	\$260,000.00	\$260,000.00
20	Mixing and Aeration Equipment	1	LS	\$35,000.00	\$35,000.00
21	<b>Sludge Thickening</b>	1	LS	\$260,000.00	\$260,000.00
22	<b>Building</b>	1,600	SF	\$75.00	\$120,000.00
23	<b>Process Piping and Valves</b>	1	LS	\$320,000.00	\$320,000.00
24	<b>Electrical and Instrumentation</b>	1	LS	\$460,000.00	\$460,000.00
25	<b>Permanent Generator</b>	1	LS	\$100,000.00	\$100,000.00
26	<b>Electrical Service Allowance</b>	1	LS	\$50,000.00	\$50,000.00
27	<b>Site Work</b>	1	LS	\$100,000.00	\$100,000.00
28	<b>Earth Balance and Site Clearing</b>	1	LS	\$210,000.00	\$210,000.00
	<b>CONSTRUCTION SUBTOTAL =</b>				<b>\$3,095,000.00</b>
	Forward Costs to 1st Quarter 2000 Dollars (5 % of Construction Subtotal) =				\$155,000.00
<b>TOTAL CONSTRUCTION COST</b>					<b>\$3,250,000.00</b>

# ENGINEER'S OPINION OF PROBABLE PROJECT COST

## McNAMEE, PORTER & SEELEY, INC.

512 E. Grand River, Brighton, Michigan 48116

Telephone: (810) 220-2112 FAX: (810) 220-0094

PROJECT: Brighton Township East Grand River Water Systems DATE: 12/23/98

LOCATION: Grand River Avenue and Old US-23 PROJECT NO. 0115.267.31

BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL ESTIMATOR: J. Markstrom

WORK: Cost of Water Supply and Water Main Distribution System. CHECKED BY: J. Moore

(All Costs are Reported in 1st Quarter 2000 Dollars)

ITEM NO.	DESCRIPTION	TOTAL AMOUNT
<b>TRANSMISSION MAIN, WATER SOURCE AND STORAGE</b>		
1	Transmission Main, Water Source and Storage Construction Costs	\$3,111,000.00
	Construction Contingencies (10 %)	\$311,300.00
	Engineering (15 %)	\$466,800.00
	Financing, Legal and Administration (5 %)	\$155,900.00
	<b>TRANSMISSION MAIN, WATER SOURCE AND STORAGE PROJECT COST =</b>	<b>\$4,045,000.00</b>
<b>WATER MAIN DISTRIBUTION</b>		
1	Water Main Construction Cost	\$570,500.00
	Construction Contingencies (10 %)	\$58,000.00
	Engineering (15 %)	\$85,750.00
	Financing, Legal and Administration (5 %)	\$28,750.00
	<b>WATER MAIN DISTRIBUTION PROJECT COST =</b>	<b>\$743,000.00</b>
<b>TOTAL PROJECT COST</b>		<b>\$4,788,000.00</b>

# ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

## McNAMEE, PORTER & SEELEY, INC.

512 E. Grand River, Brighton, Michigan 48116

Telephone: (810) 220-2112 FAX: (810) 220-0094

PROJECT: Brighton Township East Grand River Water Supply

DATE: 12/23/98

LOCATION: Along Old US-23 Between Spencer Road and I-96

PROJECT NO. 0115.267.31

BASIS FOR ESTIMATE:  CONCEPTUAL  PRELIMINARY  FINAL

ESTIMATOR: J. Markstrom

WORK: Water Supply Wells, Wellhouse, Water Storage Tank and

CHECKED BY: J. Moore

Transmission Main to Supply Water to East Grand River Water System

(All Construction Costs Reported in 1st Quarter 2000 Dollars)

ITEM NO.	DESCRIPTION	QUANT.	UNIT	UNIT AMOUNT	TOTAL AMOUNT
<b>WATER MAIN</b>					
1	16-inch CL 52 DI Water Main	10,000	LF	\$55.00	\$550,000.00
2	16-inch Gate Valve w/Box	8	LF	\$3,500.00	\$28,000.00
3	36-inch Casing Pipe Jack & Bore	800	LF	\$225.00	\$180,000.00
4	Fire Hydrant Assembly (1/400 ft WM)	30	EA	\$2,500.00	\$75,000.00
5	Drive Restoration (assume 20 ft drive per 100 feet water main)	1,900	SF	\$30.00	\$1,930.00
6	600,000 Gallon Water Storage Tank (125' tall Standpipe)	1	LS	\$400,000.00	\$400,000.00
7	Well House (with Firm Capacity of 700 GPM and Iron Removal)	1	LS	\$1,728,000.00	\$1,728,000.00
<b>Construction Subtotal =</b>					<b>\$2,962,930.00</b>
Forward Costs to 1st Quarter 2000 Dollars (5 % of Construction Subtotal) =					\$148,070.00
<b>TOTAL CONSTRUCTION COST</b>					<b>\$3,111,000.00</b>







**APPENDIX J**  
**Anticipated User Charges**



BRIGHTON TOWNSHIP  
SANITARY SEWER SYSTEM

ANTICIPATED USER CHARGE CALCULATION

December 24, 1998

I SANITARY SEWER ANNUAL OPERATION AND MAINTENANCE EXPENSES

DESCRIPTION	AMOUNT
SERVICE PERSONNEL (LABOR)	\$150,000
ELECTRICAL, TELEPHONE, AND NATURAL GAS	\$55,000
SLUDGE DISPOSAL	\$40,000
TREATMENT CHEMICALS	\$10,000
EQUIPMENT REPAIRS AND MAINTENANCE	\$25,000
EQUIPMENT REPLACEMENT FUND*	\$70,000
BUILDING/PROPERTY MAINTENANCE **	\$5,000
SUPPLIES	\$5,000
<b>TOTAL ANNUAL EXPENSES =</b>	<b>\$360,000</b>

\* The annual equipment replacement fund amount is based on a 20 year sinking fund with a six percent interest rate.

\*\* The building / property maintenance costs include lawn service and snow removal.

II SANITARY SEWER ANNUAL ADMINISTRATION EXPENSES

DESCRIPTION	AMOUNT
BILLING PREPARATION AND MAILING	\$8,000
OFFICE SUPPLIES	\$2,000
SEWER SYSTEM INSURANCE	\$10,000
PROFESSIONAL FEES (audit, legal & engineering)	\$5,000
<b>TOTAL ANNUAL EXPENSES =</b>	<b>\$25,000</b>

III SANITARY SEWER CUSTOMER DATA

NUMBER OF CUSTOMERS	1,189
NUMBER OF RESIDENTIAL EQUIVALENT USERS (REU)	1,646
BILLABLE FLOW PER REU (GPD)	210
BILLABLE FLOW PER DAY (GPD)	345,660
BILLABLE FLOW PER YEAR (1000 GALLONS)	126,166

IV SANITARY SEWER RATE CALCULATION

BILLING CHARGE

$$\begin{aligned} \text{Billing Charge} &= \text{Annual Administration Expense} / \# \text{ of Customers} \\ &= \$25,000 / 1,189 \text{ customers} = \$21.03 \text{ (per year)} \\ &\mathbf{\$5.25 \text{ per quarter}} \end{aligned}$$

COMMODITY CHARGE

$$\begin{aligned} \text{Commodity Charge} &= \text{Annual O \& M Expenses} / \text{Annual Billable Flow} \\ &= \$360,000 / 126,166 \text{ (1,000 gallons)} \\ &\mathbf{\$2.86 \text{ per 1,000 gallons}} \end{aligned}$$

BRIGHTON TOWNSHIP  
SANITARY SEWER SYSTEM

**ANTICIPATED USER CHARGE CALCULATION**  
*December 24, 1998*

**V TYPICAL QUARTERLY SANITARY SEWER BILL**

*FOR A SANITARY SEWER CUSTOMER WITH 1 REU:*

BILLING CHARGE	\$5.25
COMMODITY CHARGE (210 GPDx91 DAYSx\$2.86/1,000 GAL)	\$54.65
	<hr/>
	\$59.90
<b>TYPICAL QUARTERLY SEWER BILL=</b>	<b>\$60.00</b>

*FOR A SANITARY SEWER CUSTOMER WITH 5 REUs:*

BILLING CHARGE	\$5.25
COMMODITY CHARGE (5 REUx210 GPDx91 DAYSx\$2.86/1,000 GAL)	\$273.27
	<hr/>
	\$278.52
<b>TYPICAL QUARTERLY SEWER BILL=</b>	<b>\$280.00</b>

BRIGHTON TOWNSHIP  
EAST GRAND RIVER WATER SYSTEM

**ANTICIPATED USER CHARGE CALCULATION**

*December 24, 1998*

**I WATER SUPPLY ANNUAL OPERATION AND MAINTENANCE EXPENSES**

DESCRIPTION	AMOUNT
SERVICE PERSONNEL (LABOR)	\$30,000
POWER (ELECTRIC)	\$10,000
TELEPHONE	\$500
NATURAL GAS	\$2,000
TREATMENT CHEMICALS	\$5,000
EQUIPMENT REPAIRS AND MAINTENANCE	\$10,000
EQUIPMENT REPLACEMENT FUND*	\$10,000
BUILDING / PROPERTY MAINTENANCE**	\$3,000
SUPPLIES	\$5,000
	<b>TOTAL ANNUAL EXPENSES = \$75,500</b>

\* The annual equipment replacement fund amount is based on a 20 year sinking fund with a six percent interest rate.

\*\* The building / property maintenance costs include lawn and snow removal costs.

**II WATER SUPPLY ANNUAL ADMINISTRATION EXPENSES**

DESCRIPTION	AMOUNT
METER READING	\$1,000
METER MAINTENANCE AND REPLACEMENT	\$2,000
BILLING PREPARATION AND MAILING	\$1,500
OFFICE SUPPLIES	\$500
WATER SYSTEM INSURANCE	\$2,000
PROFESSIONAL FEES (audit, legal & engineering)	\$2,000
	<b>TOTAL ANNUAL EXPENSES = \$9,000</b>

**III WATER CUSTOMER DATA**

NUMBER OF CUSTOMERS	80
NUMBER OF RESIDENTIAL EQUIVALENT USERS (REU)	315
BILLABLE FLOW PER REU (GPD)	210
BILLABLE FLOW PER DAY (GPD)	66,150
BILLABLE FLOW PER YEAR (1000 GALLONS)	24,145

BRIGHTON TOWNSHIP  
EAST GRAND RIVER WATER SYSTEM

**ANTICIPATED USER CHARGE CALCULATION**

*December 24, 1998*

**IV WATER RATE CALCULATION**

*BILLING CHARGE*

*Billing Charge = Annual Administration Expense / # of Customers*  
*= \$9,000 / 80 customers = \$112 (per year)*  
**\$28 per quarter**

*COMMODITY CHARGE*

*Commodity Charge = Annual O & M Expenses / Annual Billable Flow*  
*\$75,500 / 21,145 (1,000 gallons) = \$3.57 per 1,000 gallons*  
**use \$3.60 per 1,000 gallons**

**V TYPICAL QUARTERLY WATER BILL**

*FOR A WATER CUSTOMER WITH 1 REU:*

BILLING CHARGE	\$28
COMMODITY CHARGE (210 GPDx91 DAYSx\$3.60/1,000 GAL)	\$69
<b>TYPICAL QUARTERLY WATER BILL=</b>	<b>\$97</b>

*FOR A WATER CUSTOMER WITH 5 REUs:*

BILLING CHARGE	\$28
COMMODITY CHARGE (5 REUx210 GPDx91 DAYSx\$3.60/1,000 GAL)	\$344
<b>TYPICAL QUARTERLY WATER BILL=</b>	<b>\$372</b>

**APPENDIX K**  
**Project Schedule**



**Brighton Township  
Sanitary Sewer Improvement Project  
Financing Schedule and Timetable**

<u>Step</u>	<u>Action</u>	<u>Date</u>
1.	Township Board Adopts Reimbursement Resolution	April 7, 1998
2.	Preliminary Plans and Specifications for the Project are Prepared	Fall, 1998
3.	Informational ^ <u>Open House</u> on Proposed Project	^ <u>January</u> , 1998
4.	Petitions to Request Sewer Project Circulated by Sewer Committee <sup>1/</sup>	^ <u>Spring</u> , 1999
5.	Petitions Reviewed for Sufficiency by the Township Board	May, 1999
6.	Public Hearing on the Sufficiency of the Petitions and the Necessity of the Project	June, 1999
7.	Prepare Final Design Specifications and Construction Bid Documents	June to December, 1999
8.	Township Board Adopts Resolution Initiating the Project	July, 1999
9.	DPW Adopts Resolution Initiating the Project	July, 1999
10.	County Board of Commissioners Adopts Resolution Approving the Project	July, 1999
11.	Township Board Adopts Resolution Approving the Contract with the County	July, 1999
12.	Construction Bid Documents are Mailed	December, 1999
13.	Filing with the Municipal Finance Division of the Michigan Department of Treasury	December, 1999

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<sup>1/</sup>The Petitions will request that the Township Board use the Livingston County DPW to finance the Project (pursuant to Act 185) and that the Township Board levy special assessments under Act 188.

<u>Step</u>	<u>Action</u>	<u>Date</u>
14.	Bids for the Construction of the Project are Received (with a 120 day hold)	January, 2000
15.	Approval from the Michigan Department of Treasury for the Issuance of the Bonds	January, 2000
16.	Township Board Adopts Resolution Approving Plans, Cost Estimates, Special Assessment District, and Causing the Special Assessment Roll to be Prepared	January, 2000
17.	DPW Adopts Resolution Approving Plans and Cost Estimates and Recommending Approval of the Contract and Bond Resolution	January, 2000
18.	County Board of Commissioners Finance Committee Approves Resolution Approving the Contract	January, 2000
19.	County Board of Commissioners Finance Committee Approves Bond Resolution	January, 2000
20.	County Board of Commissioners Adopts Resolution Approving the Contract	January, 2000
21.	County Board of Commissioners Adopts Bond Resolution	January, 2000
22.	The Special Assessment Roll for the Project is Prepared and Filed with the Township Clerk	January, 2000
23.	Township Board Adopts Resolution Acknowledging the Filing of the Special Assessment Roll and Scheduling the Hearing and Directing the Issuance of Statutory Notices	January, 2000

<u>Step</u>	<u>Action</u>	<u>Date</u>
24.	Notices of the Hearing are Prepared	February, 2000
	a. Notice of the Hearing is Mailed by First Class Mail at Least 10 Days Before the Hearing	February, 2000
	b. Notice of the Hearing is Published in a Newspaper at Least 10 Days Before the Hearing	February, 2000
	c. Notice of the Hearing is Published in a Newspaper Within 10 Days of the Hearing	February, 2000
25.	The Hearing on the Special Assessment Roll is Held	February, 2000
26.	Township Board Adopts Resolution Confirming the Special Assessment Roll	February, 2000
27.	Prepare Bond Offering Documents	March, 2000
28.	Publish Official Notice of Sale	March, 2000
29.	Sale of Bonds <sup>2/</sup>	March, 2000
30.	DPW Adopts Award Resolution	March, 2000
31.	Closing on the Bond Issue	April, 2000
32.	Start Construction	April, 2000
33.	First Collection on the Special Assessment Roll	December, 2000
34.	Complete Construction	Spring, 2001

LA^ 38946.3

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<sup>2/</sup>Certain intermediate steps have been omitted from the bond issuance process



**APPENDIX L**  
**USDA 504 Loan and Grant Program Backup**





United States  
Department of  
Agriculture

Rural Development

3469 E. Grand River  
Howell, MI 48843  
COM (517) 548-1550  
FAX (517) 548-0533  
TDD (800) 649-3777

## BASIC REQUIREMENTS FOR RURAL DEVELOPMENT

### SECTION 504 LOAN AND GRANT PROGRAMS

#### LOANS

The 504 Loan program is an excellent opportunity for VERY LOW INCOME (see income chart on reverse) owner-occupants to receive funding assistance needed to make necessary repairs/improvements on their home. The 504 Loans are made available to remove health and safety hazards; general repairs to improve or modernize a home; repair or remodel dwellings in order to make the home more accessible and useable for household members with a disability; and repair mobile or manufactured homes (must be permanently fixed to property).

Loans are available for such things as: water and sewage systems; installation of insulation; windows; electrical systems; weak or damaged floors, walls, roof; and any other repairs or improvements deemed necessary to make the home decent, safe and sanitary for the occupants. Loans can also be utilized to remodel for physical disability needs or handicap accessibility. The following criteria must also be met to be eligible for the 504 loan program:

1. Legal capacity to incur debt.
2. Applicant must be owner-occupant and have occupied the home prior to filing the application.
3. Dwelling must be located in designated rural areas only (maps available upon request).
4. Applicant must be unable to remove the health and safety hazards utilizing personal resources such as non-retirement assets in excess of \$10,000.00 (non-retirement assets include only assets that cannot be converted to cash within 90 days).
5. Applicant must exhibit credit worthiness.

Section 504 Loans of \$2,500.00 or less require no mortgage or lien of any kind to be taken on the property. No credit report is required, no closing costs, and no appraisal.

Section 504 Loans in excess of \$2,500.00 do require a mortgage to be taken on the property and may have other costs involved. The maximum assistance outstanding to any individual for initial or subsequent Section 504 loans may not exceed a cumulative total of \$20,000.00. The terms of the loan is 1% with amortization up to 20 years.

#### GRANTS

The 504 Grant program is available to assist VERY LOW INCOME (see income chart on reverse) owner - occupants who lack conventional repayment ability to remove health and safety hazards or make their dwelling accessible to household members with disabilities. Lifetime assistance to any individual for initial or subsequent Section 504 Grants may not exceed a cumulative total of \$7,500.00.

For grant assistance the applicant or co-applicant must be 62 years of age or older and unable to repay a Section 504 loan amortized over the maximum number of years for the cost of the repairs. Applicants must also meet the following criteria to be eligible for the grant program:

1. Legal capacity to incur debt.
2. Applicant must be owner-occupant and have occupied the home prior to filing the application.
3. Dwelling must be located in designated rural areas only (maps available upon request).
4. Applicant must be unable to remove the health and safety hazards utilizing personal resources such as non-retirement assets in excess of \$10,000.00 (non-retirement assets include only assets that cannot be converted to cash within 90 days).

Grant funds received are considered income by the Internal Revenue Service (IRS) and form 1099 will be issued.

Grant recipients are required to sign a grant agreement which requires that if the property is sold by the grantee or the grantee's heirs or estate before the end of a three year period, the full amount of the grant will be repaid to the Government.

*Rural Development is an Equal Opportunity Lender. Complaints of discrimination should be sent to:  
Secretary of Agriculture, Washington, D.C. 20250*

### INCOME LEVELS FOR OAKLAND, MACOMB, MONROE, AND WAYNE COUNTIES

Income	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
Very Low	20,000	22,900	25,750	28,600	30,900	33,200	35,450	37,750
Low	31,700	36,250	40,750	45,300	48,900	52,550	56,150	59,800
Moderate	37,200	41,750	46,250	50,800	54,400	58,050	61,650	65,300

### INCOME LEVELS FOR LIVINGSTON, LENAWE, AND WASHTENAW COUNTIES

Income	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
Very Low	21,450	24,500	27,600	30,650	33,100	35,550	38,000	40,450
Low	31,700	36,250	40,750	45,300	48,900	52,550	56,150	59,800
Moderate	37,200	41,750	46,250	50,800	54,400	58,050	61,650	65,300

### INCOME LEVELS FOR JACKSON COUNTY

Income	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
Very Low	15,700	17,950	20,200	22,450	24,250	26,050	27,850	29,650
Low	25,150	28,750	32,350	35,900	38,800	41,650	44,550	47,400
Moderate	30,550	34,250	37,850	41,400	44,300	47,150	50,050	52,900

### INCOME LEVELS FOR HILLSDALE COUNTY

Income	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
Very Low	13,800	15,750	17,750	19,700	21,300	22,850	24,450	26,000
Low	22,050	25,200	28,350	31,500	34,050	36,550	39,100	41,600
Moderate	27,550	30,700	33,850	37,000	39,550	42,050	44,600	47,100

### INCOME LEVELS FOR INGHAM COUNTY

Income	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
Very Low	17,550	20,100	22,600	25,100	27,100	29,100	31,100	33,150
Low	28,100	32,150	36,150	40,150	43,250	46,600	49,800	53,000
Moderate	33,600	37,650	41,650	45,650	48,850	52,100	55,300	58,500



United States  
Department of  
Agriculture

Rural Development

3469 E. Grand River  
Howell, MI 48843  
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## 504 LOAN AND GRANT APPLICATION CHECKLIST

- \_\_\_\_\_ 1. UNIFORM RESIDENTIAL LOAN APPLICATION (FORM RD 410-4)
  
- \_\_\_\_\_ 2. AUTHORIZATION TO RELEASE INFORMATION (FORM RRS 3550-1)
  
- \_\_\_\_\_ 3. PROOF OF ANY OTHER INCOME (OTHER THAN EMPLOYMENT) SUCH AS SOCIAL SECURITY BENEFITS, DISABILITY, CHILD SUPPORT, ETC.
  
- \_\_\_\_\_ 4. BUDGET (FORM FMHA 1944-3). PLEASE COMPLETE BUDGET PORTION ONLY (FINANCIAL STATEMENT IS ON APPLICATION)
  
- \_\_\_\_\_ 5. PROOF OF OWNERSHIP OF THE PROPERTY. THIS CAN BE A COPY OF RECORDED DEED, CONTRACT, OR ANY OTHER DOCUMENT THAT MAY SHOW EVIDENCE OF OWNERSHIP OF THE PROPERTY
  
- \_\_\_\_\_ 6. TWO (2) ITEMIZED COST ESTIMATES FROM LICENSED CONTRACTORS FOR ALL REPAIRS





Form RD 1944-3  
(Rev. 6-97)

**BUDGET AND/OR FINANCIAL STATEMENT**

1. NAME OF APPLICANT/BORROWER:	2. HOME PHONE NUMBER:	3. AGES OF PERSONS IN HOUSEHOLD:
4. NAME OF CO-APPLICANT/CO-BORROWER:	5. WORK PHONE NUMBER:	Applicant/Borrower: _____ Children: _____ Co-Applicant/Co-Borrower: _____ Others: _____
6. ADDRESS:		7. PERIOD COVERED BY PLAN: _____, 19____ thru _____, 19____

**BUDGET**

**PART 1 - PLANNED EXPENSES AND PAYMENTS**

A - CASH EXPENSES	MONTHLY	NEXT 12 MONTHS	B - DEBT PAYMENTS	MONTHLY	NEXT 12 MONTHS
FOOD:	\$	\$	HOUSE PAYMENT:	\$	\$
CLOTHING:			CAR/TRUCK:		
MEDICAL: <i>(Doctor, dentist, eyeglasses, medication, etc.)</i>			CAR/TRUCK:		
PERSONAL: <i>(Beauty shop, barber, liquor, cigarettes, newspapers, magazines, etc.)</i>			OTHER VEHICLES AND EQUIPMENT:		
HOUSEHOLD:			OTHER: <i>(Credit cards, medical, installment loans, personal debts, other real estate etc.)</i> (LIST)		
FUEL:			_____ _____ _____		
ELECTRICITY:			FEDERAL DEBTS:		
TELEPHONE:			_____ _____		
CABLE TV:			PLANNED CREDIT PURCHASES: <i>(Furniture appliances, etc.)</i>		
WATER AND/OR SEWER:					
OTHER:					
HOME REPAIR AND MAINTENANCE: <i>(Appliances, paint, yard, etc.)</i>			TOTAL DEBT PAYMENTS:	\$	\$
EDUCATION: <i>(Tuition, books, supplies, fees, school lunches, etc.)</i>			<b>PART 2 - HOUSEHOLD INCOME</b>		
GIFTS: <i>(Holidays, birthdays, charity, church, etc.)</i>			APPLICANT/BORROWER: <i>(Wages, tips, overtime, etc.)</i>		
RECREATION: <i>(Dining, movies, sports, entertainment, vacation, hobbies, etc.)</i>			CO-APPLICANT/CO-BORROWER: <i>(Wages, tips, overtime, etc.)</i>		
MISC. POCKET EXPENSES: <i>(Sodas, lunches, allowances, etc.)</i>			NET BUSINESS INCOME:		
CAR: <i>(Gas, tires, repairs, license, etc.)</i>			OTHER: <i>(Social Security, retirement, alimony, child support, VA, public assistance, other income, etc.)</i>		
TRANSPORTATION: <i>(Bus, taxi, trains, etc.)</i>			TOTAL HOUSEHOLD INCOME:	\$	\$
INSURANCE:			<b>PART 3 - SUMMARY</b>		
REAL ESTATE:			A. TOTAL INCOME (PART 2)	\$	\$
AUTO(S):			B. CASH <i>(Checking, savings, etc.)</i>		
HEALTH & LIFE:			C. TOTAL EXPENSES AND DEBT PAYMENTS (PART 1A + 1B)		
TAXES:			D. BALANCE (A + B - C)	\$	\$
REAL ESTATE:			SIGNATURE OF APPLICANT/BORROWER		DATE
INCOME:			SIGNATURE OF CO-APPLICANT/CO-BORROWER		DATE
SOCIAL SECURITY:			SIGNATURE OF AGENCY OFFICIAL <i>(I have reviewed this budget and it appears to be a reasonable projection of income and expenses)</i>		DATE
PERSONAL PROPERTY:					
UNION OR PROFESSIONAL DUES:					
CHILD CARE: <i>(Daycare, babysitting, etc.)</i>					
CHILD SUPPORT/ALIMONY: <i>(Paid out)</i>					
PLANNED CASH PURCHASES: <i>(Furniture, appliances, etc.)</i>					
LOAN CLOSING COSTS: <i>(Not included in loan)</i>					
MOVING EXPENSES:					
OTHER:					
TOTAL CASH EXPENSES	\$	\$			

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0575-0172. The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

# APPLICATION FOR RURAL ASSISTANCE (NONFARM TRACT) Uniform Residential Loan Application

This application is designed to be completed by the applicant with the lender's assistance. Applicants should complete this form as "Applicant #1" or "Applicant #2", as applicable. All Applicants must provide information (and the appropriate box checked) when  the income or assets of a person other than the "Applicant" (including the Applicant's spouse) will be used as a basis for loan qualification or  the income or assets of the Applicant's spouse will not be used as a basis for loan qualification, but his or her liabilities must be considered because the Applicant resides in a community property state, the security property is located in a community property state, or the Applicant is relying on other property located in a community property state as a basis for repayment of the loan.

### I. TYPE OF MORTGAGE AND TERMS OF LOAN

Mortgage Applied for:	<input type="checkbox"/> V.A.	<input type="checkbox"/> Conventional	<input type="checkbox"/> Other:	Agency Case Number	Lender Account Number
	<input type="checkbox"/> FHA	<input type="checkbox"/> USDA			
Amount	Interest Rate	No. of Months	Amortization Type:	<input type="checkbox"/> Fixed Rate	<input type="checkbox"/> Other (Explain):
\$	%			<input type="checkbox"/> GPM	<input type="checkbox"/> ARM (Type):

### II. PROPERTY INFORMATION AND PURPOSE OF LOAN

Subject Property Address (Street, City, State, ZIP)					No. of Units
Legal Description of Subject Property (Attach description if necessary)					Year Built
Purpose of Loan	<input type="checkbox"/> Purchase	<input type="checkbox"/> Construction	<input type="checkbox"/> Other (Explain):		Property will be:
	<input type="checkbox"/> Refinance	<input type="checkbox"/> Construction-Permanent			<input type="checkbox"/> Primary Residence
					<input type="checkbox"/> Secondary Residence
					<input type="checkbox"/> Investment
Complete this line if construction or construction-permanent loan.					
Year Lot Acquired	Original Cost	Amount Existing Liens	(a) Present Value of Lot	(b) Cost of Improvements	Total (a + b)
\$	\$	\$	\$	\$	\$
Complete this line if this is a refinance loan.					
Year Acquired	Original Cost	Amount Existing Liens	Purpose of Refinance	Describe Improvements	<input type="checkbox"/> Made <input type="checkbox"/> To be made
\$	\$	\$		Cost: \$	
Title will be held in what Name(s)			Manner in which Title will be held	Estate will be held in:	
				<input type="checkbox"/> Fee Simple	
Source of Down Payment, Settlement Charges and/or Subordinate Financing (Explain)				<input type="checkbox"/> Leasehold (Show expiration date)	

### III. APPLICANT INFORMATION

Applicant #1				Applicant #2			
Name (Include Jr. or Sr. if applicable)				Name (Include Jr. or Sr. if applicable)			
Social Security Number	Home Phone (Incl. Area Code)	Age	Yrs. School	Social Security Number	Home Phone (Incl. Area Code)	Age	Yrs. School
<input type="checkbox"/> Married	<input type="checkbox"/> Unmarried (Include single, divorced, widowed)	Dependents (Not listed by Applicant #2) No. Ages		<input type="checkbox"/> Married	<input type="checkbox"/> Unmarried (Include single, divorced, widowed)	Dependents (Not listed by Applicant #1) No. Ages	
<input type="checkbox"/> Separated				<input type="checkbox"/> Separated			
Present Address (Street, City, State, ZIP) <input type="checkbox"/> Own <input type="checkbox"/> Rent ___ No. Yrs.				Present Address (Street, City, State, ZIP) <input type="checkbox"/> Own <input type="checkbox"/> Rent ___ No. Yrs.			
If residing at present address for less than two years, complete the following:							
Former Address (Street, City, State, ZIP) <input type="checkbox"/> Own <input type="checkbox"/> Rent ___ No. Yrs.				Former Address (Street, City, State, ZIP) <input type="checkbox"/> Own <input type="checkbox"/> Rent ___ No. Yrs.			
Former Address (Street, City, State, ZIP) <input type="checkbox"/> Own <input type="checkbox"/> Rent ___ No. Yrs.				Former Address (Street, City, State, ZIP) <input type="checkbox"/> Own <input type="checkbox"/> Rent ___ No. Yrs.			

**IV. EMPLOYMENT INFORMATION**

Applicant #1		Applicant #2	
Name & Address of Employer <input type="checkbox"/> Self-Employed	Yrs./Mos. on this job	Name & Address of Employer <input type="checkbox"/> Self-Employed	Yrs./Mos. on this job
	Yrs./Mos. employed in this line of work/profession		Yrs./Mos. employed in this line of work/profession
Position/Title/Type of Business	Business Phone (Incl. Area Code)	Position/Title/Type of Business	Business Phone (Incl. Area Code)

*If employed in current position for less than two years or if currently employed in more than one position, complete the following:*

Name & Address of Employer <input type="checkbox"/> Self-Employed	Dates (From → To)	Name & Address of Employer <input type="checkbox"/> Self-Employed	Dates (From → To)
	Monthly Income \$		Monthly Income \$
Position/Title/Type of Business	Business Phone (Incl. Area Code)	Position/Title/Type of Business	Business Phone (Incl. Area Code)
Name & Address of Employer <input type="checkbox"/> Self-Employed	Dates (From → To)	Name & Address of Employer <input type="checkbox"/> Self-Employed	Dates (From → To)
	Monthly Income \$		Monthly Income \$
Position/Title/Type of Business	Business Phone (Incl. Area Code)	Position/Title/Type of Business	Business Phone (Incl. Area Code)

**V. MONTHLY INCOME AND COMBINED HOUSING EXPENSE INFORMATION**

Gross Monthly Income	Applicant #1	Applicant #2	Total	Combined Monthly Housing Expense	Present	Proposed
Base Empl. Income*	\$	\$	\$	Rent	\$	
Overtime				First Mortgage (P&I)		\$
Bonuses				Other Financing (P&I)		
Commissions				Hazard Insurance		
Dividends/Interest				Real Estate Taxes		
Net Rental Income				Mortgage Insurance		
Other (Before completing see the notice in "describe other income," below)				Homeowner Assn. Dues		
				Other		
<b>Total</b>	\$	\$	\$	<b>Total</b>	\$	\$

\* Self Employed Applicant may be required to provide additional documentation such as tax returns and financial statements.

A1/A2	Describe Other Income <i>Notice: Alimony, child support, or separate maintenance income need not be revealed if the Applicant #1, (A1) or Applicant #2 (A2) does not choose to have it considered for repaying this loan.</i>	Monthly Amount

**VI. ASSETS AND LIABILITIES**

This Statement and any applicable supporting schedules may be completed jointly by both married and unmarried Applicants if their assets and liabilities are sufficiently joined so that the Statement can be meaningfully and fairly presented on a combined basis; otherwise separate Statements and Schedules are required. If the Applicant #2 section was completed about a spouse, this Statement and supporting schedules must be completed about that spouse also.

Completed  Jointly  Not Jointly

ASSETS	Cash or Market Value	Liabilities and Pledged Assets. List the creditor's name, address and account number for all outstanding debts, including automobile loans, revolving charge accounts, real estate loans, alimony, child support, stock pledges, etc. Use continuation sheet, if necessary. Indicate by (*) those liabilities which will be satisfied upon sale of real estate owned or upon refinancing of the subject property.			
Description		LIABILITIES	Monthly Payment & Months Left to Pay	Unpaid Balance	
Cash deposit toward purchase held by:	\$	Name and Address of Company	\$ Payment/Months	\$	
<i>List checking and saving accounts below</i>					
Name and Address of Bank, S&L, or Credit Union		Acct. No.			
		Name and Address of Company	\$ Payment/Months	\$	
Acct. No.	\$	Acct. No.			
Name and Address of Bank, S&L, or Credit Union		Name and Address of Company	\$ Payment/Months	\$	
Acct. No.	\$	Acct. No.			
Name and Address of Bank, S&L, or Credit Union		Name and Address of Company	\$ Payment/Months	\$	
Acct. No.	\$	Acct. No.			
Name and Address of Bank, S&L, or Credit Union		Name and Address of Company	\$ Payment/Months	\$	
Acct. No.	\$	Acct. No.			
Name and Address of Bank, S&L, or Credit Union		Name and Address of Company	\$ Payment/Months	\$	
Acct. No.	\$	Acct. No.			
Stocks & Bonds (Company name/number & description)	\$	Name and Address of Company	\$ Payment/Months	\$	
Life insurance net cash value	\$	Acct. No.			
Face amount: \$		Name and Address of Company	\$ Payment/Months	\$	
<b>Subtotal Liquid Assets</b>	\$	Acct. No.			
Real estate owned (Enter market value from schedule of real estate owned)	\$	Name and Address of Company	\$ Payment/Months	\$	
Vested interest in retirement fund	\$	Acct. No.			
Net worth of business(es) owned (Attach financial statement)	\$	Name and Address of Company	\$ Payment/Months	\$	
Automobiles owned (Make and year)	\$	Acct. No.			
Other Assets (Itemize)	\$	Alimony/Child Support/Separate Maintenance Payments Owed to:	\$		
		Job Related Expense (Child care, union dues, etc.)	\$		
		<b>Total Monthly Payments</b>	\$		
<b>Total Assets a.</b>	\$	<b>Net Worth (a minus b)</b> ➔	\$	<b>Total Liabilities b.</b>	\$



**IX. ACKNOWLEDGMENT AND AGREEMENT**

The undersigned specifically acknowledge and agree that: (1) the loan requested by this application will be secured by a mortgage or deed of trust on the property described herein; (2) the property will not be used for any illegal or prohibited purpose or use; (3) all statements made in this application are made for the purpose of obtaining the loan indicated herein; (4) occupation of the property will be as indicated in Section II Property Information and Purpose of Loan; (5) verification or reverification of any information contained in the application may be made at any time by the Lender, its agents, successors and assigns, either directly or through a credit reporting agency, from any source named in this application, and the original copy of this application will be retained by the Lender, even if the loan is not approved; (6) the Lender, its agents, successors and assigns will rely on the information contained in the application and I have a continuing obligation to amend and/or supplement the information provided in this application if any of the material facts which I have represented herein should change prior to closing; (7) In the event payments on the loan indicated in this application become delinquent, the Lender, its agents, successors and assigns, may, in addition to all their other rights and remedies, report my name and account information to a credit reporting agency; (8) ownership of the loan may be transferred to successor or assign of the Lender without notice to me and/or the administration of the loan account may be transferred to an agent, successor or assign of the Lender with prior notice to me; (9) the Lender, its agents, successors and assigns make no representations or warranties, express or implied, to the Borrower(s) regarding the property, the condition of the property, or the value of the property.

**Certification:** I certify that the information provided in this application is true and correct as of the date set forth opposite my signature on this application and acknowledge my understanding that any intentional or negligent misrepresentation of the information contained in this application may result in civil liability and/or criminal penalties including, but not limited to, fine or imprisonment or both under the provisions of Title 18, United States Code, Section 1001, and liability for monetary damages to the Lender, its agents, successors and assigns, insurers and any other person who may suffer any loss due to reliance upon any misrepresentation which I have made on this application.

Applicant's Signature	Date	Applicant's Signature	Date
X		X	

**X. INFORMATION FOR GOVERNMENT MONITORING PURPOSES**

The following information is requested by the Federal Government for certain types of loans related to a dwelling, in order to monitor the Lender's compliance with equal credit opportunity, fair housing and home mortgage disclosure laws. You are not required to furnish this information, but are encouraged to do so. The law provides that a Lender may neither discriminate on the basis of this information, nor on whether you choose to furnish it. However, if you choose not to furnish it, under Federal regulations this Lender is required to note race and sex on the basis of visual observation or surname. If you do not wish to furnish the above information, please check the box below. *(Lender must review the above material to assure that the disclosures satisfy all requirements to which the Lender is subject under applicable state law for the particular type of loan applied for.)*

APPLICANT #1	APPLICANT #2
<input type="checkbox"/> I do not wish to furnish this information Race/National Origin: <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Black, not of Hispanic Origin <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Asian or Pacific Islander <input type="checkbox"/> Hispanic Sex: <input type="checkbox"/> Female <input type="checkbox"/> Male	<input type="checkbox"/> I do not wish to furnish this information Race/National Origin: <input type="checkbox"/> American Indian or Alaskan Native <input type="checkbox"/> Black, not of Hispanic Origin <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Asian or Pacific Islander <input type="checkbox"/> Hispanic Sex: <input type="checkbox"/> Female <input type="checkbox"/> Male

To be Completed by Interviewer  This application was taken by: <input type="checkbox"/> face-to-face interview <input type="checkbox"/> by mail <input type="checkbox"/> by telephone	Interviewer's Name (Print or type)  Interviewer's Signature _____ Date _____  Interviewer's Phone Number (Incl. Area Code) _____	Name and Address of Interviewer's Employer  _____ _____ _____
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**Continuation For/Residential Loan Application**

Use if you need more space to complete the Residential Loan Application Mark A1 for Applicant #1 or A2 for Applicant #2	Applicant #1 (A1)	Agency Account Number:
	Applicant #2 (A2)	Lender Account Number:

# Additional Information Required for RHS Assistance

1. Loan Type: Section 502  Section 504:  Loan  Grant

## APPLICANT #1

2. Have you ever obtained a loan/grant from RHS?

Yes  No

4. Are you a relative to an RHS Employee or Closing agent/attorney?

Yes  No

If yes, who? \_\_\_\_\_

Relationship \_\_\_\_\_

6. Are you a Veteran? Yes  No

## APPLICANT #2

3. Have you ever obtained a loan/grant from RHS?

Yes  No

5. Are you a relative to an RHS Employee or Closing agent/attorney?

Yes  No

If yes, who? \_\_\_\_\_

Relationship \_\_\_\_\_

7. Are you a Veteran? Yes  No

8. Complete for all household members who are 18 years of age or older.

To be considered eligible for assistance, all household income must be disclosed below:

Name:	Age	Are you a full time student? y/n	Do you want to be considered for an adjustment from household income because of a disabling condition? y/n	Annual Wage Income	Source of Wage Income (employer)	Annual Non-Wage Income	Source of Non-Wage Income (social security, alimony, child support, etc.)

9. Child Care (Minors who are 12 years of age or under for whom you have to hire a babysitter or leave at a child care center)

Cost per week \$ \_\_\_\_\_ Cost per month \$ \_\_\_\_\_

10. Characteristics of Present Housing

Does the Dwelling:

Yes No

Yes No

Lack complete plumbing

Physically deteriorated or structurally unsound

Lack adequate heating

Overcrowded (More than 2 persons per room)

11. (For Section 504 Grants Only) I certify that as the condition of the grant, I/we will not engage in unlawful manufacture, distribution, dispensing, possession or use of a controlled substance in conducting any activity with the grant.

12. I am aware RHS does not warrant the condition or value of the property.

13. Notices to Applicant

**Privacy Act.** See attached sheet.

**Social Security Number.** The Debt Collection Act of 1982, Pub. L. 97-365, and 31 U.S.C. 7701(c) require persons applying for a federally insured or guaranteed loan to furnish his or her social security number (SSN). Failure to provide your SSN will result in the rejection of your application.

**Right to Financial Privacy Act of 1978, 12 U.S.C. 3401, et seq.** You authorize RHS to have access to financial records held by financial institutions in connection with the consideration or administration of assistance to you. Financial records involving your loan and loan application will be available to RHS without further notice or authorization but will not be disclosed or released by RHS to another Government agency or department without your consent except as required or permitted by law.

**Federal collection policies for consumer debts:** Delinquencies, defaults, foreclosures and abuses of mortgage loans involving programs of the Federal Government can be costly and detrimental to your credit, now and in the future. The Federal Government, as mortgage lender in this transaction, its agencies, agents and assigns, are authorized to take any and all of the following actions in the event loan payments become delinquent on the mortgage loan covered by this application: (1) Report your name and account information to a credit bureau; (2) Assess additional interest and penalty charges for the period of time that payment is not made; (3) Assess charges to cover additional administrative costs incurred by the Government to service your account; (4) Offset amounts owed to you under other Federal programs; (5) Refer your account to a private attorney, the United States Department of Justice, a collection agency, or mortgage servicing agency to collect the amount due, and foreclose the mortgage, sell the property, and seek judgment against you for any deficiency; (6) If you are a current or retired Federal employee, take action to offset your salary, or civil service retirement benefits; (7) Refer your debt to the Internal Revenue Service for offset against any amount owed to you as an income tax refund; and (8) Report any resulting written-off debt of yours to the Internal Revenue Service as your taxable income. All of these actions can and will be used to recover any debts owed when it is determined to be in the interest of the lender and/or Federal Government to do so.

13. Notices to Applicant (continued)

**Unlawful discrimination.** The Federal Equal Credit Opportunity Act prohibits creditors from discriminating against credit applicants on the basis of race, color, religion, national origin, sex, marital status, age (provided that the applicant has the capacity to enter into a binding contract), or because all or part of the applicant's income derives from any public assistance program.

Department of Agriculture regulations provide that no agency, officer, or employee of the United States Department of Agriculture shall exclude from participation in, deny the benefits of, or subject to discrimination any person on the basis of race, color, religion, sex, age, handicap, or national origin under any program or activity administered by such agency, officer, or employee. The Fair Housing Act prohibits discrimination in real estate-related transactions, or in the terms or conditions of such a transaction, because of race, color, religion, sex, handicap, familial status, or national origin. If you believe you have been discriminated against for any of these reasons, you can write the Secretary of Agriculture, Washington, D.C. 20250.

You also cannot be denied a loan because you in good faith exercised your rights under the Consumer Credit Protection Act. If you believe you were denied a loan for this reason, you should contact the Federal Trade Commission, Washington, D.C. 20580. **Certification.** As the applicant, I certify to the best of my knowledge and belief; (1) I am not presently debarred, suspended, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency; (2) I have not within a three year period preceding this proposal been convicted or had a civil judgment rendered against me for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) transaction or contract under a public transaction; or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statement, or receiving stolen property; (3) I am not a judgment debtor on an outstanding judgment in favor of the United States which was obtained in any Federal court other than the United States Tax Court; and (4) I am not delinquent of any outstanding debt to the Federal Government (including any Federal agency or department).

The Federal Equal Credit Opportunity Act prohibits creditors from discriminating against borrowers on the basis of race, color, religion, sex, handicap, familial status, national origin, marital status, age (provided the borrower has the capacity to enter into a binding contract), because all or a part of the borrower's income derives from any public assistance program, or because the borrower has in good faith exercised any right under the Consumer Credit Protection Act.

14. I AM unable to provide the housing I need on my own account, and I am unable to secure the credit necessary for this purpose from other sources upon terms and conditions which I can reasonably fulfill. I certify that the statements made by me in this application are true, complete to the best of my knowledge and belief and are made in good faith to obtain a loan.

SECTION 1001 OF TITLE 18, UNITED STATES CODE PROVIDES: "WHOEVER, IN ANY MATTER WITHIN THE JURISDICTION OF ANY DEPARTMENT OR AGENCY OF THE UNITED STATES KNOWINGLY AND WILLFULLY FALSIFIES, CONCEALS OR COVERS UP BY ANY TRICK, SCHEME, OR DEVICE A MATERIAL FACT, OR MAKES ANY FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS, OR MAKES OR USES ANY FALSE WRITING OR DOCUMENT KNOWING THE SAME TO CONTAIN ANY FALSE, FICTITIOUS OR FRAUDULENT STATEMENT OR ENTRY, SHALL BE FINED UNDER THIS TITLE OR IMPRISONED NOT MORE THAN FIVE YEARS, OR BOTH.

NOTE TO APPLICANT: IF ANY INFORMATION ON THIS APPLICATION IS FOUND TO BE FALSE OR INCOMPLETE, SUCH FINDING, IN ADDITION TO POSSIBLE LIABILITY UNDER CIVIL AND CRIMINAL STATUS, MAY BE GROUNDS FOR DENIAL FOR THE REQUESTED CREDIT AND MAY BE A BASIS FOR DEBARMENT FROM PARTICIPATION IN ALL FEDERAL PROGRAMS UNDER 7 C.F.R. PART 3017.

Date	Signature of Applicant
	<b>X</b>
Date	Signature of Applicant
	<b>X</b>

15. Date	Signature of Loan Approval Official	Determination of Eligibility	Racial Data Provided by
		<input type="checkbox"/> Eligible <input type="checkbox"/> Not Eligible	<input type="checkbox"/> Applicant <input type="checkbox"/> RHS

16. Application received on \_\_\_\_\_  
 Application complete on \_\_\_\_\_

17. Credit Report Fee  
 Date Received: \_\_\_\_\_ Amount Received: \$ \_\_\_\_\_  
 Initial: \_\_\_\_\_

## NOTICE TO APPLICANT REGARDING PRIVACY ACT INFORMATION

The information requested on this form is authorized to be collected by the Rural Housing Service (RHS), Rural Business-Cooperative Services (RBS), Rural Utilities Service (RUS) or the Farm Service Agency (FSA) ("the agency") by title V of the Housing Act of 1949, as amended (42 U.S.C. 1471 et seq.) or by the Consolidated Farm and Rural Development Act (7 U.S.C. 1921 et seq.), or by other laws administered by RHS, RBS, RUS or FSA.

Disclosure of information requested is voluntary. However, failure to disclose certain items of information requested, including your Social Security Number or Federal Identification Number, may result in a delay in the processing of an application or its rejection. Information provided may be used outside of the agency for the following purposes:

1. When a record on its face, or in conjunction with other records, indicates a violation or potential violation of law, whether civil, criminal or regulatory in nature, and whether arising by general statute or particular program statute, or by regulation, rule, or order issued pursuant thereto, disclosure may be made to the appropriate agency, whether Federal, foreign, state, local, or tribal, or other public authority responsible for enforcing, investigating or prosecuting such violation or charged with enforcing or implementing the statute, or rule, regulation, or order issued pursuant thereto, if the information disclosed is relevant to any enforcement, regulatory, investigative, or prosecutive responsibility of the receiving entity.
2. A record from this system of records may be disclosed to a Member of Congress or to a Congressional staff member in response to an inquiry of the Congressional office made at the written request of the constituent about whom the record is maintained.
3. Disclosures may be made of names, home addresses, social security numbers, and financial information to business firms in a trade area that buy chattel or crops or sell them for commission. This is in order that the agency may benefit from the purchaser notification provisions of section 1324 of the Food Security Act of 1985 (7 U.S.C. 163(c)). The Act requires that potential purchasers of farm commodities must be advised ahead of time that a lien exists in order for the creditor to perfect its lien against such purchases.
4. Disclosures may be made from this system to consumer reporting agencies as defined in the Fair Credit Reporting Act (15 U.S.C. 1681a(f)) or the Federal Claims Collection Act (31 U.S.C. 3701(a)(3)).
5. Disclosure of the name, home address, and information concerning default on loan repayment when the default involves a security interest in tribal allotted or trust land. Pursuant to 42 U.S.C. 1479(d), liquidation may be pursued only after offering to transfer the account to an eligible tribal member, the tribe, or the Indian Housing Authority serving the tribe(s).
6. Referral of names, home addresses, social security numbers, and financial information to a collection or servicing contractor, financial institution, or a local, State, or Federal agency, when the agency determines such referral is appropriate for servicing or collecting the borrower's account or has provided for in contracts with servicing or collection agencies.
7. It shall be a routine use of the records in this system of records to disclose them in a proceeding before a court or adjudicative body, when: (a) the agency or any component thereof; or (b) any employee of the agency in his or her official capacity; or (c) any employee of the agency in his or her individual capacity where the agency has agreed to represent the employee; or (d) the United States is a party to litigation or has an interest in such litigation, and by careful review, the agency determines that the records are both relevant and necessary to the litigation, provided; however, that in each case, the agency determines that disclosure of the records is a use of the information contained in the records that is compatible with the purpose for which the agency collected the records.
8. Referral of name, home address, and financial information for selected borrowers to financial consultants, advisors, lending institutions, packagers, agents, and private or commercial credit sources, when the agency determines such referral is appropriate to encourage the borrower to refinance their RHS indebtedness as required by title V of the Housing Act of 1949, as amended (42 U.S.C. 1471).
9. Referral of legally enforceable debts to the Department of the Treasury, Internal Revenue Service (IRS), to be offset against any tax refund that may become due the debtor for the tax year in which the referral is made, in accordance with the IRS regulations and under the authority contained in 31 U.S.C. 3720A.
10. Referral of information regarding indebtedness to the Defense Manpower Data Center, Department of Defense, and the United States Postal Service for the purpose of conducting computer matching programs to identify and locate individuals receiving Federal salary or benefit payments and who are delinquent in their repayment of debts owed to the U.S. Government under certain programs administered by the agency in order to collect debt under the provisions of the Debt Collection Act of 1982 (5 U.S.C. 5514) by voluntary repayment, administrative or salary offset procedures, or by collection agencies.
11. Referral of names, home addresses, and financial information to lending institutions when the agency determines the individual may be financially capable of qualifying for credit with or without a guarantee.
12. Disclosure of names, home addresses, social security numbers, and financial information to lending institutions that have a lien against the same property as the agency for the purpose of the collection of the debt by the agency or the other lender. These loans can be under the direct and guaranteed loan programs.
13. Referral to private attorneys under contract with either the agency or with the Department of Justice for the purpose of foreclosure and possession actions and collection of past due accounts. in connection with the agency.
14. It shall be a routine use of the records in this system of records to disclose them to the Department of Justice when: (a) The agency or any component thereof; or (b) any employee of the agency in his or her official capacity where the Department of Justice has agreed to represent the employee; or (c) the United States Government, is a party to litigation or has an interest in such litigation, and by careful review, the agency determines that the records are both relevant and necessary to the litigation and the use of such records by the Department of Justice is therefore deemed by the agency to be for a purpose that is compatible with the purpose for which the agency collected the records.
15. Referral of names, home addresses, social security numbers, and financial information to the Department of Housing and Urban Development (HUD) as a record of location utilized by Federal agencies for an automatic credit prescreening system.
16. Referral of names, home addresses, social security numbers, and financial information to the Department of Labor, state wage information collection agencies, and other Federal, state, and local agencies, as well as those responsible for verifying information furnished to qualify for Federal benefits, to conduct wage and benefit matching through manual or automated means, for the purpose of determining compliance with Federal regulations and appropriate servicing actions against those not entitled to program benefits, including possible recovery of improper benefits.
17. Referral of names, home addresses, and financial information to financial consultants, advisors, or underwriters, when the agency determines such referral is appropriate for developing packaging and marketing strategies involving the sale of agency loan assets.

United States Department of Agriculture  
Rural Housing Service

**AUTHORIZATION TO RELEASE INFORMATION**

TO: \_\_\_\_\_

RE: \_\_\_\_\_  
Account or Other Identifying Number

I have applied for or obtained a loan or grant from Rural Housing Service (RHS), UNITED STATES DEPARTMENT OF AGRICULTURE. As part of the process, RHS may verify information contained in my request for assistance and in other documents required in connection with the request.

I authorize you to provide to RHS for verification purposes the following applicable information:

- Past and present employment or income records.
- Bank account, stock holdings, and any other asset balances.
- Past and present landlord references.
- Other consumer credit references.

If the request is for a new loan or grant, I further authorize RHS to order a consumer credit report and verify other credit information.

I understand that under the Right to Financial Privacy Act of 1978, 12 U.S.C. 3401, *et seq.*, RHS is authorized to access my financial records held by financial institutions in connection with the consideration or administration of assistance to me. I also understand that financial records involving my loan and loan application will be available to RHS without further notice or authorization, but will not be disclosed or released by RHS to another Government agency or department or used for another purpose without my consent except as required or permitted by law.

The information RHS obtains is only to be used in the processing of my request for assistance.

**A copy of this authorization may be accepted as an original.**

Your prompt reply is appreciated.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0575-0166. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

*RHS Is An Equal Opportunity Lender*

SEE ATTACHED PRIVACY ACT NOTICE

## NOTICE TO APPLICANT REGARDING PRIVACY ACT INFORMATION

The information requested on this form is authorized to be collected by the Rural Housing Service (RHS), Rural Business-Cooperative Services (RBS), Rural Utilities Service (RUS) or the Farm Service Agency (FSA) ("the agency") by title V of the Housing Act of 1949, as amended (42 U.S.C. 1471 et seq.) or by the Consolidated Farm and Rural Development Act (7 U.S.C. 1921 et seq.), or by other laws administered by RHS, RBS, RUS or FSA.

Disclosure of information requested is voluntary. However, failure to disclose certain items of information requested, including your Social Security Number or Federal Identification Number, may result in a delay in the processing of an application or its rejection. Information provided may be used outside of the agency for the following purposes:

1. When a record on its face, or in conjunction with other records, indicates a violation or potential violation of law, whether civil, criminal or regulatory in nature, and whether arising by general statute or particular program statute, or by regulation, rule, or order issued pursuant thereto, disclosure may be made to the appropriate agency, whether Federal, foreign, state, local, or tribal, or other public authority responsible for enforcing, investigating or prosecuting such violation or charged with enforcing or implementing the statute, or rule, regulation, or order issued pursuant thereto, if the information disclosed is relevant to any enforcement, regulatory, investigative, or prosecutive responsibility of the receiving entity.
2. A record from this system of records may be disclosed to a Member of Congress or to a Congressional staff member in response to an inquiry of the Congressional office made at the written request of the constituent about whom the record is maintained.
3. Disclosures may be made of names, home addresses, social security numbers, and financial information to business firms in a trade area that buy chattel or crops or sell them for commission. This is in order that the agency may benefit from the purchaser notification provisions of section 1324 of the Food Security Act of 1985 (7 U.S.C. 163(c)). The Act requires that potential purchasers of farm commodities must be advised ahead of time that a lien exists in order for the creditor to perfect its lien against such purchases.
4. Disclosures may be made from this system to consumer reporting agencies as defined in the Fair Credit Reporting Act (15 U.S.C. 1681a(f)) or the Federal Claims Collection Act (31 U.S.C. 3701(a)(3)).
5. Disclosure of the name, home address, and information concerning default on loan repayment when the default involves a security interest in tribal allotted or trust land. Pursuant to 42 U.S.C. 1479(d), liquidation may be pursued only after offering to transfer the account to an eligible tribal member, the tribe, or the Indian Housing Authority serving the tribe(s).
6. Referral of names, home addresses, social security numbers, and financial information to a collection or servicing contractor, financial institution, or a local, State, or Federal agency, when the agency determines such referral is appropriate for servicing or collecting the borrower's account or has provided for in contracts with servicing or collection agencies.
7. It shall be a routine use of the records in this system of records to disclose them in a proceeding before a court or adjudicative body, when: (a) the agency or any component thereof; or (b) any employee of the agency in his or her official capacity; or (c) any employee of the agency in his or her individual capacity where the agency has agreed to represent the employee; or (d) the United States is a party to litigation or has an interest in such litigation, and by careful review, the agency determines that the records are both relevant and necessary to the litigation, provided; however, that in each case, the agency determines that disclosure of the records is a use of the information contained in the records that is compatible with the purpose for which the agency collected the records.
8. Referral of name, home address, and financial information for selected borrowers to financial consultants, advisors, lending institutions, packagers, agents, and private or commercial credit sources, when the agency determines such referral is appropriate to encourage the borrower to refinance their RHS indebtedness as required by title V of the Housing Act of 1949, as amended (42 U.S.C. 1471).
9. Referral of legally enforceable debts to the Department of the Treasury, Internal Revenue Service (IRS), to be offset against any tax refund that may become due the debtor for the tax year in which the referral is made, in accordance with the IRS regulations and under the authority contained in 31 U.S.C. 3720A.
10. Referral of information regarding indebtedness to the Defense Manpower Data Center, Department of Defense, and the United States Postal Service for the purpose of conducting computer matching programs to identify and locate individuals receiving Federal salary or benefit payments and who are delinquent in their repayment of debts owed to the U.S. Government under certain programs administered by the agency in order to collect debt under the provisions of the Debt Collection Act of 1982 (5 U.S.C. 5514) by voluntary repayment, administrative or salary offset procedures, or by collection agencies.
11. Referral of names, home addresses, and financial information to lending institutions when the agency determines the individual may be financially capable of qualifying for credit with or without a guarantee.
12. Disclosure of names, home addresses, social security numbers, and financial information to lending institutions that have a lien against the same property as the agency for the purpose of the collection of the debt by the agency or the other lender. These loans can be under the direct and guaranteed loan programs.
13. Referral to private attorneys under contract with either the agency or with the Department of Justice for the purpose of foreclosure and possession actions and collection of past due accounts. in connection with the agency.
14. It shall be a routine use of the records in this system of records to disclose them to the Department of Justice when: (a) The agency or any component thereof; or (b) any employee of the agency in his or her official capacity where the Department of Justice has agreed to represent the employee; or (c) the United States Government, is a party to litigation or has an interest in such litigation, and by careful review, the agency determines that the records are both relevant and necessary to the litigation and the use of such records by the Department of Justice is therefore deemed by the agency to be for a purpose that is compatible with the purpose for which the agency collected the records.
15. Referral of names, home addresses, social security numbers, and financial information to the Department of Housing and Urban Development (HUD) as a record of location utilized by Federal agencies for an automatic credit prescreening system.
16. Referral of names, home addresses, social security numbers, and financial information to the Department of Labor, state wage information collection agencies, and other Federal, state, and local agencies, as well as those responsible for verifying information furnished to qualify for Federal benefits, to conduct wage and benefit matching through manual or automated means, for the purpose of determining compliance with Federal regulations and appropriate servicing actions against those not entitled to program benefits, including possible recovery of improper benefits.
17. Referral of names, home addresses, and financial information to financial consultants, advisors, or underwriters, when the agency determines such referral is appropriate for developing packaging and marketing strategies involving the sale of agency loan assets.

United States Department of Agriculture  
Rural Housing Service

**AUTHORIZATION TO RELEASE INFORMATION**

TO: \_\_\_\_\_

RE: \_\_\_\_\_  
Account or Other Identifying Number

I have applied for or obtained a loan or grant from Rural Housing Service (RHS), UNITED STATES DEPARTMENT OF AGRICULTURE. As part of the process, RHS may verify information contained in my request for assistance and in other documents required in connection with the request.

I authorize you to provide to RHS for verification purposes the following applicable information:

- Past and present employment or income records.
- Bank account, stock holdings, and any other asset balances.
- Past and present landlord references.
- Other consumer credit references.

If the request is for a new loan or grant, I further authorize RHS to order a consumer credit report and verify other credit information.

I understand that under the Right to Financial Privacy Act of 1978, 12 U.S.C. 3401, *et seq.*, RHS is authorized to access my financial records held by financial institutions in connection with the consideration or administration of assistance to me. I also understand that financial records involving my loan and loan application will be available to RHS without further notice or authorization, but will not be disclosed or released by RHS to another Government agency or department or used for another purpose without my consent except as required or permitted by law.

The information RHS obtains is only to be used in the processing of my request for assistance.

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\_\_\_\_\_  
Signature

\_\_\_\_\_  
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2. A record from this system of records may be disclosed to a Member of Congress or to a Congressional staff member in response to an inquiry of the Congressional office made at the written request of the constituent about whom the record is maintained.
3. Disclosures may be made of names, home addresses, social security numbers, and financial information to business firms in a trade area that buy chattel or crops or sell them for commission. This is in order that the agency may benefit from the purchaser notification provisions of section 1324 of the Food Security Act of 1985 (7 U.S.C. 163(c)). The Act requires that potential purchasers of farm commodities must be advised ahead of time that a lien exists in order for the creditor to perfect its lien against such purchases.
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**APPENDIX M**  
**LCHD Environmental Awareness Handbook – Brighton Township**



1999

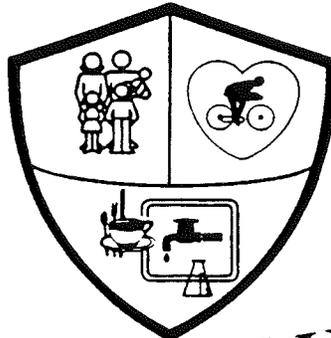


# IRONMEN AWARENES HANDBOOK



ACT 201

*Livingston County*  
*Health Department*



*Environmental Health*  
*Division*



Prepared August 1998 by:  
Christopher M. Fleck



## **ACKNOWLEDGMENTS**

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A special thanks to Patricia Moore of the Livingston County Health Department -- Environmental Division for her assistance with this handbook. Her efforts proved invaluable in creating the graphics and text found within this handbook.

Also, a special thanks to all of the Environmental Sanitarians at the Livingston County Health Department-- Environmental Division for their dedication and diligence in working to protect the environment and the public health. It is these efforts that compiled all of the resources and information provided within this handbook.

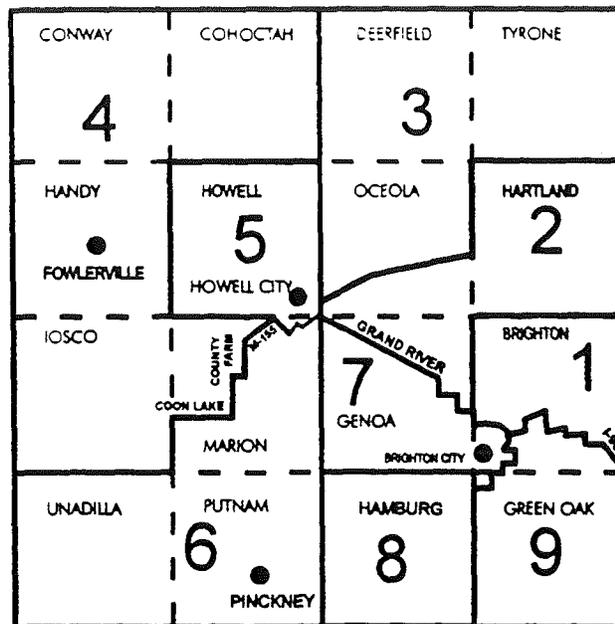


# **TABLE OF CONTENTS**

HIGHLIGHT : GIS & GPS .....	1
Scope .....	2
Aquifers .....	3
Bedrock Geology .....	4
Act 201 (Formerly Act 307) .....	6
Underground Storage Tanks .....	6
Nitrates .....	8
Dumps & Landfills .....	8
Septage Disposal .....	9
Well Construction .....	10
Abandoned Wells .....	10
Arsenic and Groundwater .....	12
Township Maps .....	13 - 45
Appendix I .....	46



# Livingston County Commissioner Districts



## Livingston County Board of Commissioners

- District 1 ..... Rick Chrysler
- District 2 ..... Martin F. Belser
- District 3 ..... David J. Domas
- District 4 ..... Richard P. Anderson
- District 5 ..... David V.J. Links
- District 6 ..... David J. Reader
- District 7 ..... Jere L. Michaels
- District 8 ..... David C. Hamilton
- District 9 ..... John E. LaBelle

## Livingston County Board of Health

- T. Gerald Buckless - Chair
- Judy Nash - Vice Chair
- Coral Black
- Dr. Ross J. Morell
- Linda Palazzolo
- Nancy Roberts
- Rick Chrysler, County Commissioner Liaison

# HELPFUL PHONE NUMBERS

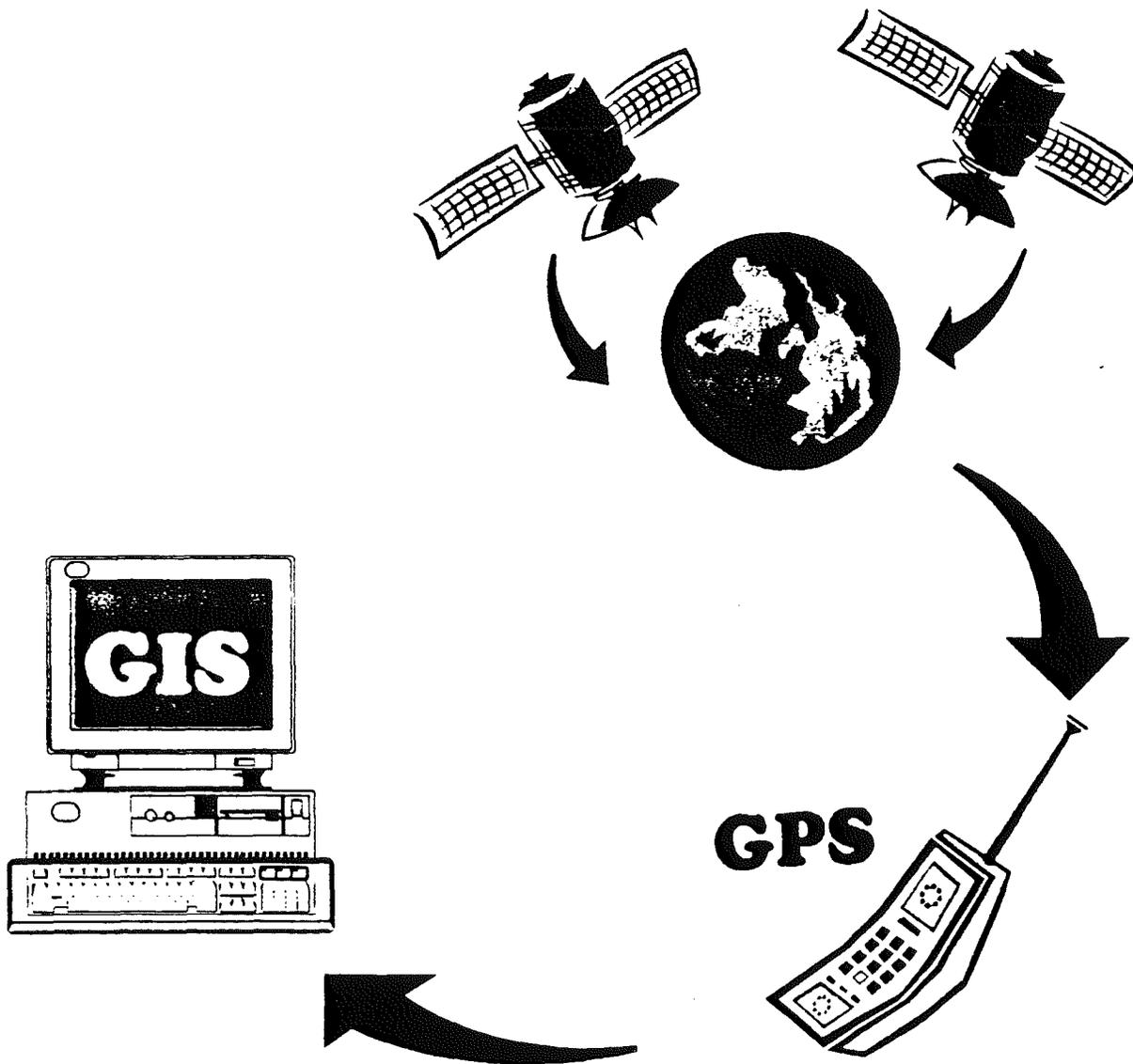
## Michigan Department of Environmental Quality (MDEQ)

Environmental Assistance Division .....	1-800-662-9278
Michigan Business Pollution Prevention Partnership .....	(517) 373-6565
Permit Coordinator .....	(517) 335-4235
Radon Hotline .....	1-800-643-4794
Recycling Assistance .....	(517) 373-1322
Regulatory Compliance Assistance .....	(517) 373-1323
SARA Title III .....	(517) 373-8481
Education and Outreach .....	(517) 335-3153
Underground Storage Tank Division .....	(517) 625-5000
To Report UST Releases .....	1-800-642-4878
Act 201 Environmental Response Division .....	(517) 373-9540
Or District Office .....	(517) 625-4600



## **GIS & GPS, A NEW AGE of TECHNOLOGICAL ADVANCEMENT:**

The Livingston County Health Department is breaking new ground with the implementation of a new geographical information system, ArcView® GIS. This system in conjunction with LCHD's rapidly growing database of over 16,500 well logs, base data information from the State of Michigan, and other information acquired from other Michigan GIS users has provided a new age of analytical tools for groundwater study. The Livingston County Health Department currently utilizes this new tool in an effort to accurately map locations and record information regarding water well construction, depth, lithology, static water level, groundwater chemistry, and many other characteristics of either the well and/or the surrounding geology. This new system and other new tools such as a global positioning system (GPS) have brought the LCHD to a new level of performance and productivity as well as access to a vast array of new information which will be used throughout the LCHD's various programs in many ways.



**your**

# Livingston County Health Department Environmental Health Division

2300 E. Grand River , Howell Michigan 48843  
Phone (517)546-9858 Fax (517)546-9853

Health officer .....Richard Thoue R.S,M.S., MPH  
Director of Environmental Health.....Dianne McCormick R.S.  
Surpervising Sanitarian .....David Lucik R.S.

CONWAY	COHOCTAH	DEERFIELD	TYRONE
HANDY ● FOWLerville	HOWELL ● HOWELL CITY	OCEOLA	HARTLAND
IOSCO	MARION	GENOA ● GENOA CITY	BRIGHTON
UNADILLA	PUTNAM ● PINCKNEY	HAMBURG	GREEN OAK

## Environmental Sanitarians

By Township

<input type="checkbox"/>	Gary Godin	<input type="checkbox"/>	Michael Bernhardt, R.S.
<input type="checkbox"/>	John Wilson	<input type="checkbox"/>	Beau Forgette
<input type="checkbox"/>	Jim Henry		

Food Service Sanitarians..... Jeff Maddock, R.S.  
..... Kathy Parrott, R.S.

Special Projects Coordinator..... Don Hayduk, M.S.

GroundWater Specialist..... Mark Doyle

GIS/Mapping ..... Roger Andrews

Assistant Environmental Sanitarians ....Christopher Fleck

....Erika Lapish

...Aaron Aumock

## Clerical Support Staff

Charlene Elliott

Patricia Moore

Lisa Tuttle

Vicky Atkinson

Kristina Hayes

# HELPFUL PHONE NUMBERS

---

Livingston County Health Department - Environmental Division .....	(517) 546-9858
Livingston County Building Department .....	(517) 546-3240
Livingston County Drain Commissioner .....	(517) 546-0040
Livingston County Solid Waste Management .....	(517) 545-9609
Livingston County Road Commission .....	(517) 546-4250
Brighton Township Hall .....	(810) 229-0550
Cohoctah Township Hall .....	(517) 546-0655
Conway Township Hall .....	(517) 223-0358
Deerfield Township Hall .....	(517) 546-8760
Genoa Township Hall .....	(810) 227-5225
Green Oak Township Hall .....	(810) 437-1388
Hamburg Township Hall .....	(810) 231-1000
Handy Township Hall .....	(517) 223-3228
Hartland Township Hall .....	(810) 632-7498
Howell Township Hall .....	(517) 546-2817
Iosco Township Hall .....	(517) 223-9545
Marion Township Hall .....	(517) 546-1588
Oceola Township Hall .....	(517) 546-3259
Putnam Township Hall .....	(313) 878-3131
Tyrone Township Hall .....	(810) 629-8631
Unadilla Township Hall .....	(313) 498-2502
City of Brighton .....	(810) 227-1911
City of Howell .....	(517) 546-3500
Village of Fowlerville .....	(517) 223-3771
Village of Pinckney .....	(313) 878-6206
Michigan State University Cooperative Extension Office	
- Agricultural Issues, Horticulture, Gypsy Moth, 4-H .....	(517) 546-3950
Natural Resources Conservation Service (Formerly Soil Conservation Service)	
- Soil Surveys, Agricultural Resource Help .....	(517) 548-1553
Livingston County Farm Bureau	
- Farm Services .....	(517) 546-4920

## **SCOPE OF THIS HANDBOOK:**

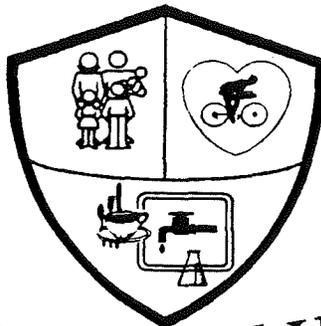
The handbook of environmental awareness has been compiled to provide information on known or suspected sites of environmental sensitivity in Livingston County. This information may be useful for developers, builders, well drillers, excavators, township officials, homeowners and many others.

The five categories of sites listed in this handbook are as follows:

- The 1997 Act 201 (Formerly Act 307) Sites of Environmental Contamination
- Leaking Underground Storage Tank Sites (LUST)
- Areas Nitrate Levels Above 5 mg/l (5 parts per million)
- Closed Dump/Landfill Sites
- Licensed Septage Disposal Sites

This handbook has been provided by the Livingston County Health Department, Environmental Division, using information compiled from many state agencies and the health department's many programs and resources. This handbook is intended only for use as a guideline and a tool to allow people to become aware of any sites which may be affected by some type of environmental impact. The information listed in this handbook is constantly changing and although a conscious effort was made as to the accuracy of the material no guarantee can be made as to the completeness of the information herein. For this reason it is imperative that the proper authorities be contacted to verify the existence of any environmental sites that may affect the development of the land.

*Livingston County  
Health Department*

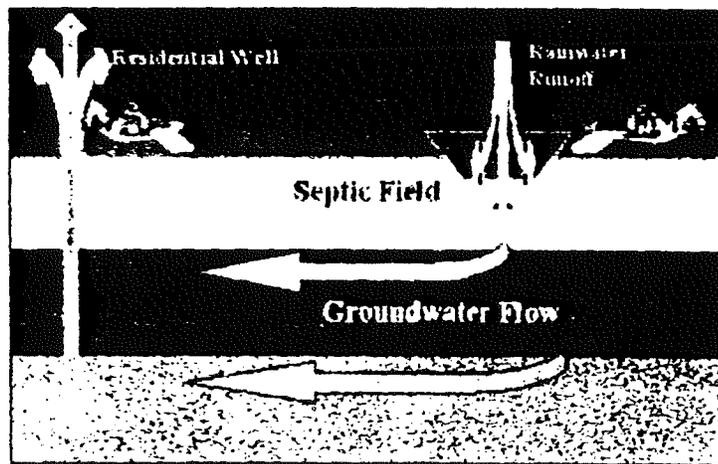


*Environmental Health  
Division*

## **AQUIFERS: WHAT ARE THEY?**

All of Livingston County relies on groundwater for both residential and commercial water supplies. Drinking water, process water, and water utilized for other purposes is obtained from aquifer systems located at varying depths beneath the ground surface.

Aquifers are geologic formations that yield usable amounts of water. Aquifers consist of permeable rocks or granular materials that transmit water freely. Unconfined aquifers are those in which atmospheric pressure changes transmit downward through an unsaturated zone of soil or rock to the water table. While “confined”, or “artesian”, aquifers are those with some layer of relatively impermeable geologic material (such as clay) that overlies the aquifer and impedes the free movement of air or water.



## **AQUIFERS IN LIVINGSTON COUNTY:**

In many areas of Livingston County, the aquifer system that is being utilized has no confining layers between itself and the ground surface. These “unprotected” aquifer systems are easily impacted by the spillage or leakage of polluting materials. The aquifer systems of Livingston County are extremely complex. The eastern and southeastern edge of Livingston County consists mainly of saturated moraine deposits (large deposits of saturated sand and gravel). The remainder of the County consists mainly of outwash deposits (saturated sand and gravel deposits, separated by layers of clay). Underlying the glacial deposits is bedrock. The depth a well must be drilled to encounter the bedrock varies according to the thickness of the overlying glacially deposited material. The depth to the bedrock in the moraine deposits may be several hundred feet, whereas the depth to bedrock in the outwash areas can be as shallow as fifty feet.

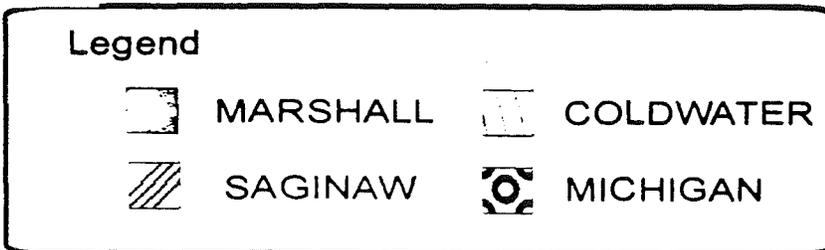
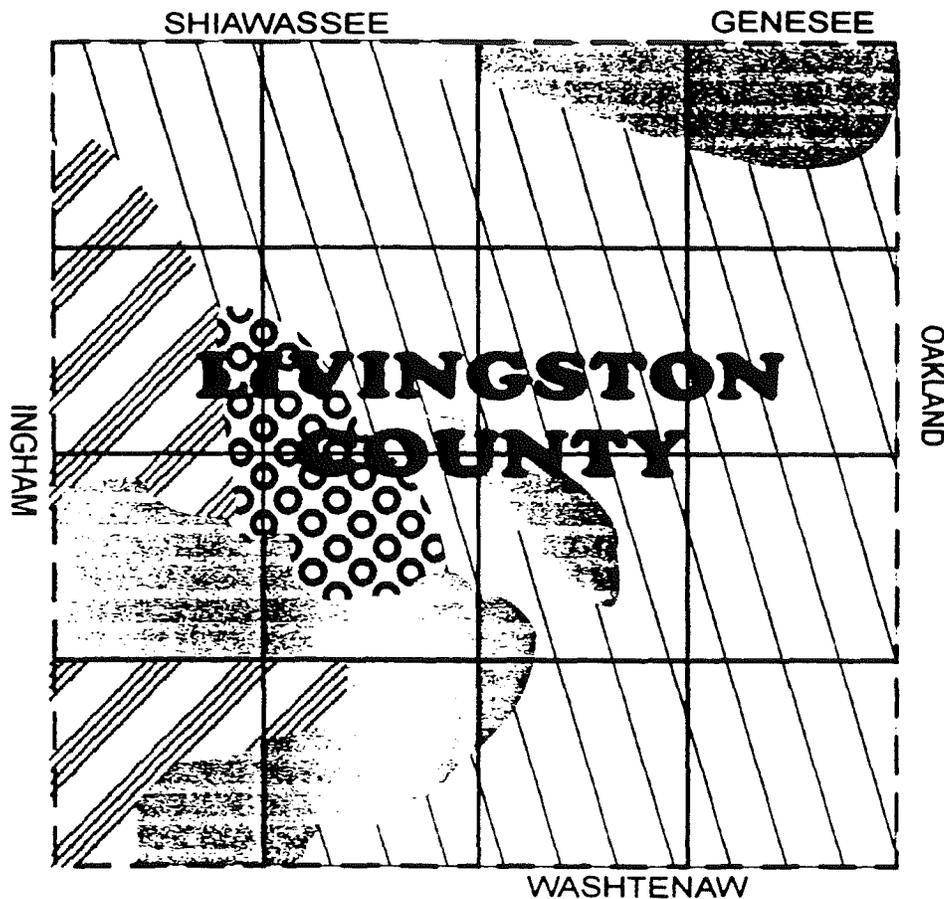
Groundwater is not a static or motionless system. Groundwater can flow from a few feet per year to many feet per day. The speed (velocity) and direction of groundwater within the aquifer are controlled by factors such as topography, proximity to surface water (discharge areas) or distance to recharge areas. The velocity may also be influenced by soil or rock type and its porosity and permeability.

## BEDROCK GEOLOGY:

The geologic landscape of Livingston County consists of glacial "drift" materials over bedrock. These glacial materials were deposited as the glaciers receded from this area of the continent some 18,000 years ago. Beneath the glacially deposited materials is bedrock. Bedrock consists of gently to rolling sedimentary rock formations which are predominantly of the Paleozoic Era. Four types of bedrock make up the bedrock surface in Livingston County. These are Marshall Sandstone, Coldwater Shale, Michigan Shale, and Saginaw Shale.

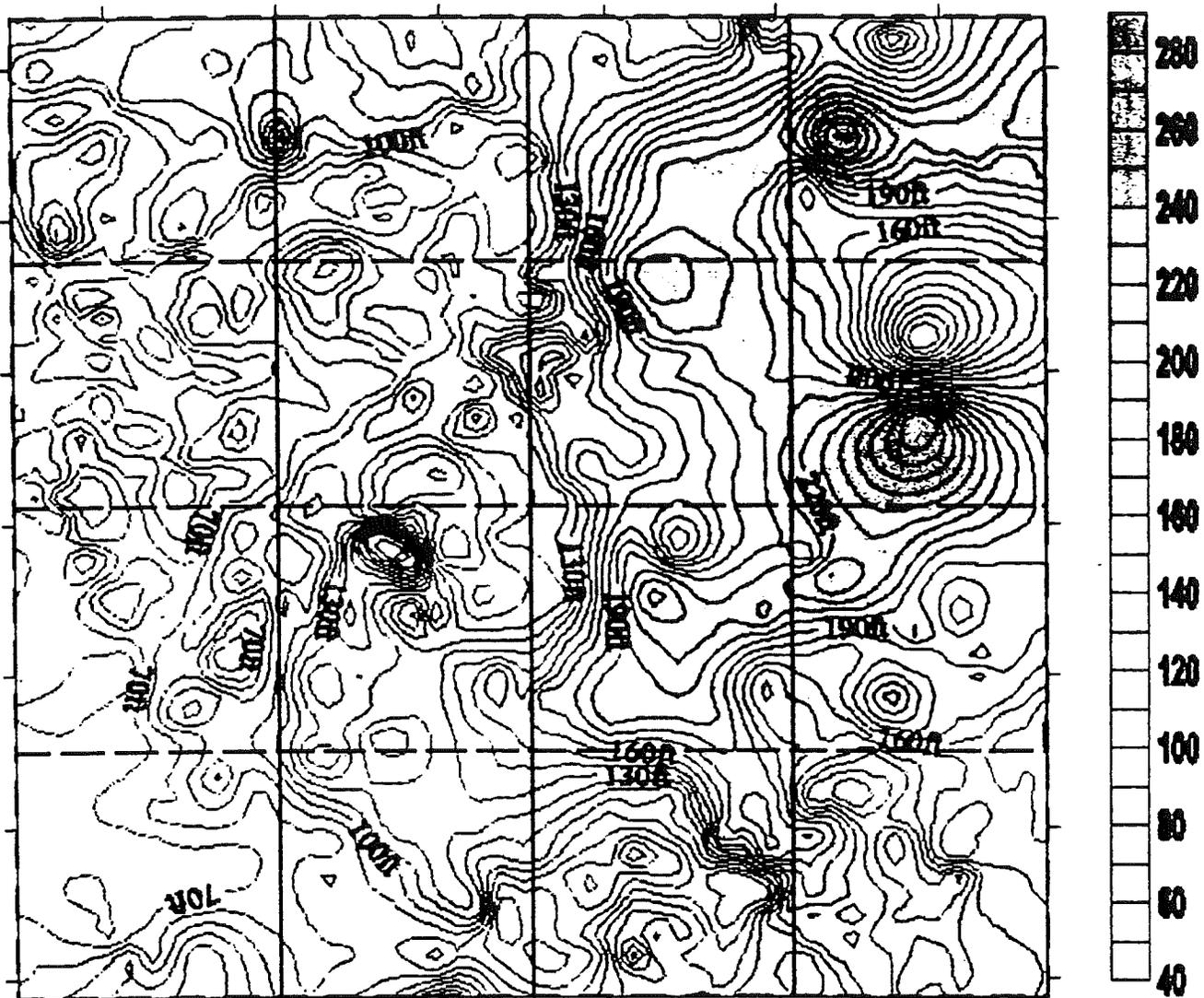
Soil horizons or profiles as we know them today developed over these bedrock and drift formations over thousands of years and generation upon generation of plant and animal activity. These layers of organic matter were worked into the soil and nutrients from the decaying material were carried deep into the soil as water trickled down from the surface.

The figure below details the types of bedrock most commonly found throughout Livingston County.



# Depth To Bedrock

Thickness of Glacial Drift Above Bedrock



The above map details the approximate depth through glacial drift to the bedrock below. This information can be useful when new wells are constructed. Environmental Sanitarians can attempt to correlate geologic strata with useable or non-useable aquifer systems. Environmental Sanitarians may also associate contaminants with particular strata and aquifer systems. If such correlation can be made then Sanitarians and others may attempt to predict the location of the most productive and safest aquifer systems and avoid any aquifers that may be vulnerable to contamination or pollutants.

The above map was created using Surfer software and the Livingston County Health Department's growing database over 16,000 well logs.



## **ACT 201 :(Formerly ACT 307)**

The Michigan Environmental Response Act (MERA), 1997 P.A. 201, as amended, provides for an objective approach to ranking sites of environmental contamination by requiring the application of a numerical risk assessment model. The risk assessment model has a scale of 0-48 points and has been used to score all Act 201 sites of environmental contamination. Scoring of the sites is completed by the Michigan Department of Environmental Quality (MDEQ).

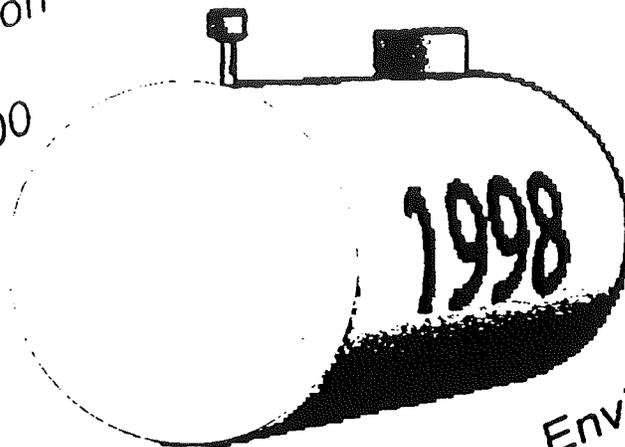
The listing and scoring of (Act 201) sites of environmental contamination assists the Michigan Legislature in funding site evaluation, interim response, and final response activities. A site of environmental contamination as defined by MERA means "the release of a hazardous substance, or the potential release of a discarded hazardous substance, in a quantity, which is or may become injurious to the environment, or to the Public Health, safety, or welfare." There are currently 48 Act 201 sites located within Livingston County. Each of these sites have been identified and located on the maps within this handbook.

## **UNDERGROUND STORAGE TANKS:**

Underground storage tanks (UST's) are widely used by large and small industries, farmers, and individual homeowners to store fluids. Industries often store petroleum fuels, acids, metals, solvents, and chemical wastes in underground storage tanks. The predominant use for UST's is for storage of petroleum products at gas stations and anywhere else that large volumes of petroleum products are used. UST's can range in size from 250 gallons for home heating fuel oil storage to a 10,000 gallon gasoline tank found at the corner gas station. The average life expectancy of an unprotected steel UST is 15 to 20 years.

Corrosion accounts for approximately 90 percent of steel UST leaks. The UST's installed today have cathodic protection to keep the tank from corroding. There may also be secondary containment with leak detection controls to notify the owner that there has been a loss of product from the tank. If a UST leaks, the product that is released has the potential to impact not only the soil, but also the groundwater. If the groundwater is impacted, then drinking water supplies can become contaminated in the area. Once groundwater is contaminated, the costs and effort to remove the contamination can be tremendous. Leaking UST's account for roughly 50% of all groundwater contamination sites. Leak prevention and detection by way of technological advances and new regulations, along with aggressive site clean up policies, can drastically reduce contamination of precious groundwater resources.

MDEQ UST Division  
District Office  
(517) 625-4600



L.C.H.D  
Environmental Division  
(517) 546-9858

There are currently 51 listed sites in Livingston County where a product release has occurred from a UST or from the service piping leading to the UST. Each of these sites has been located on the maps within this handbook. In order to determine the status of the site, as to whether the site has been cleaned up or additional work needs to be conducted, please call the Livingston County Health Department (LCHD) or the Michigan Department of Environmental Quality (MDEQ).

## Status of Underground Storage Tanks

The Livingston County Health Department maintains a record of the current status of underground storage tanks as published by the MDEQ Underground Storage Tank Division.

These sites are categorized by the Michigan Department of Environmental Quality, Underground Storage Tank Division, according to the cleanup activities that have taken place. Currently the MDEQ has the list broken down into the following categories:

1. **Inactive:** Sites where no response activities have been undertaken other than to identify it as a site.
2. **Cleanup Actions Taken or in Progress:** Sites where cleanup activities have taken place, or are currently in progress.
3. **Delisted:** LUST sites where cleanup actions have been completed.

Please NOTE that the scope of this handbook is not the detailed monitoring of leaking underground storage tanks or the status of these tanks. However, it is the intent of this hand book to provide "general" information regarding possible sites of environmental contamination. For this reason the Livingston County Health Department has listed and mapped the sites according to the following two categories.

1. **Open:** A LUST site currently listed with the MDEQ as "open". This means that the site is currently listed with the MDEQ as either "inactive" or "Cleanup Actions Taken or in Progress".
2. **Closed:** A LUST site that has been officially delisted as a "LUST" site. However the site may or may not meet contamination standards as presented by the scope of this book and its contents. These sites must be evaluated as to their status on a site by site basis to determine the possibility of groundwater or environmental concern with regards to such things as water well construction, residential development, commercial development etc.

If for purpose of development, construction, and/or other reasons the most current status of any site can be verified by contacting the Livingston County Health Department or the Michigan Department of Environmental Quality Underground Storage Tank Division.

## **NITRATES, GROUNDWATER and YOU:**

Nitrates can enter into the groundwater through septic systems, barnyard runoff, excessive fertilization or through its natural presence in the soil. Shallow wells that lack clay protection or grouting are the most vulnerable to nitrate contamination. The primary health concern with nitrates is that large amounts of nitrate in drinking water can cause a disease called Methemoglobinemia, a blood disorder primarily affecting infants under six months of age. The technology for removal of nitrate from drinking water does exist. Reverse osmosis, ion exchange and distillation are three possible methods. However, the LCHD does not approve of a water treatment device to remove nitrates until a new well is drilled to a deeper and/or more protected (i.e., clay lens protection) aquifer that has nitrate free water. This approach is a much better long term solution to the problem than a point of use water treatment device.

Elevated nitrates can also be an indicator that an aquifer is not protected and may be vulnerable to other sources of contamination such as leaking underground storage tanks, Act 201 sites, dumps and landfills.

Presently, the Livingston County Health Department tracks all water sample results with nitrate levels above 5 mg/L (5 parts per million). The Livingston County Health Department maps these elevated nitrate areas throughout the county in order to advise the public, or to undertake additional well construction requirements should a potable water supply well be constructed in an area with elevated nitrates. The current Maximum Contaminant Level (MCL) as established by the U.S. EPA is 10 mg/l (10 parts per million) for nitrates. However, the LCHD has chosen 5mg/L (5 parts per million) as an indicator (50% of the MCL) of possible aquifer vulnerability. This allows the LCHD to monitor areas that approach the maximum contaminant level and also implement preventative measures for these areas.

## **DUMPS & LANDFILLS:**

The Livingston County health Department maintains a listing of closed dump/landfill sites. The information for these sites has been obtained mainly from township offices and residents who lived adjacent to these sites. Little is known about these sites other than their location, who operated the dump/landfill and when it was closed for use. Since there are a number of "unknowns" with respect to these sites, it would be prudent for all persons wishing to develop land around these sites to contact the Livingston County Health Department prior to purchasing and/or developing the land to determine if there are any special restrictions that may be required. There are currently **18 known** closed dump/landfill sites located within Livingston County. Each of these sites has been identified and located on the maps within this handbook.



## **LICENSED SEPTAGE DISPOSAL SITES:**

For the purpose of this handbook septage is defined as the anaerobic slurry of residual wastes and scum that is mechanically pumped from septic tanks to be disposed of through land application.

Septage that is pumped out of residential and commercial septic tanks is usually consists of such solids as grit, dirt, grease, in addition to organic wastes. These wastes usually contain high concentrations of bacteria, viruses, ammonia, and organic nitrogen compounds.

These solid materials are a natural byproduct of a septic system. The handling and final disposal of these wastes requires strict regulations and guidelines. The Livingston County Health Department and MDEQ jointly regulate the control of septage discharges onto the land.

Approximately 80 percent of all homes in Livingston County utilize onsite sewage treatment systems for wastewater disposal. Periodically, each must have the septic tank cleaned or "pumped" to eliminate solids or "septage" from interfering with the normal operation of the wastewater treatment system. The materials removed from the septic tank or "septage" are then applied, untreated, to the surface of the land at licensed septage disposal sites. More than 9,000,000 gallons of septage is applied to licensed septage disposal sites in Livingston County annually. Most of the waste originates from within the county while a small percentage is from surrounding counties. Due to the high BOD concentration of the septage, there are no wastewater treatment plants in Livingston County that are designed to accept these wastes. Therefore land application is the only viable means of disposal.

The most common method of land spreading is application by same hauler trucks used to "pump" the waste from the septic tank. The waste is treated with lime to raise the pH above 12 in order to kill any bacteria or pathogens that may be present in the waste. A special valve is opened and the septage is sprayed onto the land as the truck drives slowly across the field. Other methods of disposal used in Livingston County include subsurface injection and injection using a patented device called a Terreator. These methods are utilized to minimize odor and nuisance problems and maximize absorption and biological degradation of the waste.

Crops or other vegetation should be grown each year that septage is applied to a site. This is to maximize and encourage the use of active agricultural land to recycle the nutrients through the soil rather than to implement dedicated dump sites for the septage wastes.

Sites used for septage disposal must be licensed with the state of Michigan DEQ and with the Livingston County Health Department prior to use. Disposing of septage wastes onto un-licensed sites is illegal and strictly prohibited. Contact the Livingston County Health Department for information regarding the status of a particular site.



## WELL CONSTRUCTION:

Prior to the construction of a new or replacement water supply well a permit must be issued by the Livingston County Health Department. It is extremely important that a permit be obtained and a copy of the permit restrictions given to the well driller prior to construction of a well. When drilling near a known site of environmental contamination, special requirements may be listed on the well permit as to the location, depth, and grouting specifications for the well. In addition, well drillers must notify the Livingston County Health Department when drilling all wells. Then LCHD staff may conduct inspections to verify proper location and construction of the well.

Well permits issued near Act 201, leaking UST's, and closed dump/landfill sites will require the well to be grouted according to the specifications of Act 201. In some cases, wells will not be permitted to be drilled because of an extensive pollution problem. Therefore, it is extremely important to make sure that a permit has been issued and the permit requirements reviewed before a well is drilled.

## ABANDONED WELLS:

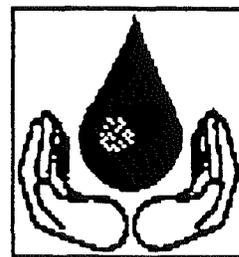
Abandoned wells are usually small diameter wells that have been replaced because they no longer provide an adequate and safe supply of water. Also wells may be abandoned as a result of a modification to the structure served that requires that the well comply with current water well construction requirements. With over 50,000 wells in Livingston County it is easy to see why these wells need to be abandoned properly whenever abandonment is necessary. As time goes on there would be over 50,000 direct conduits for groundwater contamination. Even community water supplies for municipalities depend on groundwater as a source.

Abandoned wells pose a serious threat to groundwater quality. Unsealed and improperly abandoned wells provide a direct pathway to an aquifer for runoff water, pesticides, fertilizers, and sediments and any other type of pollutant in the soil. These waters may contain bacteria or chemicals which may be harmful to the environment as well as to humans. These direct conduits may also allow contamination of one aquifer to enter another and allow contaminants to pass through layers impermeable materials such as clay. Also improperly abandoned wells provide a physical hazard as small children and animals may fall into them or be injured around them.

A well is considered abandoned if it meets any of the following criteria:

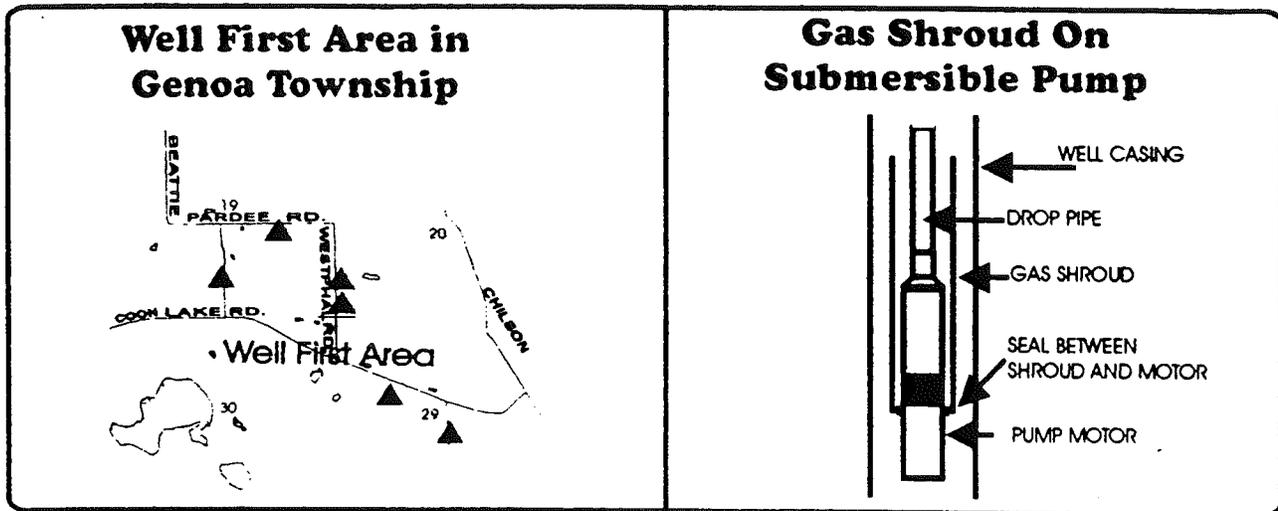
- The well is contaminated and poses a threat to the public health.
- The well poses a direct threat to groundwater.
- The well is in such a condition that it is not suitable for further use.
- The well is no longer in use and does not meet current construction requirements.

All replacement well permits issued by the Livingston County Health Department require that the existing well be abandoned in accordance with part 127, Act 368, P.A. 1997. This rule, rule 168 of the Public Health Code, requires that abandoned wells be plugged by filling the casing with an appropriate material. This helps to reduce the number of possible sources of groundwater contamination.



## WELL FIRST AREAS:

Certain areas within Livingston County currently have a well first policy regarding the construction of water supply wells for new development or replacement water supplies. This is due to a past history of groundwater contamination or known areas of contamination in close proximity to the proposed water well and helps to insure that an adequate and safe water supply can be constructed for the proposed development prior to construction of buildings, driveways, roads and sewage treatment systems. Consultation with the Livingston County Health Department is recommended prior to construction/replacement of a water supply system that is adjacent to a site of suspected soil and/or groundwater contamination, or a known site of environmental contamination that is listed under the Michigan Sites of Environmental Contamination Proposed Priority Lists under the authority of Public Act 201 of 1997, as amended.



## METHANE IN WATER WELLS:

Water wells drilled into the bedrock or just above the bedrock, particularly around the City of Howell and northeast of the Village of Fowlerville, may encounter methane gas. Methane gas in water wells presents unique problems for the water well drilling contractor as well as the homeowner.

The major concern relates to flammable and explosive hazards when water is used in small unvented or poorly vented rooms such as laundry rooms or showers. Methane should be suspected whenever the well water appears milky and effervescent. Problems such as "air locking" of the well pump or sputtering of water faucets may also indicate the presence of methane or other gases.

Methane ( $\text{CH}_4$ ) is a colorless, odorless gas and has an explosive limit between 5-15% by volume in air. Since it is lighter than air, it rises, and therefore if a fire occurs, it will be at the ceiling.

The bubbler pail sampling method can be used for determining the quantity of gas in water and collecting a sample of the gas for laboratory analysis. Livingston County Health Department staff or other properly trained individuals may conduct this test should the need arise.

There are two ways in which to properly remove methane gas from the water supply. One method is the use of gas shrouds on the submersible well pump. The other method is the utilization of a vented storage tank with a spray bar mechanism to separate the gas and the water. Both systems, if properly installed, are very effective in removing the methane gas. Contact the Livingston County Health Department to obtain further specific information on gas removal systems.

## **ARSENIC, GROUNDWATER & LIVINGSTON COUNTY:**

Arsenic is a gray metal like material often found in nature at low levels. It is usually combined with other elements such as iron, oxygen, chlorine and sulfur to form inorganic compounds. These compounds are usually tasteless and odorless. Arsenic can also combine with carbon and hydrogen to form organic compounds.

There are three common ways for arsenic to enter the water supply. There are geographic areas in Michigan that contain naturally occurring arsenic in the bedrock formations. One of these formations is called the Marshall Sandstone and it extends from the thumb area of Michigan Southwestward toward Kalamazoo and up the Lake Michigan coastline toward Traverse City. This formation exists in parts of Livingston County and could be a potential source of arsenic in the groundwater.

Another source of arsenic may include contamination sites such as EPA superfund sites, Act 201 sites, and other abandoned landfill sites. Contamination of surface water supplies of drinking water from over application of agricultural pesticides and herbicides containing arsenate compounds can also occur. However, in Livingston County, surface water is not a source for drinking water. therefore contamination from arsenic in this way is not probable.

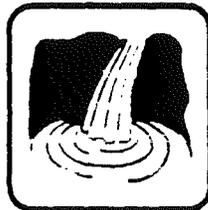
Since arsenic is a natural part of the environment, everyone is exposed to low levels of this element. Food is usually the largest source of exposure. Some shellfish and fish contain high levels of organic arsenic ( sometimes called fish arsenic ). Organic arsenic is of low toxicity and does not generally pose a problem for people. If arsenic is present in the drinking water, it would be in the form of inorganic compounds, which are considered to be toxic.

Ingestion is the primary route of exposure, either through drinking arsenic contaminated water or cooking food in contaminated water. Boiling water does not remove arsenic, in fact, it tends to concentrate it. Inhalation can be another route of exposure. Breathing in arsenic laden dust from contamination sites or burning treated lumber may expose people to arsenic compounds. Skin contact is not typically found to be an exposure route, except among workers in industrial settings that use arsenic as part of a manufacturing process.

The EPA maximum contaminate level (MCL) has been established at 50 parts per billion for drinking water. The most common effect from long-term exposure to arsenic is a pattern of skin changes. The skin will darken and there will be the appearance of small corns or warts on the palms of the hands, soles of the feet, or midsection of the body. There is also an increase in the risk of liver, bladder, kidney, and lung cancer from high concentrations of arsenic.

However, due to the increasing possibility that the EPA maximum contaminant level (MCL) may be lowered the Livingston County Health Department -- Environmental Health Division currently monitors all water sample results that yield an arsenic level of greater 8 parts per billion. This allows the individual investigation to determine if any health hazards exist for those with even trace amounts of arsenic in their drinking water.

The Livingston County Health Department - Environmental Health Division is currently participating in a project with the USGS to drill test wells throughout several south-eastern Michigan counties to monitor and track arsenic levels throughout the state. Livingston county is one of several counties and one of many county agencies involved in this ongoing project. This and many of the Livingston County Health Departments programs are funded by the Livingston County Board of Commissioners. For more information on arsenic and groundwater please feel free to contact the Livingston County Health Department -- Environmental Health Division at (517) 546-9858.





# BRIGHTON Township

Livingston County, Michigan



## SITES OF ENVIRONMENTAL CONTAMINATION

- A1 BRIGHTON CAMERON
- A2 9797 E. GRAND RIVER, BRIGHTON
- A3 WELD MOLD CO., INC.
- A4 BRIGHTON TOOL & DIE
- A5 MICHIGAN DEPT OF TRANSPORTATION
- A6 HIGH PRESSURE AUTO WASH
- A7 11871 E. GRAND RIVER, BRIGHTON



## OPEN - LEAKING UNDERGROUND STORAGE TANKS

- B1 BRIGHTON FLYING SERVICE INC
- B10 DANDY OIL, INC.
- B11 MARATHON UNIT 2778
- B12 A-1 TRANSMISSION
- B2 I-96 GRAND RIVER SHELL
- B3 AMOCO SS #5232
- B4 BRIGHTON MALL
- B5 MIDTOWN AKA SUPERIOR SANITATION
- B6 CLARK STORE #2138
- B7 COXS CUSTOM SERVICE
- B8 CORRIGAN OIL, INC.
- B9 HASSELL MARK BREWER



## CLOSED - LEAKING UNDERGROUND STORAGE TANKS

- C1 CASE POWER & EQUIP
- C2 CREATIVE INDUSTRIES GROUP
- C3 KEN VAUGHN



## CLOSED DUMP/LANDFILL SITES

**Location**  
Section 10

**Nearest Crossroads**  
Corlett Rd.

**Date of Closure**

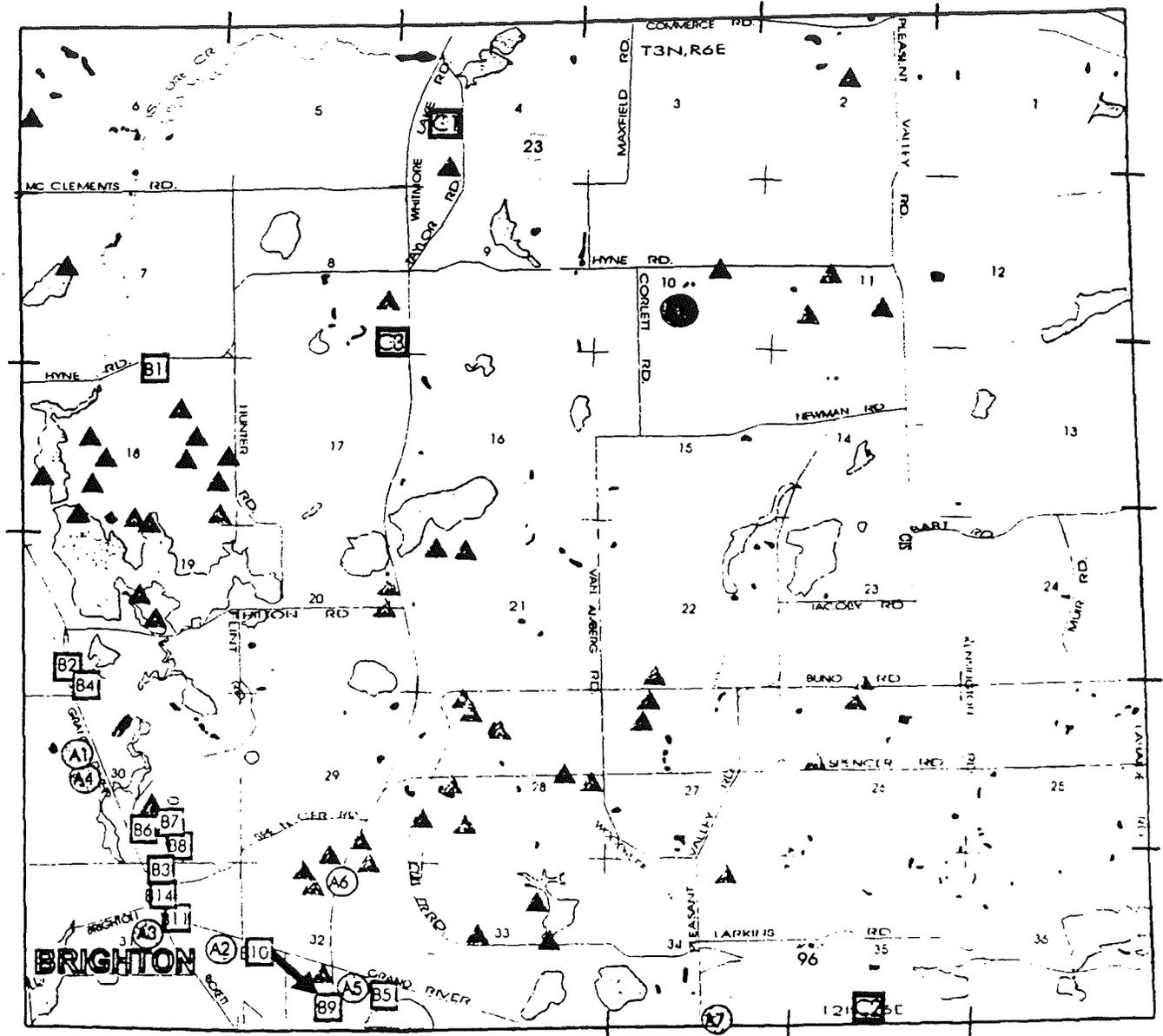


**WATER SUPPLIES WITH NITRATES**  
**(5ppm or greater )**  
**SEE Appendix I**



# BRIGHTON TOWNSHIP

Livingston County, Michigan



## LEGEND



SITES OF ENVIRONMENTAL CONTAMINATION



OPEN - LEAKING UNDERGROUND STORAGE TANK



CLOSED - LEAKING UNDERGROUND STORAGE TANK



WATER SUPPLIES WITH NITRATES (5ppm or greater)



CLOSED DUMP/LANDFILL SITES

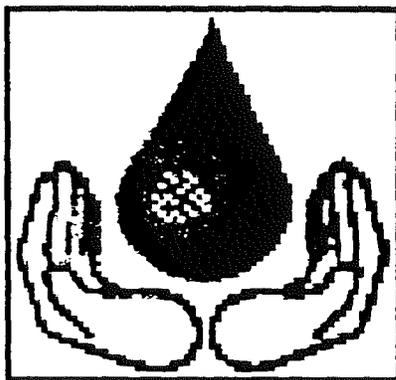


KNOWN GROUNDWATER FLOW DIRECTION





**APPENDIX I**  
**Areas with Elevated Nitrate Levels**  
**Above 5ppm or 5mg/L**



# **ELEVATED NITRATES**

AS OF MAY 30, 1998 - 5 mg/l - PPM OR GREATER NITRATE

<b>TWP.</b>	<b>SECTION #</b>	<b>ADDRESS</b>	<b>mg/l - PPM</b>
Brighton	18	Brad Pl.	9.0
Bri.	27	Brian Dr.	5.5
Bri.	27	Brian Dr.	7.0
Bri.	22	Buno Rd.	7.7/8.6
Bri.	23	W. Buno Rd.	6.2/6.4
Bri.	34	Burgoyne Dr.	6.7
Bri.	16	Cady	8.9
Bri.	29	Canterbury	5.5
Bri.	29	Canterbury	8.4
Bri.	28	Canyon Oaks	6.8
Bri.	28	Carriage	6.4/5.9
Bri.	28	Carriage	7.3/7.6
Bri.	28	Carriage	6.7/7.0
Bri.	19	Causeway	9.4
Bri.	18	Christine	5.1
Bri.	18	Christine	7.2
Bri.	7	N. Clark Lk. Dr.	9.8
Bri.	29	Culver	13.1
Bri.	33	Daniel	5.9
Bri.	33	Daniel	9.4/5.9
Bri.	33	Daniel	13.1/12.6
Bri.	33	Daniel	5.9
Bri.	18	Doris Dr.	12.9/8.0
Bri.	18	Gary Ct.	6.1
Bri.	32	Glasgow	14.6/7.1
Bri.	32	Glasgow	5.5/5.8/6.0/5.5/5.9/6.1
Bri.	18	Granada	11.0
Bri.	6	Hacker Rd.	5.5
Bri.	20	Hilton Rd.	20.4

# ELEVATED NITRATES

AS OF MAY 30, 1998 - 5 mg/l - PPM OR GREATER NITRATE

<u>TWP.</u>	<u>SECTION #</u>	<u>ADDRESS</u>	<u>mg/l - PPM</u>
Bnghton	18	Brad Pl.	9.0
Bri.	27	Brian Dr.	5.5
Bri.	27	Brian Dr.	7.0
Bri.	22	Buno Rd.	7.7/8.6
Bri.	23	W. Buno Rd.	6.2/6.4
Bri.	34	Burgoyne Dr.	6.7
Bri.	16	Cady	8.9
Bri.	29	Canterbury	5.5
Bri.	29	Canterbury	8.4
Bri.	28	Canyon Oaks	6.8
Bri.	28	Carriage	6.4/5.9
Bri.	28	Carriage	7.3/7.6
Bri.	28	Carriage	6.7/7.0
Bri.	19	Causeway	9.4
Bri.	18	Christine	5.1
Bri.	18	Christine	7.2
Bri.	7	N. Clark Lk. Dr.	9.8
Bri.	29	Culver	13.1
Bri.	33	Daniel	5.9
Bri.	33	Daniel	9.4/5.9
Bri.	33	Daniel	13.1/12.6
Bri.	33	Daniel	5.9
Bri.	18	Doris Dr.	12.9/8.0
Bri.	18	Gary Ct.	6.1
Bri.	32	Glasgow	14.6/7.1
Bri.	32	Glasgow	5.5/5.8/6.0/5.5/5.9/6.1
Bri.	18	Granada	11.0
Bri.	6	Hacker Rd.	5.5
Bri.	20	Hilton Rd.	20.4



<b>TWP.</b>	<b>SECTION #</b>	<b>ADDRESS</b>	<b>mg/l - PPM</b>
Brighton	10	Hyne Rd.	6.2
Bri.	11	Hyne Rd.	6.8/6.3
Bri.	18	Kathleen	5.7
Bri.	32	Kinyon Dr.	5.5/4.5
Bri.	32	Langdon	6.6
Bri.	32	Langdon	7.9/6.0/6.4/5.6
Bri.	18	Margo	6.3/5.7/5.4
Bri.	26	Mema Ln.	5.3
Bri.	8	Mevis	6.0
Bri.	8	Mevis	5.8
Bri.	19	Oak Knoll	6.4
Bri.	21	Skeman	5.1
Bri.	21	Skeman	16.2
Bri.	18	Skylane	6.2
Bri.	28	Spencer Rd.	11.5/13.7
Bri.	28	Spencer Rd.	12.0/8.6/8.5/6.9
Bri.	28	Spencer Rd.	5.9
Bri.	28	Spencer Rd.	12.3/9.2
Bri.	32	Stuhrberg	9.3/7.5/10.2/10.2
Bri.	32	Stuhrberg	6.6/5.1
Bri.	11	Swan Farm Lane	7.8
Bri.	11	Swan Farm Lane	7.4
Bri.	4	Taylor	5.8
Bri.	18	Tim	9.8
Bri.	32	U.S. 23	9.9
Bri.	32	U.S. 23	5.3
Bri.	28	Village Square	14.0/12.5
Bri.	32	Whitmore Lk. Rd.	5.0
Bri.	2	Willmill Dr.	11.9
Bri.	18	Woodland Sh.	5.6
Bri.	18	Woodland Sh.	13.8/14.7
Bri.	18	Woodland Sh.	34.9/26.4



**APPENDIX N**  
**Sample Sewer Use Ordinance**



**TOWNSHIP OF \_\_\_\_\_, MICHIGAN**  
**PROPOSED SEWER USE AND RATE ORDINANCE**

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## TABLE OF CONTENTS

Page

SECTION 1	PURPOSE AND POLICY	
SECTION 2	DEFINITIONS	
SECTION 3	ABBREVIATIONS	
SECTION 4	UNSANITARY DEPOSITS, DISCHARGE TO NATURAL OUTLETS PROHIBITED	
SECTION 5	PROCESS WASTEWATER	
SECTION 6	PRIVATE SEWAGE DISPOSAL	
SECTION 7	BUILDING SEWER AND CONNECTIONS	
SECTION 8	USE OF THE PUBLIC SEWERS	
SECTION 9	DISPOSAL AT WASTEWATER TREATMENT PLANT	
SECTION 10	FEES FOR INDUSTRIAL PRETREATMENT	
SECTION 11	PROTECTION FROM DAMAGE	
SECTION 12	MUNICIPAL LIABILITY	
SECTION 13	POWER AND AUTHORITY OF INSPECTORS	
SECTION 14	ENFORCEMENT/PENALTIES	
SECTION 15	RECORDS RETENTION	
SECTION 16	RECORDS	
SECTION 17	USER CHARGE SYSTEM	
SECTION 18	VARIANCES	
SECTION 19	VALIDITY, SEVERABILITY, CONFLICT	
SECTION 20	EFFECTIVE DATE	



ORDINANCE \_\_\_\_\_

SEWER USE AND RATE ORDINANCE

THE TOWNSHIP OF \_\_\_\_\_ ORDAINS:

\_\_\_\_\_, IS HEREBY AMENDED TO READ  
AS FOLLOWS.

Sec. 1. Purpose and Policy

An ordinance regulating private and public sewers, sewer connections, industrial waste pretreatment facilities and discharge of industrial waste into the publicly operated treatment works and providing for pollutant limitations, data collection, monitoring and sampling, and providing for penalties for the violation thereof, in \_\_\_\_\_, County of \_\_\_\_\_, State of Michigan.

The objectives of this Ordinance are:

- a) to prevent the introduction of pollutants into the wastewater system which will interfere with the normal operation of the system or contaminate the resulting municipal sludge;
- b) to prevent the introduction of pollutants into the wastewater system which do not receive adequate treatment in the POTW, and which will pass through the system into receiving waters or the atmosphere or otherwise be incompatible with the system;
- c) to improve the opportunity to recycle and reclaim wastewater and sludge from the system.
- d) to provide for equitable distribution of the cost of municipal wastewater system.

Sec. 2. Definitions

Unless the context specifically indicates otherwise, the following terms and phrases, as used in this ordinance, shall have the meanings hereinafter designated.

- Act or "the Act". The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et. seq.
- Applicable County Health Department shall mean the \_\_\_\_\_ County Health Department.
- Authorized Representative of Industrial User. An authorized representative of an Industrial User may be: (a) a principal executive officer of at least the level of vice president, if the Industrial User is a corporation; (b) a general partner or proprietor if the

industrial user is a partnership or proprietorship, respectively; or (c) a duly authorized representative of the individual designated above if such representative is responsible for the overall operation of the facilities from which the indirect discharge originates, or for environmental matters of the company. Authorization for this representative must be submitted in writing to the Township by the individual designated in (a) and (b) hereof.

- Biochemical Oxygen Demand (BOD). The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure, five (5) days at 20° centigrade expressed in terms of weight and concentration (milligrams per liter).
- Building Drain shall mean that part of the lowest horizontal piping of a drainage system which receives discharge from drainage pipes inside the walls of the building and conveys it to the building sewer, beginning five (5) feet outside the inner face of the building wall.
- Building Sewer shall mean the extension from the building drain to the public sewer or other place of disposal.
- Bypass. The intentional diversion of waste streams from any portion of a User's pretreatment facility.
- Categorical Standards. National Categorical Pretreatment Standards or Pretreatment Standard.
- Chemical Oxygen Demand (COD). A measure of the oxygen-consuming capacity of Township of inorganic and organic matter present in water or wastewater. It is expressed as the amount of oxygen consumed from a chemical oxidant in a specified test. It does not differentiate between stable and unstable organic matter and thus does not necessarily correlate with biochemical oxygen demand. Also known as OC and DOC, oxygen consumed and dichromate oxygen consumed, respectively.
- Chlorine Demand shall mean the difference between the amount of chlorine applied and the amount of free chlorine available at the end of the contact time, expressed in milligrams per liter.
- Township. The Township of \_\_\_\_\_, Michigan, its agents and employees.
- Combined Sewer shall mean a sewer receiving both surface runoff and sewage.
- Commercial Waste shall mean a liquid or water-carried waste material from a commercial business engaged in buying, selling, exchanging goods or engaging in said goods or services.
- Compatible Pollutant. A substance amenable to treatment in the wastewater treatment plant such as biochemical oxygen demand, suspended solids, pH and fecal coliform bacteria, plus additional pollutants identified in the NPDES Permit if the publicly owned treatment works was designed to treat such pollutants, and in fact does remove such pollutant to a substantial degree. Examples of such additional pollutants may include:

chemical oxygen demand, total organic carbon, phosphorus and phosphorus compounds, nitrogen compounds, fats, oils and greases of animal or vegetable origin.

- Composite Sample. A series of samples taken over a specific time period whose volume is proportional to the flow in the waste stream, which are combined into one sample.
- Cooling Water. The water discharged from any use such as air conditioning, cooling or refrigeration, or to which the only pollutant added is heat.
- Debt Service Charge means charges levied to customers of the wastewater system which are used to pay principal, interest and administrative costs of retiring the debt incurred for construction of the wastewater system. The debt service charge shall be in addition to the user charge specified below.
- Direct Discharge. The discharge of treated or untreated wastewater directly to the waters of the State.
- Director shall mean the director of public works, or his authorized representative.
- Environmental Protection Agency, or EPA. The U.S. Environmental Protection Agency, Administrator or other duly authorized official.
- Garbage shall mean solid wastes from the preparation, cooking and dispensing of food and from the handling, storage and sale of produce.
- Grab Sample. A sample which is taken from a waste stream on a one-time basis with no regard to the flow in the waste stream and without consideration of time.
- Holding Tank Waste. Any waste from holding tanks such as vessels, chemical toilets, campers, trailers, septic tanks, and vacuum-pump tank trucks.
- Incompatible Pollutants. Any pollutant which is not a compatible pollutant.
- Indirect Discharge. The discharge or the introduction of nondomestic pollutants into the POTW (including holding tank waste discharged into the system).
- Industrial Wastes. The wastewater discharges from industrial, manufacturing, trade or business processes, or wastewater discharge from any structure with these characteristics, as distinct from their employee's domestic wastes or wastes from sanitary conveniences.
- Infiltration shall mean any waters entering the system from the ground, through such means as, but not limited to, defective pipes, pipe joints, connections or manhole walls. Infiltration does not include and is distinguished from inflow.
- Infiltration/Inflow shall mean the total quantity of water from both infiltration and inflow.

- Inflow shall mean any waters entering the system through such sources as, but not limited to, building downspouts, footing or yard drains, cooling water discharges, seepage lines from springs and swampy areas and storm drain cross connections.
- Interference. The inhibition or disruption of the POTW treatment processes or operations which contributes to a violation of any requirement of the Township's NPDES Permit or reduces the efficiency of the POTW. The term also includes prevention of sewage sludge use or disposal by the POTW.
- Laboratory Determination. The measurements, tests and analyses of the characteristics of waters and wastes in accordance with the methods contained in the latest edition at the time of any such measurement, test, or analysis of "Standard Methods for Examination of Water and Waste Water," a joint publication of the American Public Health Association, the American Waterworks Association and the Water Pollution Control Federation or in accordance with any other method prescribed by the rules and regulations promulgated pursuant to this division.
- Lateral Line. That portion of the sewer system located under the street or within the street right-of-way from the property line to the trunk line and which collects sewage from a particular property for transfer to the trunk line.
- Majority Contributing Industry. Any industrial user of the publicly owned treatment works that:
  - a) has a flow of 50,000 gallons or more per average work day;
  - b) has a flow greater than five percent of the flow carried by the municipality receiving the wastes;
  - c) has in its waste, a toxic pollutant in toxic amounts as defined in the standards under Section 307(a) of the Federal Water Pollution Control Act of 1972; or
  - d) is found by the permit issuance authority in connection with the issuance NPDES Permit to the publicly owned treatment works receiving the waste, to significantly impact, either singly or in combination with other contributing industries, on that treatment works or upon the quality of effluent from that treatment works. All major contributing industries shall be monitored.
- National Categorical Pretreatment Standard or Pretreatment Standard. Any federal regulation containing pollutant discharge limits promulgated by the EPA which applies to a specific category of Industrial Users.
- National Pollution Discharge Elimination System or NPDES Permit. A permit issued pursuant to section 402 of the Act (33 U.S.C. 1342).
- National Prohibitive Discharge Standard or Prohibitive Discharge Standard. Any regulation developed under the authority of 307(b) of the Act and 40 CFR, Section 403.5.
- Natural Outlet shall mean any outlet into a watercourse, pond, ditch, lake or other body of surface or groundwater.

- New Source. Any source, the construction of which is commenced after the publication of proposed National Categorical Pretreatment Standards which will be applicable to such source, provided that:
  - a) Construction is at a site where no other source is located;
  - b) Process or production equipment causing discharge is totally replaced due to construction; or
  - c) Production or wastewater generating processes of the facility are substantially independent of an existing source at the same site.

Construction is considered to have commenced when installation or assembly of facilities/equipment has begun, significant site preparation has begun for installation or assembly, or the owner/operator has entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation within a reasonable time. (Construction on a site at which an existing source is located results in a modification, rather than a New Source, if the construction does not create a new building, structure, facility or installation meeting the criteria of items b) or c) above but otherwise alters, replaces, or adds to existing process or production equipment.)

- Normal Domestic Sewage (NDS). Wastewater which, when analyzed, shows a daily average concentration of not more than 200 mg/l of BOD; nor than 240 mg/l of suspended solids; nor more than 5 mg/l of phosphorus; no more than 100 mg/l of fats, oils and grease; no more than 20 mg/l of total Kjeldahl nitrogen.
- Obstruction. Any object of whatever nature which substantially impedes the flow of sewage from the point of origination to the trunk line. This shall include, but not be limited to objects, sewage, tree roots, rocks and debris of any type.
- Operation and Maintenance means all work, materials, equipment, utilities and other effort required to operate and maintain the wastewater transportation and treatment system consistent with insuring adequate treatment of wastewater to produce an effluent in compliance with the NPDES Permit and other applicable state and federal regulations, and includes the cost of replacement.
- Owner or owners of record of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee, or other person, firm or corporation in control of a building.
- Person. Any individual, partnership, copartnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity or any other legal entity, or its legal representatives, agents or assigns. The masculine gender shall include the feminine, the singular shall include the plural where indicated by the context.
- pH. The logarithm (base 10) of the reciprocal of the concentration of hydrogen ions expressed in grams per liter of solution.
- Pollutant. Any of various chemicals, substances, and refuse materials such as solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, radioactive

materials, heat, and industrial, municipal and agricultural wastes which impair the purity of the water and soil.

- Pollution. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.
- POTW Treatment Plant. That portion of the POTW designed to provide treatment to wastewater.
- Pretreatment or Treatment. The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration can be obtained by physical, chemical or biological processes, or process changes other means, except as prohibited by 40 CFR Section 403.6(d).
- Pretreatment Requirements. Any substantive or procedural requirement for treating of a waste prior to inclusion in the POTW, including National Categorical Pretreatment Standards.
- Private Sewer Lines. All service lines and equipment for the disposal of sewage installed or located on any property, from the property line to and including any structure or facility which exists on the property.
- Properly Shredded Garbage shall mean the wastes from the preparation, cooking and dispensing of food that have been shredded to such degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half (1/2) inch in any dimension.
- Property Owner. The owner of the property which abuts the street.
- Publicly Owned Treatment Works (POTW). A treatment works as defined by section 212 of the Act (33 U.S.C. 1292), which is owned in this instance by the Township. This definition includes any sewers that convey wastewater to the POTW treatment plant. For the purposes of this ordinance, "POTW" shall also include any sewers that convey wastewaters to the POTW from persons outside the Township who are, by contract or agreement with the Township, users of the Township's POTW.
- Public Sewer shall mean a sewer in which all owners of abutting properties have equal rights, and is controlled by public authority.
- Replacement means the replacement in whole or in part of any equipment, appurtenances and accessories in the wastewater transportation or treatment systems to insure continuous treatment of wastewater in accordance with the NPDES Permit and other applicable state and federal regulations.

- Sanitary Sewage shall mean a liquid or water-carried waste discharged from the sanitary conveniences of dwellings including but not limited to residential homes, apartment houses and hotels, office buildings, commercial businesses or industrial plants.
- Sanitary Sewer shall mean a sewer which carries sewage and to which storm, surface and groundwaters are not intentionally admitted.
- Sewage shall mean a combination of the water-carried wastes from residences, business buildings, institutions and industrial establishments, together with such groundwaters as may be present.
- Sewage Treatment Plant or Wastewater Treatment Plant shall mean any arrangement of devices and structures used for treating sewage.
  - (a) Sewage Works shall mean all facilities for collecting, pumping, treating and disposing of sewage.
- Sewer shall mean a pipe or conduit for carrying sewage.
- Sewer Service Charge means the sum of the applicable user charge, surcharges and debt service charges.
- Severe Property Damage. Substantial physical damage to property, damage to the User's pretreatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in absence of a Bypass. Severe Property Damage does not mean economic loss caused by delays in production.
- Shall is mandatory; May is permissive.
- Significant Industrial User. Any Industrial User of the Township's wastewater disposal system who (a) is subject to National Categorical Pretreatment Standards; (b) has a discharge flow of 25,000 gallons or more per average work day; or (c) has a flow greater than 5% of the flow in the Township's wastewater treatment system; or (d) has in his wastes toxic pollutants as defined pursuant to Section 307 of the Act State Statutes and rules; or (e) is found by the Township, Michigan Department of Environmental Quality, or the U.S. Environmental Protection Agency (EPA) to have significant impact, either singly or in combination with other contributing industries, on the wastewater treatment system, the quality of sludge, the system's effluent quality, or air emissions generated by the system.
- Significant Noncompliance shall mean one or more of the following:
  - a) Chronic violation of wastewater discharge limit, defined here as when sixty-six (66) percent or more of all the measurements for a pollutant parameter taken during a six-month period exceed by any magnitude the corresponding daily maximum limit or the corresponding average limit;

- b) Technical Review Criteria violation of wastewater discharge limit, defined here as when thirty-three (33) percent or more of all of the measurements for a pollutant parameter taken during a six-month period equal or exceed the product of the corresponding daily maximum limit multiplied by the applicable TRC factor, or the product of the corresponding average limit multiplied by the applicable TRC Factor (TRC Factor = 1.4 for BOD, fats, oil and grease, and 1.2 for all other pollutants except pH).
  - c) Any other violation of a daily maximum limit or an average limit that the director determines has alone or in combination with other discharges caused interference or pass through, including endangering the health of POTW personnel or the general public;
  - d) Any discharge of a pollutant that has caused imminent endangerment to human health, public welfare, or the environment, or has resulted in the POTW exercising its emergency authority to halt or prevent such a discharge;
  - e) Failure to meet, within 90 days after the schedule date, a compliance schedule milestone contained in a Township-issued discharge permit or enforcement order for starting construction, completing construction, or attaining final compliance;
  - f) Failure to provide, within 30 days after the due date, required reports such as baseline monitoring reports, 90-day compliance reports, and/or reports on compliance with compliance schedules;
  - g) Failure to accurately report noncompliance; and
  - h) Any other violation, or group of violations, which the director determines as adversely affecting operation or implementation of the Township's pretreatment program.
- Slug Load. Any substance released in a discharge at a rate and/or concentration which causes interference to a POTW.
  - Standard Industrial Classification (SIC). A classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget, 1972.
  - State. State of Michigan.
  - Storm Sewer or Storm Drain shall mean a sewer which carries storm and surface waters and drainage, but excludes sewage and polluted industrial wastes.
  - Stormwater. Any flow occurring during or following any form of natural precipitation and resulting therefrom.

- Superintendent. The person designated by the Township to supervise the operation of the publicly owned treatment works, who is charged with certain duties and responsibilities by this article, or his duly authorized representative.
- Surcharge. As part of the service charge, any customer discharging wastewater having strength in excess of limits set forth by the Township shall be required to pay an additional charge to cover the cost of treatment of such excess strength wastewater.
- Suspended Solids. The total suspended matter that floats on the surface of, or is suspended in, water, wastewater or other liquids, and which is removable by laboratory filtering.
- Toxic Pollutant. Any pollutant or combination of pollutants which is or can potentially be harmful to public health or environment including those listed as toxic in regulations promulgated by the Administrator of the Environmental Protection Agency under the provisions of CWA 307(a) or other Acts.
- Trunk Line. The main sewer line located under any street or within any street right-of-way which collects and transmits the sewage of the various properties served by the sewer system.
- Uncontaminated Industrial Waste shall mean wastewater which has not come into contact with any substance used in or incidental to industrial processing operations and to which no chemical or other substance has been added.
- Upset. An exceptional incident in which there is unintentional and temporary noncompliance with National Categorical Pretreatment Standards because of factors beyond the reasonable control of the User. An Upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- User. Any person who contributes, causes or permits the contribution of wastewater into the POTW.
- User Charge means a charge levied on users of a treatment works for the cost of operation and maintenance of sewerage works pursuant to section 204(b) of PL 92-500 and includes the cost of replacement.
- User Class means the kind of user connected to sanitary sewers including but not limited to residential, industrial, commercial, institutional and governmental.
- Residential User shall mean a user of the treatment works whose premises or buildings are used primarily as a domicile for one or more persons, including dwelling units such as detached, semi-detached and row houses, mobile homes, apartments, or permanent multi-family dwellings (transit lodging is not included, it is considered commercial).

- Industrial User shall mean any user who discharges "industrial wastes" as defined in this ordinance.
- Commercial User shall mean an establishment listed in the Office of the Management and Budget's "Standard Industrial Classification Manual" (SICM), involved in a commercial enterprise, business or service which, based on a determination by the Township, discharges primarily segregated domestic wastes or wastes from sanitary conveniences and which is not a residential user or an industrial user.
- Institutional User shall mean any establishment listed in the SICM involved in a social, charitable, religious, or educational function which, based on a determination by the Township, discharges primarily segregated domestic wastes or wastes from sanitary conveniences.
- Governmental User shall mean any federal, state or local government user of the wastewater treatment works.
- Wastewater. The liquid and water-carried industrial or domestic wastes from dwellings, commercial buildings, industrial facilities and institutions, together with any groundwater, surface water, and stormwater that may be present, whether treated or untreated, which is contributed into or permitted to enter the POTW.
- Watercourse shall mean a channel in which a flow of water occurs, either continuously or intermittently.
- Waters of the State. All streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the State or any portion thereof.

Sec. 3. Abbreviations

The following abbreviations shall have the designated meanings:

1. BOD - Biochemical Oxygen Demand
2. CFR - Code of Federal Regulations
3. COD - Chemical Oxygen Demand
4. EPA - Environmental Protection Agency
5. l - liter
6. mg - milligrams
7. mg/l - milligrams per liter
8. NDS- Normal Domestic Sewage
9. NPDES - National Pollutant Discharge Elimination System

10. P-Phosphorus
11. POTW - Publicly Owned Treatment Works
12. SIC - Standard Industrial Classification
13. SICM - Standard Industrial Classification Manual
14. SS - Suspended Solids
15. SWDA - Solid Waste Disposal Act, 42 U.S.C. 6901, et. seq.
16. O&M - Operation and Maintenance
17. CWA - Clean Water Act

Sec. 4. Unsanitary Deposits, Discharge to Natural Outlets Prohibited

1. It shall be unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner upon public or private property within the Township, or in any area under the jurisdiction of said Township, any human or animal excrement, garbage or other objectionable waste.
2. It shall be unlawful, when sewage and/or treatment facilities are available, to discharge to any natural outlet within the Township, or in any area under the jurisdiction of said Township, any sanitary sewage, industrial wastes, or other polluted waters, unless specifically permitted by the applicable county health department.
3. It shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool or other facility intended or used for the disposal of sewage, unless specifically permitted by the applicable county health department or as hereinafter provided.
4. The owner of all houses, buildings or properties used for human occupancy, employment, recreation or other purposes, situated within the Township and abutting on any street, alley, or right-of-way in which there is now located or may in the future be located a public sanitary or combined sewer of the Township, is hereby required at his expense to install suitable sewage facilities therein, and to connect such facilities directly with the proper public sewer in accordance with the provisions of this article, within ninety (90) days after date of official notice to do so.

Sec. 5. Process Wastewater

1. Wastewater Contribution Information  
Any industry or structure discharging process flow to the sanitary sewer, storm sewer or receiving stream shall file the information listed below with the Director. Any industry which does not normally discharge to the sanitary sewer, storm sewer or receiving stream, but has the potential to do so from accidental spills or similar circumstances, shall also file the information listed below.

The Director may require each person who applies for or receives sewer service, or through the nature of the enterprise creates a potential environmental problem, to file the information listed below on a disclosure form prescribed by the Township:

- a. Name, address and location (if different from the address)
- b. SIC number according to the Standard Industrial Classification Manual, Bureau of the Budget, 1972, as amended.
- c. Wastewater constituents and characteristics including but not limited to those mentioned in Section 2 of this Ordinance as determined by a reliable analytical laboratory; sampling and analysis shall be performed in accordance with the procedures and methods detailed in:
  - "Standard Methods for the Examination of Water and Wastewater," American Public Health Association, current edition.
  - "Manual of Methods for Chemical Analysis of Water and Wastes," United States Environmental Protection Agency, current edition.
  - "Annual Book of Standards, Part 131, Water, Atmospheric Analysis," American Society of Testing Materials, current edition.
- d. Time and duration of contribution
- e. Average daily wastewater flow rates, including daily, monthly and seasonal variations, if any
- f. Industries identified as Significant Industrial Users or those required by the Township must submit site plans, floor plans, mechanical and plumbing plans and details to show all sewers, sewer connections, and appurtenances by the size, location and elevation.
- g. Description of activities, facilities and plant processes on the premises including all materials which are or could be discharged
- h. Where known, the nature and concentration of any pollutants in the discharge which are limited by any Township, State, or Federal Pretreatment Requirements, and a statement regarding whether or not the Pretreatment Requirements are being met on a consistent basis and if not, whether additional Operation and Maintenance and/or additional pretreatment is required by the Industrial User to meet applicable Pretreatment Requirements.
- i. If additional pretreatment and/or O&M will be required to meet the Pretreatment Requirements, the shortest schedule by which the User will provide such additional pretreatment. The completion date in this schedule shall not be later than the compliance date established for the applicable Pretreatment Standard. The following conditions shall apply to this schedule:
  - (1) The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction

and operation of additional pretreatment required for the User to meet the applicable Pretreatment Requirements.

- (2) No increment referred to in paragraph (1) shall exceed 9 months.
  - (3) Not later than 14 days following each date in the schedule and the final date for compliance, the User shall submit a progress report to the Director including, as a minimum, whether or not it complied with the increment of progress to be met on such date and, if not, the date on which it expects to comply with this increment of progress, the reason for delay, and the steps being taken by the User to return the construction to the schedule established. In no event shall more than 9 months elapse between such progress reports to the Director.
- j. Each product produced by type, amount, process or processes and rate of production
  - k. Type and amount of raw materials processed, average and maximum per day
  - l. Number and type of employees, hours of operation of plant and proposed or actual hours of operation of pretreatment system
  - m. Any other information as may be deemed by the Township to be necessary to evaluate the impact of the discharge on the POTW.
  - n. The disclosure form shall be signed by a principal executive officer of the User and a qualified engineer.
  - o. The Township will evaluate the complete disclosure form and data furnished and may require additional information. Within 90 days after full evaluation and acceptance of the data furnished, the Township shall notify the User of the acceptance thereof.

2. Discharge Modifications

Within three (3) months after the effective date of the promulgation or revision of a National Categorical Pretreatment Standard, all affected existing Industrial Users must submit to the Township the information required by paragraphs 1.h and 1.i of Section 5.

3. Discharge Conditions

Wastewater discharges shall be expressly subject to all provisions of this Ordinance and all other applicable regulations, User Charges, and fees established by the Township. The Township may:

- a. Set unit charges or a schedule of User Charges and fees for the wastewater to be discharged to the POTW;
- b. Limit the average and maximum wastewater constituents and characteristics;
- c. Limit the average and maximum rate and time of discharge or make requirements for flow regulations and equalization;

- d. Require the installation and maintenance of inspection and sampling facilities;
- e. Establish specifications for monitoring programs which may include sampling locations, frequency of sampling, number, types and standards for tests and reporting schedule;
- f. Establish compliance schedules;
- g. Require submission of technical reports or discharge reports;
- h. Require the maintaining, retaining and furnishing of plant records relating to wastewater discharge as specified by the Township, and affording Township access thereto, and copying thereof;
- i. Require prompt notification of the Township in advance of any new introduction of wastewater constituents or any substantial change in the volume or character of the wastewater constituents being introduced into the wastewater treatment system;
- j. Require immediate notification of all discharges that could cause problems to the POTW, including slug discharges;
- k. Require other conditions as deemed appropriate by the Township to ensure compliance with this Ordinance.
- l. Require waste treatment facilities, process facilities, waste streams, or other potential waste problems to be placed under the specific supervision and control of persons who have been certified by an appropriate state agency as properly qualified to supervise such facilities.
- m. Require records and file reports to be maintained on the final disposal of specific liquids, solids, sludges, oils, radioactive materials, solvents, or other wastes.
- n. Convert concentration-based National Categorical Pretreatment Standards to equivalent mass-based or production-based Pretreatment Requirements.
- o. Control through permit, order, or similar means, the contribution to the POTW by each User to ensure compliance with applicable National Categorical Pretreatment Standards or Pretreatment Requirements. The control mechanism may limit duration to a maximum of five years, require nontransferability without appropriate prior notification, set effluent limits, establish monitoring and reporting requirements, and contain a statement of applicable penalties for violations.
- p. Adjust National Categorical Pretreatment Standards to reflect the presence of pollutants in a User's intake water.

4. Baseline Reports

- a. Within 180 days after promulgation or revision of a National Categorical Pretreatment Standard, all existing affected Industrial Users must submit to the Township the information specified by 40 CFR, Section 403.12(b), paragraphs (1)-(7).
- b. At least 90 days prior to commencement of discharge, New Sources and sources that become affected Industrial Users subsequent to the promulgation of an applicable National Categorical Pretreatment Standard, shall submit to the Township the information specified by 40 CFR, Section 403.12(b), paragraphs (1)-(5). New Sources shall also include in this report information on the method of pretreatment they intend to use to meet the applicable pretreatment standard and shall give estimates of the required information regarding flow and pollutant discharge.

5. Compliance Date Report

Within 90 days following the date for final compliance with applicable Pretreatment Standards or, in the case of a New Source, following commencement of the introduction of wastewater into the POTW, any User subject to Pretreatment Standards and Requirements shall submit to the Director a report indicating the nature and concentration of all pollutants in the discharge from the regulated process which are limited by Pretreatment Standards and Requirements and the average and maximum daily flow for these process units in the User facility which are limited by such Pretreatment Standards or Requirements. For Users subject to equivalent mass- or shall contain a reasonable measure of the long-term production rate. For Users subject to Categorical Pretreatment Standards expressed per unit of production, the report shall include the actual production during the sampling period. The report shall state whether the applicable Pretreatment Standards or Requirements are being met on a consistent basis and, if not, what additional O&M and/or pretreatment is necessary to bring the User into compliance with the applicable Pretreatment Standards or Requirements. This statement will be signed by an Authorized Representative of the Industrial User, and certified to by a qualified representative.

6. Periodic Compliance Reports

- a. Any User or New Source discharging into the POTW, shall submit to the Director during the months of June and December, unless required more frequently in Pretreatment Standard or by the Director, a report indicating the nature and concentration of pollutants in the effluent which are limited by such Pretreatment Standards or this Ordinance. In addition, this report shall include a record of all daily flows which during the reporting period exceeded the average daily flow reported in paragraph 3.c. of this section. At the discretion of the Director and in consideration of such factors as local high or low flow rates, holidays, budget cycles, etc., the Director may agree to alter the months during which the above reports are to be submitted.
- b. The Director may also impose mass limitations on Users which are using dilution to meet applicable Pretreatment Standards or Requirements, or in other cases in which the imposition of mass limitations is appropriate. In such cases, the report required by subparagraph a. of this paragraph shall also indicate the mass of pollutants regulated by Pretreatment Standards in the effluent of the User.

- c. If a User is subject to reporting requirements required to demonstrate continued compliance and monitors any pollutant more frequently than required by the Township, using Standard Laboratory Procedures, the results of this additional monitoring shall also be included in the Periodic Compliance Report.
- d. If sampling performed by a User indicated a violation, the User shall notify the Township within 24 hours of becoming aware of the violation. The User shall also repeat the sampling and submit the results of re-analysis to the Township within 30 days after becoming aware of the violation, except when the Township will be performing scheduled surveillance sampling/analysis within this 30-day period.

7. Notification of Hazardous Waste Discharges

All Users shall notify the POTW, the EPA Regional Waste Management Division Director, and the State Hazardous Waste Authority in writing of any discharge into the POTW of a substance which would be a hazardous waste under 40 CFR 261 if disposed via other means. Notification details, as well as allowable exemptions, shall be in accordance with 40 CFR 403.12(p). In the case of any new regulations under section 3001 of RCRA identifying additional characteristics of hazardous waste or listing any additional substance as a hazardous waste, the User must provide notification of the discharge of such substance within 90 days of the effective date of such regulations. In the case of any notification of hazardous waste discharges, the User shall further certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated to the degree it has determined to be economically practical.

8. Monitoring Facilities

The Township may require to be provided and operated at the User's own expense, monitoring facilities to allow inspection, sampling, and flow measurement of the building sewer and/or internal drainage systems. The monitoring facility should normally be situated on the User's premises, but the Township may, when such a location would be impractical or cause undue hardship on the User, allow the facility to be constructed in the public street or sidewalk area and located so that it will not be obstructed by landscaping or parked vehicles. There shall be ample room in or near such sampling manhole or facility to allow accurate sampling and preparation of samples for analysis. The facility, sampling, and measuring equipment shall be maintained at all times in a safe and proper operating condition at the expense of the User. Whether constructed on public or private property, the sampling and monitoring facilities shall be provided in accordance with plans and specifications submitted to and approved by the Township and all applicable local construction standards and specifications. Construction shall be completed within 90 days following written notification by the Township.

9. Inspection and Sampling

The Township shall inspect the facilities of any User to ascertain whether the purpose of this Ordinance is being met and the User is complying with all requirements. Persons or occupants of premises where wastewater is created or discharged shall allow the Township or its representative ready access at all reasonable times to all parts of the premises for the purposes of inspection, sampling, records examination, records copying or in the performance of any of their duties. The Township, MDEQ and EPA shall have the right to set up on the User's property such devices as are necessary to conduct

sampling inspection, compliance monitoring and/or metering operations. Where a User has security measures in force which would require proper identification and clearance before entry into their premises, the User shall make necessary arrangements with their security guards so that upon presentation of suitable identification, personnel from the Township, MDEQ, and EPA will be permitted to enter, without delay, for the purposes of performing their specific responsibilities.

10. Pretreatment

Industrial Users shall provide necessary wastewater treatment as required to comply with this Ordinance and shall achieve compliance with all National Categorical Pretreatment Standards within the time limitations as specified by the Federal Pretreatment Regulations and as required by the Township. Any facilities required to pretreat wastewater to a level acceptable to the Township shall be provided, operated, and maintained at the User's expense. Detailed plans showing the pretreatment facilities and operating procedures shall be submitted to the Township for review, and shall be approved by the Township before construction of the facility. The review of such plans and operating procedures will in no way relieve the User from the responsibility of modifying the facility as necessary to produce an effluent acceptable to the Township under the provisions of this Ordinance. Any subsequent changes in the pretreatment facilities or method of operation shall be reported to and be acceptable to the Township prior to the User's initiation of the changes.

The Township will annually publish in the major local newspaper a list of the Users which were in Significant Noncompliance with any Pretreatment Requirements or Standards at least once during the twelve previous months. The notification will identify the nature of the violation and summarize any enforcement actions taken against the User(s) during the same twelve months.

All records relating to compliance with Pretreatment Standards shall be made available to officials of the EPA or MDEQ upon request.

11. Confidential Information

Information and data on a User obtained from reports, questionnaires, permit applications, permits and monitoring programs and from inspections shall be available to the public or other governmental agency without restriction unless the User specifically requests and is able to demonstrate to the satisfaction of the Township that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the User.

When requested by the person furnishing a report, the portion of a report which might disclose trade secrets or secret processes shall not be made available for inspection by the public but shall be made available upon written request to governmental agencies for uses related to this Ordinance, the National Pollutant Discharge Elimination System (NPDES) Permit, or the Pretreatment Programs; provided, however, that such portions of a report shall be available for use by the State or any state agency in judicial review or enforcement proceedings involving the person furnishing the report. Wastewater constituents and characteristics will not be recognized as confidential information.

Information accepted by the Township as confidential shall not be transmitted to any governmental agency or to the general public by the Township until and unless a ten-day notification is given to the User.

12. Signatory Requirements

All reports required by this Section shall be signed by the Authorized Representative of Industrial User and include the following certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

If the Authorized Representative of Industrial User changes because a different individual has responsibility for the overall operation of the facility or for environmental matters of the company, a new authorization satisfying the requirements of Sec. 2., Authorized Representative of Industrial User, Item (c), must be submitted to the Township prior to or together with any reports to be signed by that representative.

Sec. 6. Private Sewage Disposal

1. Where a public sewer is not available under the provisions of Section 4.4, the building sewer shall be connected to an approved private sewage disposal system.
2. Before commencement of a private sewage disposal system, the owner shall first apply to the County Health Department for a soil evaluation test. The fee shall be determined by the County Health Department, and shall be paid to the County Health Department. At completion of the above soil evaluation test showing positive results, the property owner shall apply for a Permit for Installation for the proposed sewage system. He shall include plans, specifications and other information as deemed necessary by the County Health Department. At the time the application is filed, the fee determined by the County Health Department for the permit and inspection shall be paid.
3. A permit for a private sewage disposal system shall not become effective until the installation is completed to the satisfaction of the County Health Department. The County Health Department shall be allowed to inspect the work at any stage of construction and, in any event, the applicant for the permit shall notify the County Health Department when the work is ready for final inspection, and before any underground portions are covered. The inspection shall be made within seven (7) days of the receipt of notice by the County Health Department. All persons receiving a permit for a private sewer disposal system shall provide the Township with copies of all final approved inspection reports issued by the County Health Department.

4. The type, capacities, location and layout of a private sewage disposal system shall comply with all recommendations of the County Health Department. No septic tank or cesspool shall be permitted to discharge to any public sewer or natural outlet.
5. At such time as a public sewer becomes available to a property served by a private sewage disposal system as provided in Section 4.4, a direct connection shall be made to the public sewer in compliance with this article, and any septic tanks, cesspools and similar private sewage disposal facilities shall be abandoned for sanitary use and filled with a suitable material.
6. The owner shall operate and maintain the private sewage disposal facilities in a sanitary manner at all times at no expense to the Township.
7. No statement contained in this section shall be construed to interfere with any additional requirements that may be imposed by any other agency having legal jurisdiction.

Sec. 7. Building Sewer and Connections

1. No person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer or appurtenance thereof, without first obtaining a written permit from the director. No building sewer shall be covered until after it has been inspected and approved by the Director.
2. The owner or his agent shall make application or sewer permit on a form furnished by the Township. The permit application shall be supplemented by any plans, specifications, or other information required by this Ordinance or considered pertinent in the judgment of the Township. A Hook-up Fee, in an amount established by resolution of the Township Council, shall be paid to the Township Treasurer at the time the application is filed. A plumbing permit is also required. If a street opening is required to make the lead connection, an additional attachment to the permit must be completed.
3. All cost and expense incident to the installation, connection and maintenance of the building sewer to the public sewer connection shall be borne by the owner.
4. All liabilities incident to the installation and connection of the building sewer shall be borne by property owner. The property owner shall indemnify and save harmless the Township from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.
  - a. It shall be the duty of each property owner to maintain, clean and repair the private sewer lines on his property at his own expense as necessary to keep such lines free and clear of obstructions and in good working order and to maintain and keep clear of obstructions the lateral lines servicing his property.
  - b. It shall be the duty of the Township to maintain, clean and repair as necessary and at its expense the sewer trunk lines and to repair or replace any broken or crushed

lateral lines. The Township shall not be responsible for cleaning or maintenance of lateral lines.

- c. In the case of a bona fide dispute as to whether needed maintenance, cleaning or repair of a portion of sewer line is the responsibility of the property owner or the Township under the provisions of this Ordinance, it shall be the duty of the property owner to establish that the obstruction, disrepair or defect has occurred in that portion of the line for which the Township is responsible.

If the property owner fails to establish the Township responsibility, it shall be the property owner's responsibility to perform the necessary maintenance as provided in this Ordinance. If the Township responsibility is established, the Township shall perform the necessary maintenance and shall reimburse the property owner for reasonable expenses incurred in locating the defect in the line or in otherwise establishing the Township responsibility.

The property owner would be responsible under this Ordinance for the total maintenance and repair of the private sewer lines on his property and for the maintenance and cleaning, although not including major repair, of the entire sewer line out to the trunk line.

The Township, on the other hand, is responsible for major repair of the trunk line and lateral lines only and has no responsibility of any sort for the private lines. The Township also has no responsibility to clean the lateral lines.

- d. Any property owner who shall violate the provisions of this Ordinance shall be liable to the Township for civil damage incurred in correcting the defect, and in addition, shall be guilty of a misdemeanor.

If any property owner fails to maintain a private sewer line as required by this ordinance, in addition to the other penalties prescribed, the sewer may be declared a public nuisance by the County Health Officer and the defect may be corrected by the Township. Any costs so incurred shall be assessed against the property and become a lien on the property if not timely paid.

5. A separate and independent building sewer shall be provided for every building; except where one building stands at the rear of another or an interior (lot) and no private sewer is available or can be constructed to the rear building through an adjoining alley, yard or driveway, the building sewer from the front building may be extended to the rear building.
6. Old building sewers may be used in connection with new buildings only when they are found, on examination and test by the Director, to meet all requirements of this article.
7. The building sewer shall be constructed of vitrified clay sewer pipe or cast iron soil pipe, as approved by the Director. The Township reserves the right to specify and require the encasement of any sewer pipe with concrete, or the installation of the sewer pipe in

concrete cradle if foundation and construction are such as to warrant such protection in the opinion of the Director.

8. The size and slope of the building sewer shall be subject to approval by the Director, but in no event shall the diameter be less than four (4) inches. The slope of such four (4) inch pipe shall be not less than one-quarter (1/4) inch per foot, unless otherwise permitted. The slope of pipe, the diameter of which is six (6) inches or more, shall be not less than one-eighth (1/8) inch per foot unless otherwise permitted.
9. Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. No building sewer shall be laid parallel to or within three (3) feet of any bearing wall, which might thereby be weakened. The depth shall be sufficient to afford protection from frost. The building sewer shall be laid at uniform grade. The line shall be straight or laid with properly curved pipe and fittings. Changes in direction greater than forty-five (45) degrees shall be provided with cleanouts accessible for cleaning.
10. In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such drain shall be lifted by artificial means approved by the Director, and discharges to the building sewer.
11. All joints and connections shall be made gastight and watertight. All joints shall be approved by the Director.
12. No sewer connection will be permitted unless there is capacity available in all downstream sewers, lift stations, force mains and the sewage treatment plant, including capacity for treatment of BOD and suspended solids.
13. All newly constructed building sewers shall have a properly sized cleanout at the head of said sewer that is accessible at all times. This cleanout shall allow access of sewer cleaning equipment of a size equivalent to the size of the building sewer.
14. All sewers shall be constructed in accordance with the latest edition of the "Ten State Standards."

Sec. 8. Use of the Public Sewers.

1. General Discharge Prohibitions

No User shall contribute or cause to be contributed, directly or indirectly, any pollutant or wastewater which will interfere with the operation or performance of the POTW. These general prohibitions apply to all such Users of a POTW whether or not the User is subject to the National Categorical Pretreatment Standards or any other national, state or local Pretreatment Standards or requirements. The Township may refuse to accept any wastes which will cause the POTW to violate its NPDES discharge limits. A User may not contribute the following substances to any POTW:

- a. Any liquids, solids or gases, including but not limited to waste streams with a closed cup flash point of less than 140°F, which by reason of their nature and quantity are, or may be, sufficient either alone or by interaction with other substances to cause fire or explosion or be injurious in any other way to the POTW or to the operation of the POTW. Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides.
- b. Solid or viscous substances which may cause obstruction to the flow in a sewer or other interference with the operation of the wastewater treatment facilities such as, but not limited to: grease, garbage with particles greater than one-half inch (1/2") in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, gas, tar, asphalt residues, residues from refining, or processing of fuel or lubricating oil, mud, or glass grinding or polishing wastes.
- c. Any wastewater having a pH less than 6.0 or greater than 9.5, or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel of the POTW.
- d. Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters of the POTW, or exceed the limitation set forth in a Categorical Pretreatment Standard. This prohibition of toxic pollutants will conform to Section 307(a) of the Act.
- e. Any noxious or malodorous liquids, gases, or solids which either singly or by interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for maintenance and repair, including pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.
- f. Any substance which may cause the POTW's effluent or any other product of the POTW such as residues, sludges, or scums, to be unsuitable for reclamation and reuse or to interfere with the reclamation process.
- g. Any substance which will cause the POTW to violate its NPDES Permit or the receiving water quality standards.
- h. Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.
- i. Any wastewater having a temperature which will inhibit biological activity in the POTW resulting in Interference, but in no case wastewater with a temperature at the introduction into the POTW which exceeds 40°C (104°F).

- j. Any pollutants, including oxygen demanding pollutants (BOD, etc.) released at a flow rate and/or pollutant concentration which will cause Interference to the POTW.
- k. Any wastewater containing any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Director in compliance with applicable state or federal regulations.
- l. Any wastewater which causes a hazard to human life or creates a public nuisance.
- m. Any unpolluted water including, but not limited to stormwater, groundwater, roof water, or noncontact cooling water.
- n. Any waters or wastes containing suspended solids or any constituent of such character and quantity that unusual attention or expense is required to handle such materials at the sewage treatment plant.
- o. Any waste from individual sewage disposal systems except at the POTW Treatment Plant as provided in Section 9 except that waste from any individual sewage disposal system may be disposed of directly into a sanitary sewer upon entering into an agreement with the Township, which agreement shall specify the site of disposal, sewage disposal charge and such other conditions as may be required to satisfy the sanitation and health requirements of the Township. For the purpose of this subsection, "individual sewage disposal system" is defined to include every means of disposing of industrial, commercial, household, domestic or other water-carried sanitary waste or sewage other than a public sanitary sewer.
- p. Any sludge, precipitate or congealed substances resulting from an industrial or commercial process, or resulting from the pretreatment of wastewater or air pollutants.
- q. Any trucked or hauled wastewater, except as specifically allowed by the Director.

2. Specific Pollutant Limitations

a. Toxic pollutants

Under no circumstances shall any person discharge wastewater containing in excess of:

- 1. \_\_\_\_\_ mg/l arsenic
- 2. \_\_\_\_\_ mg/l cadmium
- 3. \_\_\_\_\_ mg/l chromium (total)
- 4. \_\_\_\_\_ mg/l chromium (hexavalent)
- 5. \_\_\_\_\_ mg/l copper
- 6. \_\_\_\_\_ mg/l cyanides
- 7. \_\_\_\_\_ mg/l lead

8. \_\_\_\_\_ mg/l mercury
9. \_\_\_\_\_ mg/l nickel
10. \_\_\_\_\_ mg/l silver
11. \_\_\_\_\_ mg/l zinc
12. \_\_\_\_\_ mg/l total phenols
13. \_\_\_\_\_ mg/l polychlorinated biphenyls

b. Conventional Pollutants

Except as authorized by the Director, no person shall discharge wastewater containing in excess of:

1. \_\_\_\_\_ mg/l BOD<sub>5</sub>
2. \_\_\_\_\_ mg/l total suspended solids
3. \_\_\_\_\_ mg/l total Kjeldahl nitrogen
4. \_\_\_\_\_ mg/l total phosphorus
5. \_\_\_\_\_ mg/l COD
6. \_\_\_\_\_ mg/l by weight of fat, oil or grease
7. \_\_\_\_\_ mg/l iron
8. \_\_\_\_\_ mg/l chlorine demand, at 30 minutes

- c. Should the above concentrations, either individually or in combination with one another, interfere with the sewage treatment process, or cause difficulties or damage to the receiving waters, the maximum concentrations of these substances will be reduced by order of the Director.

Should any other substances either individually or in combination with other substances interfere with the sewage treatment process or cause damage to the receiving waters or affect the sanitary or storm sewer system, the allowable concentration of these substances will be reduced by order of the Director. Should the Director determine that the above limits can be raised without damage to the sewer system or the sewage plant exceeding the state or federal limits, then the Director may raise the limits, and shall determine the individual concentrations depending on quantity of flow, equipment, capabilities, reliability of testing, etc.

- d. If any waters are discharged or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics enumerated above, and which in the judgment of the Township may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the Township may:

1. Reject the wastes.
2. Require pretreatment to the level defined as "Normal Domestic Sewage".

3. Require control over the quantities and rates of discharge.
4. Require payment to cover the added cost of handling and treating the wastes not covered using taxes or sewer charges.
5. Require new industrial customers or industries with significant changes in strength or flow to submit prior information to the Township concerning the proposed flows.

If the Township permits the pretreatment or equalization or waste flows, the design and installation of the plant and equipment shall be subject to the review and approval of the Township and shall be subject to the requirements of all applicable codes, ordinances and laws.

3. National Categorical Pretreatment Standards

Upon the promulgation of the National Categorical Pretreatment Standards for a particular subcategory, the Pretreatment Standard, if more stringent than limitations imposed under this Ordinance for sources in that subcategory, shall immediately supersede the limitations imposed under this Ordinance and shall be considered part of this Ordinance. The Director shall notify all affected Users of the applicable reporting requirements.

Existing Users subject to new National Categorical Pretreatment Standards shall achieve compliance within three years of the date the standard is promulgated, unless a shorter compliance schedule is specified in the standard. New Sources subject to National Categorical Pretreatment Standards shall install, have in operating condition, and have started up all pretreatment equipment required to achieve compliance before beginning to discharge; and shall meet all applicable pretreatment standards within the shortest feasible time, but not to exceed ninety days after beginning to discharge.

4. State Requirements

State requirements and limitations on discharges shall apply in any case where they are more stringent than Federal requirements and limitations or those in this ordinance.

5. Township's Right of Revision

The Township reserves the right to establish by ordinance more stringent limitations or requirements on discharges to the wastewater disposal system if deemed necessary to comply with the objectives presented in Section 1 of this Ordinance.

6. No user shall discharge or cause to be discharged any stormwater, surface water, groundwater, water from footing drains, or roof water to any sanitary sewer or sewer connection. Any premise connected to a storm sewer shall comply with county, state and federal requirements as well as those of the Township.

Downspouts and roof leaders shall be disconnected from sanitary sewers within six (6) months of the date of this Ordinance. If this is not done, the Township shall perform this work and bill the user.

Stormwater, groundwater and all other unpolluted drainage shall be discharged to such sewers as are specifically designed as combined sewers or storm sewers. Discharge of cooling water or unpolluted process water to a natural outlet shall be approved only by the Michigan Water Resources Commission.

7. Grease, oil and sand interceptors shall be provided when in the opinion of the Director they are necessary for the proper handling of liquid wastes containing grease in excessive amounts or any flammable wastes, sand and other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be located as to be readily and easily accessible for cleaning and inspection. Grease and oil interceptors shall be constructed of impervious material capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, watertight and equipped with easily removable covers, which when bolted in place shall be gastight and watertight.
8. Where installed, all grease, oil and sand interceptors shall be maintained by the owner, at his expense, in continuously efficient operation at all times.
9. The Township may prohibit the admission into the public sewers or any waters or wastes as follows:
  - a. Containing any quantity of substances having the characteristics described in Section 8.1.a or 8.1.b, or
  - b. Having an average daily flow greater than two percent (2%) of the average daily sewage flow of the Township, or having a rate of flow (gallons per day) greater than ten percent (10%) of the average daily Township flow for a period of one hour or more, shall be subject to review and approval of the Director.

Where necessary in the opinion of the Township, the owner shall provide at his expense, such preliminary treatment as may be necessary to reduce the five (5) day BOD, suspended solids, phosphorus, and total Kjeldahl nitrogen to concentrations given in 8.2.b; or to reduce objectionable characteristics of constituents to within the maximum limits provided for in Section 8.2.a, or control the quantities and rates of discharge of such waters or wastes.

10. Where the strength of sewage from an industrial, commercial or institutional establishment exceeds (1) \_\_\_\_\_( ) parts per million of biochemical oxygen demand or (2) \_\_\_\_\_( ) parts per million by weight of suspended solids or (3) \_\_\_\_\_( ) parts per million by weight of phosphorus or (4) \_\_\_\_\_( ) parts per million by weight of total Kjeldahl nitrogen and where such wastes are permitted to be discharged to the sewer system by the Director, an added charge, as noted below, will be made against such establishment according to the strength of such wastes. The strength of such wastes shall be determined by composite samples taken over a sufficient period of time to insure a representative sample. The cost of taking and making the first of these samples shall be borne by the Township. The cost of any subsequent sampling and testing shall be borne by

the industry or establishment, whether owner or lessee. Tests shall be made by an independent laboratory or at the Township wastewater treatment plant.

Added charges shall be determined by the Township. These charges shall be based on the cost of operation, maintenance, and equipment replacement for the sewage works.

11. When required by the Township, the owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole together with such necessary meters and other appurtenances in the building sewer to facilitate observation, sampling and measurement of the wastes. Such manhole, when required, shall be accessibly and safely located and shall be constructed in accordance with plans approved by the Township. The manhole shall be installed by the owner at his expense and shall be maintained by him so as to be safe and accessible at all times.
12. All measurements, tests and analyses of the characteristics of water to which reference is made in subsections 1 and 8 of Section 8, shall be determined in accordance with the latest edition at the time of "Standard Methods for Examination of Water and Sewage," and shall be determined at the control manhole provided for in subsection 6, Section 5, or upon suitable samples taken at said control manhole. In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected.

Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards to life, limb and property. The particular analyses involved will determine whether a 24-hour composite of all outfalls of a premise is appropriate or whether grab samples should be taken. The responsibilities of industry are further defined below:

- a. One person from each industry shall be delegated the authority to be responsible for industrial wastes admitted to the municipal sewers. Such person would be involved with maintaining the pretreatment facility operations and assuring a continual high level of performance. In case no pretreatment is provided, such person would be involved with the prevention of accidental discharges of process wastes admitted to the sanitary sewer system. Such person must become aware of all potential and routine toxic wastes generated by their industry. Such person must also be informed of all process alterations which could, in any manner, increase or decrease normal daily flow or waste strength discharged to the sanitary sewers.
- b. This industrial representative must catalog all chemicals stored, used, or manufactured by their industry. Such a listing should include specific chemical names, not manufacturer's codes. Those wastes admitted to the sanitary sewer are a prime concern; however, all discharges should be cataloged. An estimate of daily average flows and strengths must be made including process, cooling, sanitary, etc. Such a determination should separate the flows according to appropriate categories. The aforementioned flow and chemical listing is to be sent to the Township.
- c. The industrial representative shall determine whether or not large process alterations will occur during the next few years; one year, two years, and five years.

Management should be consulted to determine if such alterations are scheduled and forthcoming.

- d. A sketch of the plant building(s) must be made, including a diagram of process and chemical storage areas. Location of any pretreatment equipment should be indicated and floor drains located near process and storage areas should be noted. Manhole and sewer locations at the industry's point of discharge into the municipal collection system should be included on the plant layout sketch.
- e. There must be separation of spent concentrations from the sanitary sewer to prevent toxic wastes from upsetting the wastewater treatment plant. Supervision and operation of the pretreatment equipment for spent concentrations as well as all toxic wastes and high strength organic wastes to an acceptable level as detailed in this Ordinance is the responsibility of the industrial representative. All sludges generated by such treatment must be handled in an acceptable manner, such as designated areas of a sanitary landfill or by a licensed waste hauler. Adequate segregation of those waters and wastes to be pretreated to meet discharge limits is a vital portion of the industrial effort to prevent operational problems at the wastewater treatment plant.
- f. Throughout the industry, adequate secondary containment or curbing must be provided to protect all floor drains from accidental spills and discharges to the receiving sewers. Such curbing should be sufficient to hold 150% of the total process area tank volume. All floor drains found within the containment area must be plugged and sealed. Spill trough and sumps within the containment area must be plugged and sealed. Spill trough and sumps within process areas must discharge to appropriate pretreatment tanks. Secondary containment should be provided for storage tanks which may be serviced by commercial haulers and for chemical storage areas.
- g. An adequate sampling vault or manhole must be provided in an accessible place for the wastewater treatment plant personnel to obtain samples and flow measurement data. The complexity of the vault will vary with the sampling requirements the Township determines necessary to protect the treatment plant and receiving stream. Should the Township desire continual flow recording and long duration, 24-hour composite sampling, then a more complex manhole would be mandatory - complete with 110 volt AC. Samples collected could be divided between the industry and Township for analysis if so desired by the industry. The sampling vault should be located so as to give access by Township personnel without entering the industrial property.
- h. Information and data on a user obtained from reports, questionnaires, permit applications, permits and monitoring programs and from inspections shall be available to the public or other governmental agency without restriction unless the user specifically requests and is able to demonstrate to the satisfaction of the Township that the release of such information would divulge information, processing or methods of production entitled to protection as trade secrets of the user. When requested by the person furnishing the report, the portion of the report

which might disclose trade secrets or secret processes shall not be made available for inspection by the public but shall be made available upon written request to governmental agencies for uses related to this Ordinance. The National Pollutant Discharge Elimination System (NPDES) Permit, State Disposal System Permit, and/or the pretreatment programs; wastewater constituents and characteristics will not be recognized as confidential information. Information accepted by the Township as confidential shall not be transmitted to any governmental agency or to the general public by the Township until and unless a 10-day notification is given to the user.

Industrial cooling water containing such pollutants as insoluble oils or grease or other suspended solids shall be pretreated for removal of the pollutants and then discharged to a MDEQ approved drainage outlet.

Agents of the Township, County Health Department, Michigan Department of Environmental Quality of U.S. Environmental Protection Agency, shall have the right to enter all properties for the purpose of inspecting, measuring, sampling and testing the wastewater discharge and copying applicable pretreatment records.

13. To determine the sewage flow from any establishment, the Director may use one of the following methods:
  - a. The amount of water supplied to the premises by the Township or a private water company as shown upon the water meter if the premises are metered, or
  - b. If such premises are supplied with river water or water from private wells, the amount of water supplied from such sources as estimated by the Director from the water, gas or electric supply, or
  - c. If such premises are used for an industrial or commercial purpose of such a nature that the water supplied to the premises cannot be entirely discharged into the sewer system, the estimate of the amount of sewage discharged into the sewer system made by the Director from the water, gas or electric supply, or
  - d. The number of gallons of sewage discharged into the sewer system as determined by measurements and samples taken at a manhole installed by the owner of the property served by the sewer system at his own expense in accordance with the terms and conditions of the permit issued by the Director pursuant to Section 7, or
  - e. A figure determined by the Director by any combination of the foregoing or by any other equitable method.
  
14. Excessive Discharges  
Except where expressly authorized to do so by an applicable National Categorical Pretreatment Standard, no User shall ever increase the use of process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in the National Categorical

Pretreatment Standards, or in any other pollutant-specific limitation developed by the Township or State.

15. Accidental Discharge

Where required a User shall provide protection from accidental discharge of prohibited materials or other substances regulated by this Ordinance. The Township will evaluate, at least once every two years, whether a User without said protection will be subjected to these requirements. Facilities to prevent accidental discharge or prohibited materials shall be provided and maintained at the Owner's or User's own cost and expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to the Township for review, and shall be approved by the Township before construction of the facility. All required Users shall complete such a plan within 180 days after the adoption of this Ordinance. If required by the Township a User who commences contribution to the POTW after the effective date of this Ordinance shall not be permitted to introduce pollutants into the system until accidental discharge procedures have been approved by the Township. Review and approval of such plans and operating procedures shall not relieve the Industrial User from the responsibility to modify the User's facility as necessary to meet the requirements of this Ordinance. In the case of an accidental discharge, it is the responsibility of the User to immediately telephone and notify the POTW of the incident. The notification shall include location of discharge, type of waste, concentration and volume, and corrective actions.

- a. Written Notice. Within five (5) days following an accidental discharge, the User shall submit to the Director a detailed written report describing the cause of the discharge and the measures to be taken by the User to prevent similar future occurrences. Such notification shall not relieve the User of any expense, loss, damage, or other liability which may be incurred as a result of damage to the POTW, fish kills, or any other damage to person or property; nor shall such notification relieve the user of any fines, civil penalties, or other liability which may be imposed by this article or other applicable law.
- b. Notice to Employees. A notice shall be permanently posted on the User's bulletin board or other prominent place advising employees of whom to call in the event of a dangerous discharge. Employers shall insure that all employees who may cause or suffer such a dangerous discharge to occur are advised of the emergency notification procedure.

16. Upset Provision

An Upset shall constitute an affirmative defense by Users in unintentional and temporary noncompliance with applicable National Categorical Pretreatment Standards or Pretreatment Requirements, provided it can be proved that:

- a. An Upset occurred and the User can identify the cause(s) of the Upset;
- b. The facility was at the time being operated in a prudent and workmanlike manner and in compliance with applicable operation and maintenance procedures;

- c. The User submitted the following information to the Township within twenty-four hours of becoming aware of the Upset (if this information is provided orally, a written submission must be provided within five days):
- 1) A description of the discharge and cause of noncompliance;
  - 2) The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
  - 3) Steps being taken and/or planned to reduce, eliminate and prevent recurrence of the noncompliance.

In any enforcement proceedings, the User seeking to establish the occurrence of an Upset shall have the burden of proof.

17. Bypass Provision

Bypass producing a discharge which violates applicable National Categorical Pretreatment Standards or Pretreatment Requirements is prohibited, and the Township may take enforcement action against a User for such Bypass, unless: the Bypass was unavoidable to prevent loss of life, personal injury, or Severe Property Damage; there were no feasible alternatives to the Bypass such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (except where adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to operate during normal periods of equipment downtime or preventive maintenance); and the User submitted required notices.

If the User knows in advance of the need for Bypass, a prior notice shall be submitted to the Township at least ten (10) days before the date of the Bypass. The Township may approve or disapprove this anticipated Bypass, after considering its adverse effects.

A User shall submit oral notice of an unanticipated Bypass that exceeds applicable Pretreatment Requirements to the Township within twenty-four (24) hours from the time the User becomes aware of the Bypass. Unless waived by the Township, a written submission shall then be provided within five (5) days of the time the User becomes aware of the Bypass. The written submission shall contain a description of the Bypass and its cause; the duration of the Bypass, including exact dates and times, and, if the Bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the Bypass.

18. No statement contained in this section shall be construed as preventing any special agreement or arrangement between the Township and any person, firm or corporation whereby waste of unusual strength or character may be accepted by the Township, subject to payment therefor by the person, firm or corporation, provided such waste will not damage the sanitary sewer or storm sewer or sewage treatment plant or the receiving waters.

Sec. 9 Disposal at Wastewater Treatment Plant

Waste from individual sewage systems may be accepted with permission of the Superintendent at the Wastewater Treatment Plant. No waters or wastes described in Section 8.1 of this ordinance, shall be disposed of at the Wastewater Treatment Plant.

Rates for disposal at the Wastewater Treatment Plant shall be determined by the Superintendent at the time of acceptance.

Sec. 10 Fees for Industrial Pretreatment

1. Purpose

It is the purpose of this chapter to provide for the recovery of costs from Users of the Wastewater treatment works for the implementation of the pretreatment program established herein. The applicable charges or fees shall be set forth in the Township's Schedule of Charges and Fees.

2. Description of Charges and Fees

- a. for reimbursement of costs of setting up and operating the Pretreatment Program,
- b. for monitoring, inspections and surveillance procedures,
- c. for reviewing accidental discharge procedures and construction,
- d. for filing appeals,
- e. for permit applications or transfers,
- f. for consistent removal by the Township of pollutants otherwise subject to Federal Pretreatment Standards,
- g. and others as the Township may deem necessary to carry out the requirements contained herein.
- h. Additional surcharges may be made by the Township to compensate the Township for the cost of treatment of pollutant loadings not normally treated at or in excess of those treated by the POTW.
- i. There shall be additional charges for laboratory testing of wastewater. The laboratory charge shall be for the cost thereof and will be determined for each Industrial User.

The charges and fees for the services provided by the system shall be levied upon any User which may have any sewer connections with the POTW and which discharges industrial waste to the POTW or any part thereof. Such charges shall be based upon the quantity and quality of industrial wastewater used thereon or therein.

Sec. 11. Protection from Damage

No unauthorized person shall enter or maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is a part of the municipal sewage works.

Sec. 12. Municipal Liability

The Township shall not be responsible for interruptions of services due to natural calamities, equipment failures, or actions of the system users. It shall be the responsibility of the user that all connected equipment remain in good working order so as not to cause disruption of service of any sewer or treatment plant equipment.

Sec. 13. Power and Authority of Inspectors

The Director and other duly authorized employees of the Township acting as his duly authorized agent, bearing proper credentials and identification, shall be permitted to enter upon such properties as may be necessary for the purposes of inspection, observation, measurement, sampling and testing in accordance with provisions of this article.

Sec. 14. Enforcement/Penalties

1. Administrative Remedies - General

The Township may suspend wastewater treatment services to any User when such suspension is necessary, in the opinion of the Township, in order to stop an actual or threatened discharge which presents or may present an imminent or substantial endangerment to the health or welfare of persons or the environment, causes or may cause interference to the POTW, or causes or may cause the Township to violate any condition of its NPDES Permit.

The Township may revoke, suspend, or terminate the wastewater discharge permit of any User which (a) fails to accurately report the wastewater constituents and characteristics of its discharge; (b) fails to report significant changes in wastewater constituents or characteristics; (c) refuses reasonable access to the User's premises by representatives of the Township for the purpose of inspection or monitoring; or (d) violates the conditions of this Ordinance or any final judicial order entered with respect thereto.

2. Administrative Notices and Orders

a. Whenever the Township finds that a User has violated any provision of this Ordinance, Industrial Waste Permit or order issued hereunder, or other Pretreatment Standard or Requirement, the Director will issue a Notice of Violation to formally document the noncompliance. This document will specify the nature of the

violation, establish a date by which the violation shall be corrected, and notify the affected User that failure to correct the violation would constitute a further violation which may result in additional enforcement action. A Notice of Violation will be sent via first-class mail or personally served on an Authorized Representative of the User.

Receipt, or non-receipt, of a Notice of Violation shall in no way relieve the affected User of any and all liability associated with the violation. Issuance of a Notice of Violation shall not be a bar against, or a prerequisite for, any other enforcement actions by the Township against the affected User.

- b. When the Township finds that a User has violated any provision of this Ordinance, Industrial Waste Permit or Order issued hereunder, or other Pretreatment Standard or Requirement, the Director may issue an Administrative Order to Show Cause requiring the affected User to appear at a hearing to demonstrate why escalated enforcement action should not be pursued. This document will specify the nature of the violation, establish the time and place for the hearing, and notify the affected User that failure to comply would constitute a violation of this Ordinance which may result in additional enforcement action. An Order to Show Cause will be issued at least ten (10) days prior to the hearing, and will be sent via certified mail/return receipt requested or personally served on an Authorized Representative of the User.

Receipt, or non-receipt, of an Order to Show Cause shall in no way relieve the affected User of any and all liability associated with the violation. Issuance of an Order to Show Cause or conducting of the show cause hearing shall not be a bar against, or a prerequisite for, any other enforcement actions by the Township against the affected User.

- c. When the Township and an affected User agree to a violation and to the remedial solution, the Director may issue an Order of Consent or similar document to formally establish such agreement. This document will specify the nature of the violation and required actions such as compliance schedules, stipulated fines, additional self-monitoring, and improvements to treatment facilities or management practices designed to control the User's discharge to the sewer. An Order of Consent will be sent via certified mail/return receipt requested, or personally served on an Authorized Representative of the User, and will require signatures of representatives from both the Township and the affected User.

An Order of Consent or similar document shall have the same force and effect as other administrative orders issued by the Township pursuant to this Ordinance, shall be judicially enforceable, and shall not modify the requirements or extend the deadline for compliance established by a Pretreatment Standard or Requirement. Receipt, or non-receipt, of an Order of Consent or similar document shall in no way relieve the affected User of any and all liability associated with the violation. Issuance of a Consent Order or similar document shall not be a bar against, or a prerequisite for, any other enforcement actions by the Township against the affected User.

- d. When the Township and affected User do not agree to the violation or to the remedial solution, the Director may issue an Order to Achieve Compliance. This document will specify the nature of the violation and include required actions such as compliance schedules, stipulated fines, additional self-monitoring, and improvements to treatment facilities or management practices designed to control the User's discharge to the sewer. An Order to Achieve Compliance will be issued unilaterally in that terms need not be agreed to by the affected User, and will be sent via certified mail/return receipt requested, or personally served on an Authorized Representative of the User.

An Order to Achieve Compliance shall have the same force and effect as other administrative orders issued by the Township pursuant to this Ordinance, shall be judicially enforceable, and shall not modify the requirements or extend the deadline for compliance established by a Pretreatment Standard or Requirement. Receipt, or non-receipt, of an Order to Achieve Compliance shall in no way relieve the affected User of any and all liability associated with the violation. Issuance of an Order to Achieve Compliance shall not be a bar against, or a prerequisite for, any other enforcement actions by the Township against the affected User.

- e. When the Township finds that a User has violated and continues to violate any provision of this Ordinance, Industrial Waste Permit or order issued hereunder, or other Pretreatment Standard or Requirement, the Director and Township Attorney may jointly issue a Cease and Desist Order requiring the affected User to eliminate the violation within twenty-four (24) hours or face suspension of sewer service. This document will specify the nature of the violation, and require that the violation cease. If the violation has not been corrected within 24 hours following issuance of the order, the Township may suspend sewer service without further notice until such time as the affected User is able to demonstrate to the Township that it can comply with the discharge requirements. A Cease and Desist Order will be personally served on an Authorized Representative of the User.

Receipt, or non-receipt, of a Cease and Desist Order shall in no way relieve the affected User of any and all liability associated with the violation. Issuance of a Cease and Desist Order shall not be a bar against, or a prerequisite for, any other enforcement actions by the Township against the User.

- f. Whenever the Township finds that a User's discharge is in violation of any provision of this Ordinance or any permit issued hereunder and that the violation creates or threatens to create an emergency situation such as damage to the sanitary sewer system, pass-through or interference to the wastewater treatment plant, hazard to \_\_\_\_\_ (receiving water), endangerment to the public health and safety, or violation of any condition of the NPDES permit issued to the Township, the Director and Township Attorney will jointly issue an Emergency Cease and Desist Order notifying the affected User to eliminate the violating discharge immediately or face service severance via a temporary plug in its sewer connection at any time and without further warning. This document will specify the nature of the violation, and require that the violating discharge cease until such time as the affected User is able to demonstrate to the Township that it can comply with the

discharge requirements. This document will also establish the time and place for a hearing where the affected User shall present a written statement regarding the causes of the violation and measures taken to prevent future occurrences, and further will notify the affected User of its liability for any costs incurred by the Township to conduct this enforcement action. An Emergency Cease and Desist Order will be personally served to an Authorized Representative of the User, or may be delivered verbally via telephone to an Authorized Representative of the User and then served personally.

Receipt, or non-receipt, of an Emergency Cease and Desist Order shall in no way relieve the affected User of any and all liability associated with the violation. Issuance of an Emergency Cease and Desist Order shall not be a bar against, or a prerequisite for, any other enforcement actions by the Township against the affected User.

- g. Except for emergency situations covered under Subparagraph 2.f. of this Section, whenever the Township finds that a User's continuing violation warrants revocation of its permit or privilege to discharge into the Wastewater System, the Director and Township Attorney will jointly issue a Notice of Termination to warn of the impending suspension of the sewer service up to and including severance via temporary plug in the affected User's sewer connection. This document will specify the date and the time of scheduled service suspension in order to allow the affected User to either voluntarily cease the violating discharge or arrange appropriate actions such as production shut-down or alternative means of wastewater disposal. This document will also establish the time and place for a hearing where the affected User shall present a written statement regarding the causes of the violation and measures taken to prevent future occurrences, and further will notify the affected User of its liability for any costs incurred by the Township to conduct this enforcement action. A Notice of Termination will be personally served on an Authorized Representative of the User at least ten (10) days before the scheduled service suspension.

Receipt, or non-receipt, of a Notice of Termination shall in no way relieve the affected User of any and all liability associated with the violation. Issuance of a Notice of Termination shall not be a bar against, or a prerequisite for, any other enforcement actions by the Township against the affected User.

- h. In addition to the sanctions, orders, liabilities, and other remedies prescribed under Subparagraphs 2.a through 2.g in this section, a User shall be liable to the Township for any and all fines, penalties, and associated legal and other costs incurred or expended by the Township as the result of any violation of the Township's NPDES permit that is attributable, in whole or in part, to the User's violation of this Ordinance or a permit issued to the User hereunder.

### 3. Administrative Fines

When the Township finds that a User has violated or continues to violate any provision of this Ordinance, an Industrial Waste Permit or Order issued hereunder, or other

Pretreatment Standard or Requirement, an administrative fine may be assessed against the affected User in an amount up to \$500 per violation. Each day during which the violation occurred or continues to occur may be deemed a separate violation and, in the case of a violation of monthly or other long-term average discharge limits, the fine may be assessed for each day during the period of averaging.

Receipt, or non-receipt, of an administrative fine shall in no way relieve the affected User of any and all liability associated with the violation. Issuance of an administrative fine shall not be a bar against, or a prerequisite for, any other enforcement actions by the Township against the affected User.

4. Rights of Appeal

Except for emergency situations covered under Subparagraph 2.f of this section, any User desiring to dispute a Notice of Violation or order of the Township, pursuant to this Ordinance, including but not limited to fines, may present a written request for reconsideration. Such a request shall be submitted to the Township Manager within ten (10) days of first being notified of the corresponding order for all but a Notice of Termination, where such a request shall be submitted within five (5) days of notification. If, in the opinion of the Township Manager, the request has merit, he will convene a hearing on the matter as soon as possible to collect testimony of appropriate persons, take evidence, and render a final determination. In the event the affected User's appeal is unsuccessful, any original fine will become immediately due and the Township may also add any additional costs incurred to administer this appeal. Further appeal of the Township Manager's final determination shall be governed by applicable State law.

Submittal of an appeal shall in no way relieve the affected User of any and all liability associated with the violation. An appeal shall not stay the corresponding order, or limit any other enforcement proceedings by the Township against the affected User.

5. Judicial Penalties

When the Township finds that a User has violated or continues to violate any provision of this Ordinance, Industrial Waste Permit or order issued hereunder, or other Pretreatment Standard or Requirement, the Township Attorney may petition the Circuit Court of \_\_\_\_\_ for appropriate legal and/or equitable relief.

a. Injunctive Relief

A User who has violated or continues to violate any provision of this Ordinance, Industrial Waste Permit or order issued hereunder, or other Pretreatment Standard or Requirement will be liable to issuance of a preliminary injunction or a permanent injunction, or both as may be appropriate. This action will be sought to restrain or compel activities on the part of the affected User.

A petition for injunctive relief shall in no way relieve the affected User of any and all liability associated with the violation. A petition for injunctive relief shall not be a

bar against, or a prerequisite for, any other actions by the Township against the affected User.

b. Civil Penalties

A User who has violated or continues to violate any provision of this Ordinance, Industrial Waste Permit or order issued hereunder, or other Pretreatment Standard or Requirement will be liable for a civil penalty of up to five-hundred dollars (\$500) per violation. Each day during which the violation occurred or continues to occur may be deemed a separate distinct violation and, in the case of a violation of monthly or other long-term average discharge limits, the penalty may be assessed for each day during the period of the averaging. The affected User will also be liable for all costs incurred by the Township for associated enforcement action such as reasonable attorney's fees, court costs, additional sampling and monitoring expenses, as well as costs of any environmental damage and any fines imposed upon the Township for NPDES permit violations that result in whole or in part from the User's violation and expenses associated with remediation of sites thereby contaminated. The Township Attorney may petition the court to impose, assess, and recover sums up to this limit of liability. In determining the appropriate amount of civil penalty to seek, the Township may take into account all relevant circumstances including but not limited to the extent of harm caused by the violation, the magnitude and duration of the violation, any economic benefit gained by the affected User as a result of the violation, corrective actions implemented or proposed to be implemented by the affected User, and history of compliance or noncompliance by the affected User.

A suit for civil penalties shall not be a bar against, or a prerequisite for, any other actions by the Township against the affected User.

c. Criminal Prosecution

(1) Violations - Generally

A User who has willfully or negligently violated or continues to willfully or negligently violate any provision of this Ordinance, Industrial Waste Permit or order issued hereunder, or other Pretreatment Standard or Requirement will be liable to criminal prosecution. If convicted, the affected User will be guilty of a misdemeanor and may be punished by a monetary penalty of up to five-hundred dollars (\$500) per violation, imprisonment for up to ninety (90) days, or both. Each day during which the violation occurred or continues to occur may be deemed a separate distinct violation and, in the case of a violation of monthly or other long-term average discharge limits, the penalty may be assessed for each day during the period of averaging.

Criminal prosecution shall not be a bar against, or a prerequisite for, any other actions by the Township against the affected User.

(2) Falsifying Information

A User who knowingly makes any false statements, representations, or certifications in any application, record, report, plan, or other document filed or required to be maintained pursuant to this Ordinance, Industrial Waste Permit or order issued hereunder, or Pretreatment Standard or Requirement will be liable to criminal prosecution. If convicted, the affected User will be guilty of a misdemeanor and may be punished by a monetary penalty of up to five-hundred dollars (\$500) per violation, imprisonment for up to ninety (90) days, or both. Each day during which the violation occurred or continues to occur may be deemed a separate distinct violation and, in the case of a violation of monthly or other long-term average discharge limits, the penalty may be assessed for each day during the period of averaging.

Criminal prosecution shall not be a bar against, or a prerequisite for, other actions by the Township against the affected User.

(3) Tampering

A User who falsifies, tampers with, or knowingly renders inaccurate any data device or test method used to monitor a discharge pursuant to this Ordinance, Industrial Waste Permit or order issued hereunder, or Pretreatment Standard or Requirement will be liable to criminal prosecution. If convicted, the affected User will be guilty of a misdemeanor and may be punished by a monetary penalty of up to five hundred dollars (\$500) per violation, imprisonment for up to ninety (90) days, or both. Each day during which the violation occurred or continues to occur may be deemed a separate distinct violation and, in the case of a violation of monthly or other long-term average discharge limits, the penalty may be assessed for each day during the period of averaging.

Criminal prosecution shall not be a bar against, or a prerequisite for, any other actions by the Township against the affected User.

Sec. 15. Records Retention

All Users subject to this Ordinance shall retain and preserve for no less than three (3) years, any records, books, documents, memoranda, reports, correspondence and any and all summaries thereto, relating to monitoring, sampling and chemical analyses made by or in behalf of a User in connection with its discharge. All records which pertain to matters which are the subject of Administrative Adjustment or any other enforcement or litigation activities brought by the Township pursuant hereto shall be retained and preserved by the User until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

Sec. 16 Records

The Township will maintain and keep proper books of records and accounts, separate from all other records and accounts, in which shall be made full and correct entries of all transactions relating to the System. The Township will cause an annual audit of such books of record and account for the

preceding operating year to be made by a recognized independent certified public accountant, and will supply such audit report to authorized public officials on request.

In conjunction with the audit, there shall be an annual review of the sewer charge system for adequacies meeting expected expenditures for the following year and to insure proportionality among user classes as required by federal regulations.

Classification of old and new industrial users shall also be reviewed annually.

The Township will maintain and carry insurance on all physical properties of the System, of the kinds and in the amounts normally carried by public utility companies and municipalities engaged in the operation of sewage disposal systems. All monies received for losses under any such insurance policies shall be solely to the replacement and restoration of the property damaged or destroyed.

## Sec. 17. User Charge System

### 1. Established, Basis for Computations

Rates and charges for the use of the wastewater system of the Township shall be based upon the methodology in the user charge system approved by the MDEQ. Revisions to the rates for total sewer service charges are to be established by resolution of the Township Council, which may be enacted apart from the published Ordinances as necessary to ensure sufficiency of revenues in meeting operation, maintenance and replacement costs, as well as debt service. User charges for operation, maintenance and replacement shall be subject to the annual review of the user charge system. User charges shall be the same for all customers of the system regardless of geographical boundaries. Such charges and rates shall be made against each lot, parcel of land or premises which may have any sewer connections with the sewer system of the Township, or which may otherwise discharge sewage or industrial waste, either directly or indirectly, into such system or any part thereof. Such charges shall be based upon the quantity of water used thereon or therein.

### 2. Amounts, Billings, Sewer Service Charges

The rates and charges for service furnished by such system shall be levied upon each lot or parcel of land, building or premises, having any sewer connection with such system, on the basis of the quantity of water used thereon or therein as the same is measured therein used, or in the absence thereof, by such equitable method as shall be determined by the Township, and shall be collected quarterly except in cases where the character of the sewage from a manufacturing or industrial plant, building or premises is such that unreasonable additional burden is placed upon the system, greater than that imposed by the normal domestic sewage delivered to the system plant, the additional cost of treatment created thereby shall be an additional charge over the regular rates hereinafter set forth; or the Township may, if it deems it advisable, compel such manufacturing or industrial plant, building or premises, to treat such sewage in such manner as shall be specified by the Township before discharging such sewage into the sewage disposal system. Rates for all users obtaining all or part of their water supply from sources other than the Township

water system may be determined by gauging or metering the actual sewage entering the system or by metering the water used by them, in a manner acceptable to the Township.

3. Annual Audit

The rates hereby fixed are estimated to be sufficient to provide for the expenses of operation, maintenance and replacement of the system as are necessary to preserve the same in good repair and working order. Such rates shall be fixed and revised from time to time as may be necessary to produce these amounts. An annual audit shall be prepared. Based on said audit, rates for sewage services shall be reviewed annually and revised as necessary by the Township Council by resolution to meet system expenses and to insure that all user classes pay their proportionate share of operation, maintenance and equipment replacement cost.

4. No Free Service

No free service shall be allowed for any user of the wastewater treatment works.

5. Billing

Billing for wastewater service shall be the Township's responsibility. All water meters shall be read quarterly and bills rendered quarterly.

6. Termination of Service for Nonpayment

If payment is not received or satisfactory arrangements have not been made by the 16th of the month, an additional charge of 10% of the total unpaid balance shall be added.

If payment is not received or satisfactory arrangements have not been made within thirty (30) days of the due date on the bill, a shutoff notice will be sent by first class mail to inform the user that failure to respond will result in termination of sewer service. If payment is not received or satisfactory arrangements have not been made within seven (7) days after the shutoff notice is sent to the user, the sewer service shall be shut off. No sewer service that has been discontinued due to nonpayment shall be restored until all past-due bills are paid or satisfactory arrangements for such payment are made.

7. Collection of Delinquent Accounts

Unpaid charges for sewage disposal service furnished to any premise within the Township shall be a lien against the premise. Enforcement of this lien shall be made pursuant to Township Code and/or statute. This lien remedy does not preclude any other remedy provided by law. Those premises outside the Township that are served by the Township wastewater treatment works that have delinquent bills will be certified to their governmental unit for collection as provided in the contract between the Township and the governmental unit.

8 Annual Notification

All customers of the Township's wastewater treatment works will receive an annual notification, either printed on the bill or enclosed in a separate letter, which will show the breakdown of the sewer into its components for operation, maintenance and replacement and for debt service.

Sec. 18. Variances

Any person, upon written application to the Township Manager's Office within ninety (90) days after the effective date of the ordinance, as amended, who shows, in the case of the activity being conducted or operated, that compliance with Section 8 of this ordinance would either be impossible or constitute an undue hardship because of time limitations, may be granted a variance by the Township Manager for a reasonable time, not to extend beyond two (2) years from the effective date of this Ordinance, as amended, at which date all variances shall terminate and after which date no new variances will be granted. Any variance granted by the Township Manager within six (6) months from the date of the granting of the variance shall make reports to the Township Manager periodically as to the progress being made toward compliance with Section 8 of this Ordinance. A variance shall not be granted under the provisions of this Section where a person applying therefor is causing a public nuisance or other injury to the general public, or is subject to a National Categorical Standard, and any such variances shown to have been granted under these circumstances shall be immediately terminated. Any variance granted under the provisions of this Section shall not be construed to relieve the person who shall receive it from any liability or penalties imposed by other law for the commission or maintenance of a nuisance.

Sec. 19. Validity, Severability, Conflict

1. The provisions of this article are severable, and if any of the provisions, words, phrases, clauses or terms, or the application thereof to any person, firm or corporation, or to any circumstances, shall be held invalid, illegal, or unconstitutional by any court of competent jurisdiction, such decision or findings shall not in any way affect the validity, legality or constitutionality of any other provision, word, phrase, clause or term, and they shall continue in full force and effect.
2. All laws and parts of laws, all ordinances, codes and regulations which are inconsistent with or in conflict with or repugnant to any provisions of this article, shall be deemed not to apply; provided that nothing herein contained shall be construed to prevent the adoption and enforcement of a law, ordinance, code or regulation which is more restrictive or establishes a higher standard than those provided in this article.

Sec. 20. Effective Date

This revised Ordinance shall be effective ten (10) days after publication of said Ordinance as provided by law.

INTRODUCED the \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_.

FIRST READING: \_\_\_\_\_, 19 \_\_\_\_.

SECOND READING: \_\_\_\_\_, 19 \_\_\_\_.

PASSED this \_\_\_\_\_ day \_\_\_\_\_, 19 \_\_\_\_.

AYES:

NAYS:

ABSENT:

NOT VOTING:

APPROVED by me this \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_.

(Mayor)

(Township of)

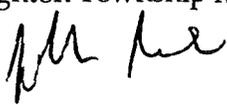
ATTEST: \_\_\_\_\_  
(Seal) (Township Clerk)

Published the \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_.



**MEMORANDUM**

**TO:** Brighton Township Sewer Committee  
Mr. Andrew Wardach, Brighton Township Supervisor  
Mr. Darrell Fecho, Brighton Township Manager

**FROM:** Joseph Moore, P.E. 

**DATE:** March 23, 1998

**SUBJECT:** Brighton Township Sanitary Sewer Project  
Responses to Homeowners Questions

We have reviewed the lists of questions from the various homeowners and provide the following responses to questions raised. The responses have been numbered to correspond to the question raised in each of the request letters.

**Questions from Lake of the Pines Sewer SAD dated February 1, 1998, by Richard Nalepka**

1. The specific information provided at the completion of the Preliminary Design Study shall include:
  - a. The initial and future sanitary sewer service areas along with the design sewage flows.
  - b. The total project costs to be recovered through the special assessment for the final design and construction of the public facilities.
  - c. The costs of the project to each homeowner (or property owner). The costs shall include the total project costs that will be included in the special assessment levied to each property in the special assessment district. The Preliminary Design Study shall also present the estimated costs to each homeowner for the abandonment of their septic tank and the sanitary lead installation that would be in addition to the special assessment cost.
  - d. The preliminary design drawings of the proposed sanitary sewer collection system. These drawings will show the type, size and location of the proposed sanitary sewer system. The drawings will also show the pumping stations, the existing topography, property lines, necessary easements, existing wetlands and soil boring information.
  - e. The project schedule.

- f. The anticipated quarterly sewer bills for the day-to-day operation and maintenance of the wastewater treatment plant and sanitary sewer collection system.

The main goal of the Preliminary Design Study is to provide the total anticipated costs to each homeowner as well as all the aspects of the proposed sanitary sewer project so homeowners know what to expect and can make an informed decision. All this information will be included in the Preliminary Design Study that is presented to the Township and public in November 1998. Please refer to the response for question number 9 regarding the specific manner in which the Preliminary Design Study results will be provided to each homeowner.

2. The different costs incurred by each homeowner will be as follows:

- a. *The special assessment cost.* The assessment cost will cover all the Township's expenses to complete the public portion of the sewer project. The special assessment cost will cover the Township's cost to design and construct the sanitary sewer collection system and the wastewater treatment plant. The special assessment cost will also cover the Township's expenses to set up the financing and bonding for the design and construction. If the homeowner is on a gravity sanitary sewer system, the special assessment costs will include the installation of a 6-inch sanitary lead stub from the main sanitary sewer to the property (or road right-of-way) line. If the homeowner is on a low pressure sanitary sewer / grinder pump system, the special assessment costs will include the installation of the grinder pump, the electrical hook-up for the grinder pump and the sanitary lead from the grinder pump to the main sanitary sewer.
- b. *The cost to pump out the existing septic tank and abandon the existing septic tank.* The septic tank abandonment will consist of either filling the tank with sand (or a flowable grout) or removing the septic tank and backfilling the tank void. The purpose of abandoning the existing septic tank is to ensure the septic tank cannot be used in the future. The cost for this work shall be the individual homeowners (or property owners) responsibility and shall be in addition to the special assessment cost. Each homeowner will be responsible for hiring their own contractor to perform this work. The cost for this work will vary for each property owner since the cost is dependent on the existing conditions on each property such as sanitary lead length, grading and restoration type.
- c. *The cost to install a new sewer lead from the house to the new sanitary sewer.* If the homeowner is on a gravity sanitary sewer system, the homeowner will have to install a 6-inch sanitary lead from the house to the sewer stub at the road right-of-way. If the homeowner is on a low pressure sanitary sewer / grinder pump system, the homeowner will need to install a 6-inch sanitary lead from the house to the grinder pump unit. The cost for this work shall be the individual homeowners (or property owners) responsibility and shall be in addition to the special assessment cost. Each

homeowner will be responsible for hiring their own contractor to perform this work. We have attached three (3) sketches of a typical grinder pump / service lead installation for your information. The cost for this work will vary for each property owner since the cost is dependent on the existing conditions on each property such as sanitary lead length, grading and restoration type.

- d. The homeowner or property owner may have to rework the internal plumbing. This work would be performed by the homeowner (or a contractor hired by the homeowner) at the homeowner's cost.
- e. In addition, the homeowner will receive a quarterly sewer bill for the day-to-day operation and maintenance costs for the wastewater treatment plant and the sanitary sewer collection system. The Township will be responsible for all maintenance on the gravity sanitary sewers and the sanitary lead within the road right-of-way (up to the property line). If the homeowner is on a low pressure sanitary sewer / grinder pump system, the Township shall be responsible for the maintenance to the grinder pump, the sanitary lead between the grinder pump and the main sanitary sewer and the grinder pump's electrical system (including the electrical connection to the electrical meter). Each homeowner will be responsible for the maintenance of the 6-inch sanitary lead between the house and the grinder pump for a low pressure sewer system or, for a gravity sewer system, between the house and road right-of-way (or property line). The homeowner will be responsible for the electrical costs for the grinder pump serving their house. The electrical costs will be included in the homeowner's electric bill.

All these costs will be developed during the Preliminary Design Study and will be presented at the conclusion of the study.

- 3. If the new sanitary sewer is within 200 feet of the house structure and the sanitary sewer is made available to a house, the property owner must connect to the new sanitary sewer within the time frame that is determined by the Township. Also, the Livingston County Health Department will not issue any permits for drainfield replacements or new septic tank / drainfield systems on properties that have access to a public sanitary sewer. To our knowledge, there are no legal provisions or variance procedures available that would allow a homeowner to continue operating an existing septic system if sanitary sewers are installed and made available to the property.
- 4. The policy and method of charging the future sewer customers that tie into the sewer system in later phases will be addressed by the Township during the Preliminary Design Study. It will be set up so the initial or original customers will not pay any additional cost necessary for the additional (or future) customers. The cost of all improvements necessary to add customers in the future will be borne by those future customers. The quarterly sewer bills for all the sewer customers (for the operation and maintenance of the sewer

collection and treatment systems) are expected to decrease as more sewer customers are added to the system.

5. The treatment plant could be designed to generate methane gas in a controlled (closed) environment. This methane gas would not be released into the air but would be captured and used to generate power to run certain facilities at the wastewater treatment plant. This design issue will be evaluated during the Preliminary Design Study.
6. The homeowner's payments for the special assessment would begin when either construction starts or when the sewer system is made available for the homeowners to connect. This is a decision the Township will make during the Preliminary Design Study. If the special assessment payments do not begin until the sewer system is made available to the homeowners, the homeowners would have to pay the additional interest for carrying the full principal amount during the construction period which is estimated to be one year.
7. On previous projects, other municipalities have given sewer customers approximately 90 days to connect to the sewer system once it is available. This will give property owners a reasonable amount of time to hire a contractor and connect to the new sanitary sewer. If this 90 day period occurs during the winter months when construction is not practical, the time frame would be extended so approximately 90 days is provided during a typical construction season to make the connection. Again, this is a decision the Township shall make during the Preliminary Design Study.
8. During the Preliminary Design Study, the Township shall make a decision on when the first monthly (or more likely quarterly) user fees will be levied. Preliminary discussions indicate that the user fees will start once the customer connects to the sewer system or once all customers are required to connect to the new sanitary sewer. New sewer customers could expect to receive their first sewer bill within one (1) to four (4) months of connecting to the sewer depending on what point of the quarter they connect.
9. The Township has not yet decided on the specific method to relay the results of the Preliminary Design Study to the individual special assessment district participants. Copies of the Preliminary Design Study and the preliminary design drawings shall be available to the public at the Township offices. The Township shall also provide information and results of the Preliminary Design Study on the Township's cable television channel. The Township and the Sewer Committee are also considering mailing fact sheets to each property owner within the special assessment district at the completion of the Preliminary Design Study. The fact sheets would contain a summary of the results of the study, such as, the costs for the homeowners, the type of sewer system (low pressure or gravity), the location of the sanitary sewers and the project schedule.
10. The assessment cost for every property in the special assessment district will be shown on the assessment role for each district. The assessment roles will be on file at the Township

offices and will be available to the public. Individuals will have access to the assessment for their own property as well as all other properties within all the special assessment districts.

11. The Township's contractor will be responsible for restoring all areas disturbed during the public or Township's portion the sewer system construction. All existing features (trees, bushes, flower beds, landscaping, lawns, driveways, yard ornaments, etc.) on private property that are damaged or removed during the construction of the Township's portion of the project will be replaced or repaired to the original (pre-construction) conditions. As part of the construction project, a company shall video tape the proposed sewer route (not including the grinder pump and sewer lead locations on the private property) before the construction begins. This video tape will document the existing conditions before construction begins and will be used as a reference to ensure the disturbed areas are restoration to the original (pre-construction) conditions.

The individual homeowner (or the homeowner's contractor) shall be responsible for the restoration that is associated with the septic tank abandonment and sanitary lead work (items b. and c. under response to question number 2).

12. The useful life of a septic tank and drainfield system is dependent on the type of on-site soils, ground water conditions as well as the maintenance of the system. As a result, it is difficult to estimate the useful life of a septic tank / drainfield system. From our experience with the Livingston County Health Department, the useful life of a well-maintained septic tank / drainfield system can be as low as five (5) years and as high as twenty (20) years. A well-maintained drainfield in good soils and no high ground water conditions could be expected to last over twenty (20) years. The normal useful life of a septic system is difficult to estimate since a drainfield is a consistently failing treatment system.
13. A septic tank is anticipated to remove approximately fifty (50) percent of the pollutants with the drainfield providing additional treatment as the sewage flows move through the drainfield. The proposed wastewater treatment plant will remove up to ninety-five (95) percent of the pollutants. The wastewater treatment plant will be monitored on a daily basis and will be required to meet the discharge limits established by the Michigan Department of Environmental Quality. There is no such monitoring on on-site septic tank / drainfield systems.
14. The Township is proceeding with the Preliminary Design Study for the properties currently included in the special assessment districts. The project shall move forward with those existing properties already included in the special assessment districts. The Township does not plan on delaying the project for additional subdivisions to participate in the initial phase. However, the sewer system will be designed so additional subdivisions or other areas can connect to the sewer system in the future. If additional property owners (or subdivisions) want to participate in the initial phase or any future

phases, the Township shall add them to the sewer project. It is not anticipated that the homeowner's costs will be significantly reduced with the inclusion of additional users in the initial phase.

15. The Township plans on funding the preliminary design of the wastewater treatment plant and the sanitary sewer transmission pipes with moneys from the Township's General Fund. If the public and Township move forward with the construction of the sewer system, the cost for this preliminary design work will be included in the special assessment cost for the total project. If the project moves forward, the sewer project will reimburse the Township's General Fund for the preliminary design cost associated with the wastewater treatment plant and the sanitary sewer transmission pipes. Therefore, the project costs presented at the completion of the Preliminary Design Study will be for the total project including the costs for the wastewater treatment plant and the sanitary sewer transmission pipes. All information and costs necessary to present the total project costs to the Township and public at the end of the Preliminary Design Study will be determined during the Preliminary Design Study with no additional special assessment costs levied to the homeowners.
16. The project schedule (dated January 12, 1998) presented to the sewer committee only included the major milestones. The actual project schedule used by our design team has several activities and tasks between the milestones that are not shown on January 12, 1998, project schedule. We will submit our project schedule with all the design tasks shown.
17. Based on the preliminary project schedule, the construction of the sanitary sewer collection system and the wastewater treatment plant will start around January 2000. This preliminary schedule is based on the following time table:

<u>Milestone</u>	<u>Date</u>
Present Preliminary Design Study	November 1998
Public and Township Decide to Proceed with Final Design and Construction	April 1999
Complete Design and Submit Final Construction Documents for Construction Permits	July 1999
Construction Documents Out for Bids	August 1999
Obtain Construction Permits from MDEQ	September 1999
Construction Contractor's Bids Due	September 1999
Bonds Sold	October 1999

<u>Milestone</u>	<u>Date</u>
Award Construction Contract(s)	October 1999
Start Construction	December 1999 / January 2000
System Operational	January 2001

This preliminary schedule is based on a five (5) month period from when the results of the Preliminary Design Schedule are presented in November 1998 to when the public and Township decide to move forward with the final design and construction in April 1999. During this five (5) month period, the public and Township will evaluate the results of the Preliminary Design Study and decide whether to move forward with the project. There will be several opportunities to receive information and give input on the project during this five (5) month period. We have estimated a period of five (5) months for the decision process to proceed with the project. If it takes longer than five (5) months to decide whether to proceed, the remaining project schedule would be shifted back accordingly.

**Questions from Lake of the Pines Board of Trustees dated October 20, 1997.**

1. The homeowner's payments for the special assessment would either begin when either construction starts or when the sewer system is made available for the homeowners to connect. This is a decision the Township will make during the Preliminary Design Study. If the special assessment payments do not begin until the sewer system is made available to the homeowners, the homeowners would have to pay the additional interest for carrying the full principal amount during the construction period which is estimated to be one year.
2. The financing rate for the State Revolving Fund (SRF) Loan program cannot be confirmed before the petitions are circulated for the final design and construction costs. The Michigan Department of Environmental Quality (MDEQ) does not set the SRF loan interest rate until the summer of 1999 for projects that will start construction toward the end of 1999. The current SRF loan interest rate for sanitary sewer projects being constructed in 1998 is 2-1/4 percent. The project cost information will be presented to the public and Township in November 1998. The Township will evaluate the different financing methods during the Preliminary Design Study.
3. If the property is to be served by a low pressure sewer system and there is an occupied building on the property, the cost of the grinder pump will be included in the special assessment cost that can be paid off over the term of the special assessment. However, the Township has not yet decided how to handle the properties that are to be served by a

low pressure sewer system and are vacant. The policy of charging the costs to the vacant properties as well as the costs of the future installation of the grinder pump when the property is developed shall be determined during the Preliminary Design Study.

4. This question should be answered by the Township Assessors Department.
5. The installation of a public sanitary sewer in the Lake of the Pines subdivision will not improve the iron and sulfur levels in the drinking water (underground aquifer) since iron and sulfur are naturally occurring in the underground soil and water formations. The elevated iron and sulfur levels are not caused by the sewage disposal from the septic tanks.

**Questions from Township dated February 3, 1998.**

1. *What is the difference between a gravity fed sewer and a low pressure sewer system?*

A gravity sanitary sewer system is the more traditional sewer system that collects sanitary sewage from customers with gravity flow. The sanitary sewage from a home or building flows by gravity into a 6-inch diameter sanitary lead pipe and then into a gravity sanitary sewer. The minimum size of a gravity sanitary sewer is 8-inch diameter with a minimum slope of 0.40 percent. The 6-inch sanitary lead pipe and the gravity sanitary sewer pipe is sloped so the sewage flows down the pipes under gravitational forces. The sewage flows in a gravity sewer are not pressurized. Gravity sanitary sewers need to be lower than the house services and need to have a down-gradient slope to maintain the gravity flows. A gravity sanitary sewer collection system will have intermediate pumping stations within the collection system to prevent the collection sewers from becoming too deep.

A low pressure sewer system consists of a sewer that collects sewage with a pressurized sewer system. The sanitary sewage from each house will flow into a buried grinder pump chamber on each property. A grinder pump located on each property will grind the solids in the sewage and pump the sewage into a pressurized sewer system. The pressurized sewer pipes do not need a down-gradient slope but generally follow the existing topography. The sewage flows through smaller diameter pipes as a result of the pressure created by the individual grinder pumps. The service leads are 1 ¼ inch diameter pipes with the sewer collection pipes ranging from 2 to 6-inches in diameter. The pressurized sewer pipes are typically 5.5 to 6-feet below the ground surface.

With a low pressure sewer system, each house or property will have a grinder pump on the property. The grinder pump will be connected to the home's electric meter. We have attached three (3) sketches of a typical grinder pump / service lead for a property on a low pressure sanitary sewer system.

2. *What costs might I encounter other than the special assessment?*

In addition to the special assessment, the individual property owners will have to pay for the existing septic tank to be pumped out and abandoned. Also, the homeowner will have to pay for the sanitary service lead to be installed between the house and the public portion of the sanitary sewer collection system. Some homeowners may have to rework their plumbing system within the house. This would be the case if the current lead needs to be relocated to tie into the proposed sanitary lead location. A more detailed description of the different costs incurred by each homeowner will be as follows:

- a. **The special assessment cost.** The assessment cost will cover all the Township's expenses to complete the public portion of the sewer project. The special assessment cost will cover the Township's cost to design and construct the sanitary sewer collection system and the wastewater treatment plant. The special assessment cost will also cover the Township's expenses to set up the financing and bonding for the design and construction. If the homeowner is on a gravity sanitary sewer system, the special assessment costs will include the installation of a 6-inch sanitary lead stub from the main sanitary sewer to the property (or road right-of-way) line. If the homeowner is on a low pressure sanitary sewer / grinder pump system, the special assessment costs will include the installation of the grinder pump, the electrical hook-up for the grinder pump and the sanitary lead from the grinder pump to the main sanitary sewer.
- b. **The cost to pump out the existing septic tank and abandon the existing septic tank.** The septic tank abandonment will consist of either filling the tank with sand (or a flowable grout) or removing the septic tank and backfilling the tank void. The purpose of abandoning the existing septic tank is to ensure the septic tank cannot be used in the future. The cost for this work shall be the individual homeowners (or property owners) responsibility and shall be in addition to the special assessment cost. Each homeowner will be responsible for hiring their own contractor to perform this work. The cost for this work will vary for each property owner since the cost is dependent on the existing conditions on each property such as sanitary lead length, grading and restoration type.
- c. **The cost to install a new sewer lead from the house to the new sanitary sewer.** If the homeowner is on a gravity sanitary sewer system, the homeowner will have to install a 6-inch sanitary lead from the house to the sewer stub at the road right-of-way. If the homeowner is on a low pressure sanitary sewer / grinder pump system, the homeowner will need to install a 6-inch sanitary lead from the house to the grinder pump unit. The cost for this work shall be the individual homeowners (or property owners) responsibility and shall be in addition to the special assessment cost. Each homeowner will be responsible for hiring their own contractor to perform this work. The cost for this work will vary for each property owner since the cost is dependent on the existing conditions on each property such as sanitary lead length, grading and restoration type.

- d. In addition, the homeowner will receive a quarterly sewer bill for the day-to-day operation and maintenance costs for the wastewater treatment plant and the sanitary sewer collection system. The Township will be responsible for all maintenance on the gravity sanitary sewers and the sanitary lead within the road right-of-way (up to the property line). If the homeowner is on a low pressure sanitary sewer / grinder pump system, the Township shall be responsible for the maintenance to the grinder pump, the sanitary lead between the grinder pump and the main sanitary sewer and the grinder pump's electrical system (including the electrical connection to the electrical meter). Each homeowner will be responsible for the maintenance of the 6-inch sanitary lead between the house and the grinder pump for a low pressure sewer system or, for a gravity sewer system, between the house and road right-of-way (or property line). The homeowner will be responsible for the electrical costs for the grinder pump serving their house. The electrical costs will be included in the homeowner's electric bill.
- e. The homeowner or property owner may have to rework the internal plumbing. This work would be performed by the homeowner (or a contractor hired by the homeowner) at the homeowner's cost.

All these costs will be developed during the Preliminary Design Study and will be presented at the conclusion of the study.

3. *How are the costs for the sewer lines within a particular SAD paid for?*

The costs for the preliminary design and cost analysis on the sewer lines are included in the current special assessment cost to each property. If the public and Township decide to move forward with the project, the costs associated with the final design and construction of the proposed sewer lines within a particular special assessment district shall be included in a second future special assessment to each property in the sewer districts.

4. *How are the costs for the transmission lines paid for?*

The costs for the preliminary design and cost analysis of the sewer transmission lines shall be paid by the Township. The transmission lines are those sewers that transport the sewage flows from each sewer district to the wastewater treatment plant. If the public and Township decide to move forward with the project, the costs associated with the preliminary design, cost analysis, final design and construction of the proposed transmission lines shall be included in a second future special assessment to each property in the sewer districts. If the project moves forward, the second future special assessment districts will reimburse the Township for the costs associated with the preliminary design and cost analysis of the sewer transmission lines.

5. *How are the costs for the sewer plant paid for?*

The costs for the preliminary design and cost analysis of the wastewater treatment plant shall be paid by the Township. If the public and Township decide to move forward with the project, the costs associated with the preliminary design, cost analysis, final design and construction of the proposed wastewater treatment plant shall be included in a second future special assessment to each property in the sewer districts. If the project moves forward, the second future special assessment districts will reimburse the Township for the costs associated with the preliminary design and cost analysis of the wastewater treatment plant.

6. *If I sell my house, can the buyer assume the remainder of the assessment?*

This is determined by the individual financial institution that the buyer uses to finance the purchase of the home. Most financial institutions have established policies for carrying over special assessments at the transfer of property ownership.

7. *Will I be able to get rid of my basement ejector pump?*

Possibly. This will depend on the existing basement grade and the grade of the proposed sanitary sewer. If the basement ejector pump is eliminated, it is likely that the homeowner will need to rework the home's internal plumbing at the homeowner's cost.

8. *Will I be able to hook-up my water softener brine discharge line to the sanitary sewer?*

The water softener brine discharge line can be connected to the sanitary sewer system since the proposed wastewater discharge facility has a surface water discharge.

9. *Will Clark Lake Road be paved after the sewer lines are installed?*

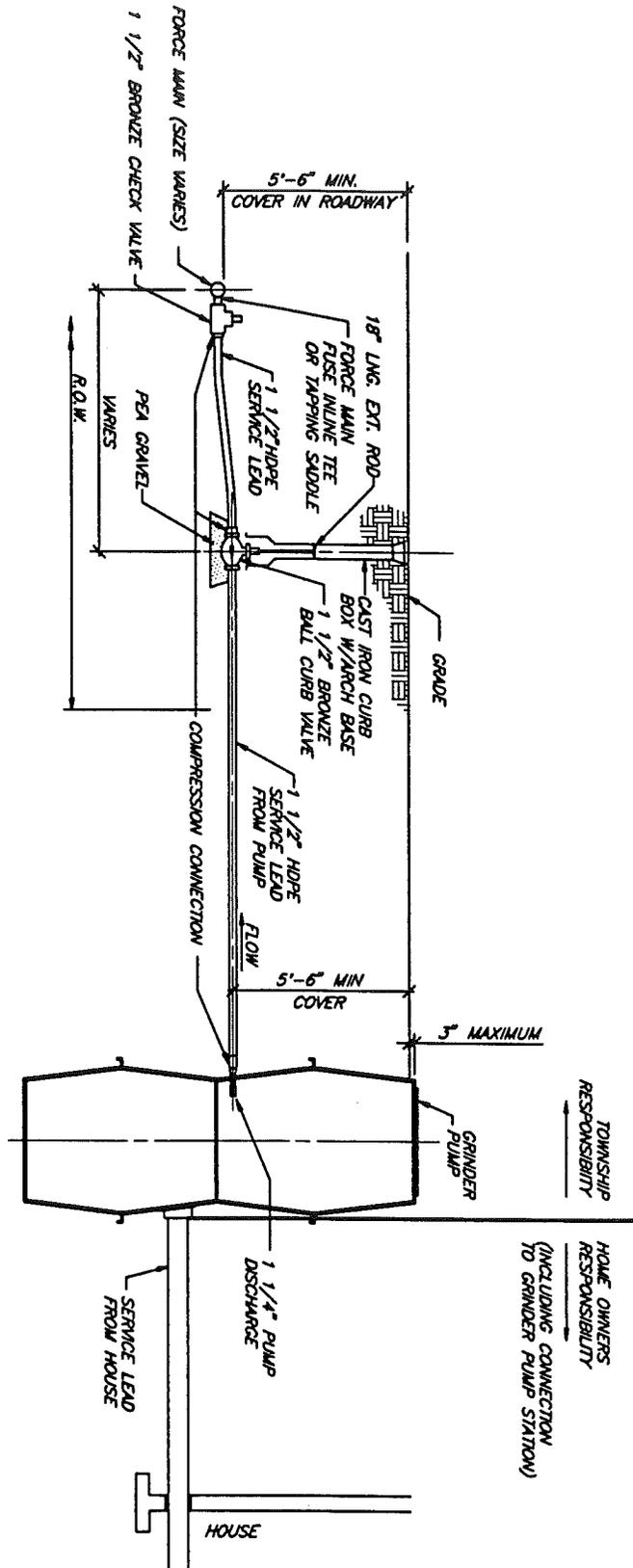
No. Clark Lake Road will be restored to its current gravel surface condition at the completion of the sewer project. If the homeowners along Clark Lake Road want the road paved, the property owners should petition the Township for the road paving. The costs for paving Clark Lake Road would then be levied on the properties along Clark Lake Road which would be in addition to the special assessment for the sewer project.

10. *Will we get water too?*

The Preliminary Design Study for properties within the Clark Lake, Woodland Lake, Fonda Lake and Lake of the Pines Special Assessment Districts only includes the provision of a sanitary sewer system. There are no current plans to provide water to these residential lake areas at this time. The property owners would have to petition the Township to investigate a water system. The costs for investigating a water system would then be

03-23-98 JBM 02

CADD PART | APTS | 0115 | 00000 | SERVICE



**TYPICAL SERVICE LEAD**  
NO SCALE

<b>McNAMEE PORTER &amp; SEELEY INC.</b>  FIRST-CHOICE FIRM SINCE 1914	
SCALE: NONE	DATE 03-23-98
DESIGNED JBM	CHECKED NJM

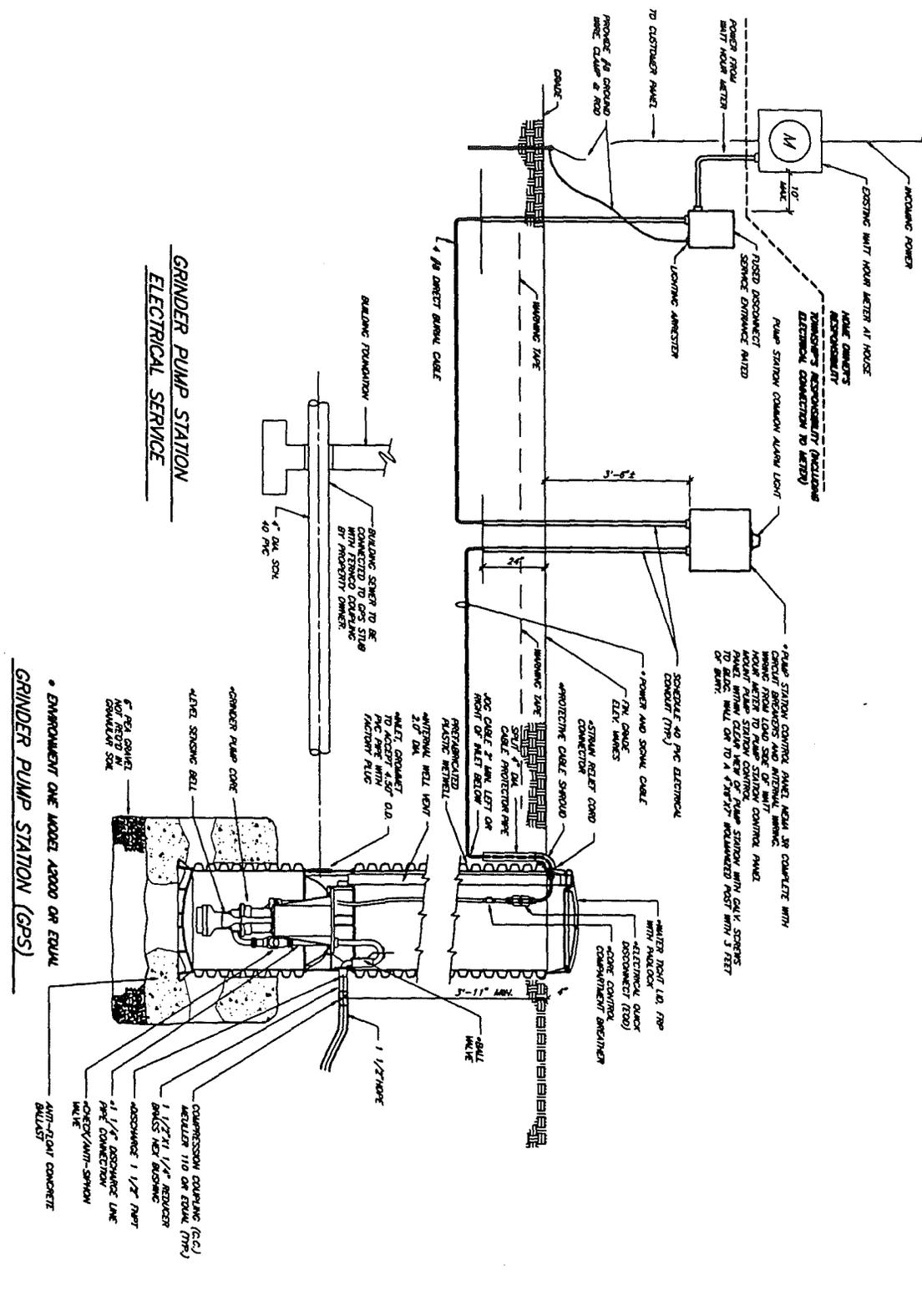
BRIGHTON TOWNSHIP  
SANITARY SEWER SYSTEM

**TYPICAL SERVICE LEAD DETAIL**

CONTRACT <b>0115.000.00</b>
SHEET
OF 1

03-23-98 JBM 02

CADD PART /MPS/0115/00000/INSTAL



**GRINDER PUMP STATION  
ELECTRICAL SERVICE**

**GRINDER PUMP STATION (GPS)**

\* ENVIRONMENT ONE MODEL 42000 OR EQUAL

McNAMEE  
PORTER  
& SEELEY  
INC.



BRIGHTON TOWNSHIP  
SANITARY SEWER SYSTEM

CONTRACT  
**0115.000.00**

SHEET

**GRINDER PUMP STATION  
INSTALLATION DETAIL**

SCALE: NONE  
DESIGNED JBM

DATE 03-23-98  
CHECKED NJM

DF 1

February 1, 1998  
Questions from Lake of the Pines Sewer SAD  
Richard Nalepka

Listed below are a number of questions raised by members of the Lake of the Pines (LOP) Sewer SAD. As the representative of the LOP on the Brighton Township Sewer Committee, I request the assistance of the township and McNamee, Porter & Seeley, Inc in getting meaningful answers to these questions.

1. Specifically what information will be provided to each LOP homeowner from the engineering study and when will it be provided?
2. What cost factors do homeowners need to be aware of that will not be identified by the engineering study?
3. What are the detailed legal requirements to secure existing septic systems if sewers are installed?
4. Since the approving SADs will totally foot the costs of not only sewer lines for their areas but for the construction of the sewer and waste water treatment plant as well, how will areas not participating in the original construction pay for their share of the costs and how will the total costs to the original SADs be adjusted to reflect the addition of new areas? Is it possible that the original SADs will experience ADDED COSTS with the later addition of new areas and/or the expansion of the treatment plant to accommodate new areas?
5. Will the treatment plant generate methane gas which will be released into the air?
6. When would payments for the laying of sewer lines and construction of the treatment plant begin?
7. How much time do the individual homeowners/businesses have to hook up to the sewer lines after they are completed?
8. When are monthly "user fees" levied? Will these fees be levied even before actual hook up to the system?
9. Will each participant in the sewer study SADs receive a printed copy of the results of the sewer study?  
*copy sent to each SAD*
10. How will SAD participants be notified of individual assessment costs? Will individuals have access to assessments for all properties in all SADs?

11. If there is destruction of trees, flower beds, yards, yard ornaments, etc. during the construction of sewer lines who is responsible for the repairs?

12. What is the normal lifetime of a reasonably well maintained septic system?

13. What are the waste removal characteristics ( efficiency, etc. ) of septic systems and the proposed waste treatment plant? 50% 95

14. What is the status of the idea of bringing on new subdivisions to lower individual costs?

15. Per the comments in Mr. Joe Moore's 1/12/98 memo to Mr. Dick Force (both of McNamee, Porter & Seeley, Inc. ), what is the planned source of funding for the design of the inter-SAD/treatment plant sewer lines and the design of the wastewater treatment plant? Isn't it necessary to have these designs in place in order to reasonably estimate the costs for the system? Are the current SAD levies inadequate to complete the design study?

16. The existing engineering firm project schedule shows no trackable activities between 5/16 and 9/1. Good project management practices require frequent and trackable activities to insure that the project is kept on schedule. Can the schedule be detailed and/or modified if necessary to incorporate more trackable activities?

17. The project schedule shows a completion date for the design study of 11/20/98. Given the experience of last year that SAD petitions needed to be completed and approved long before November in order to get the assessment roles modified, does the current study project schedule imply that January 2000 is the earliest date for the beginning of the construction project?

It would be very helpful to have written responses to the above so as to eliminate any confusion that might result from interpretation of verbal responses.

MR. MOORE,  
SOME QUESTIONS FROM  
LOP RESIDENTS

October 20, 1997

Lake of the Pines Board of Trustees  
The Sewer Committee  
Fellow Residents of Lake of the Pines

At the public meeting on sewers many LOP residents said they were uninformed as to the cost and complexity of the sewer program at the time the petition for the study was circulated. This is most unfortunate and needs to be rectified. Ms Jordan's letter to the Board listed some cost implications and we hope some of her estimates were adequate. On the other side of the coin we have largely speculation as to the benefits of this major cost outlay.

We understand that Woodland Lake has a problem that requires attention. Many of their homes were converted from older cottages and they have a mobile homes adjacent to the lake. Perhaps their care of septics has been lax. To avoid their predicament we could establish a program with a reliable septic clean out company and schedule annual clean out for every LOP resident off Lake and as Ms Jordan suggests semi-annually for lakeside lots. The total cost could be equally distributed to our annual dues. This is a much less costly solution without the associated tear up for sewers. This would reduce and possibly eliminate the risk of a Woodland Lake situation.

As long as we have the street drains emptying into the Lake there will be contamination from leaves and grass and water run off from sprinklers carrying any phosphate fertilizers. The effects of shallow water and sun will continue to promote algae and require chemical treatment or weed harvest every year.

Other issues of the sewer proposal that require answers before another petition is circulated are:

(1) If the sewers are approved will the assesment appear on our tax bill the following year? Do we begin paying for three to five years before all homes are hooked up?

(2) Can the 2% financing rate be confirmed before the petition is circulated? If we are required to pay the rate for a municipal bond of 5 to 5½%, a \$20,000 lien over 20 years the annual tax would increase from \$ 1200/year to over \$ 1500/year. For some of us our tax rate could double. Also, \$300/year for 20 years adds another \$ 6,000.

(3) If a grinder is required for a specific property because it is below grade will the additional cost, \$2,000 to \$4,000, be an up front cost at the time of hook-up or will it be part of the lien to be paid over 20 years?

(4) In the June 19 sewer report one of the "Pros" for sewers was increase property value. We need to understand when the liability of the lien on the property will become an asset. Anyone trying to sell their property in the next ten years will have to make concessions to a prospective purchaser. Either the selling price will have to be lowered or some other concession made. A purchaser is going to be wary of a property tax that is 50 to 100% higher than a comparable property elsewhere in Brighton Township.

→ Answer to ...

(5) The risk of water table contamination by septics would not be eliminated with a sewer system limited to the lake of the Pines. If adjacent subdivisions have septics, I don't see how we can isolate our water table. Also taste problems from iron or sulphur will still exist leading to the use of bottled drinking water. If water supply from a water purification source is not included with the sewers we could be fooling ourselves as to this benefit.

Until we have better consideration and answers to all of these factors during the next year while the cost study is underway we could be buying a pig in a poke.

*Helen Baker*  
*Leonard Baker*

Helen and Leonard Baker

Lot # 068

What is the difference between a gravity fed sewer and a low pressure sewer system?

What costs might I encounter other than the special assesement?

How are the costs for the sewer lines within a particular S.A.D. paid for?

How are the costs for the transmission lines paid for?

How are the costs for the sewer plant paid for?

If I sell my house can the buyer assue the remainder of the assesement?

Will I be able to get rid of my basement ejector pump?

Will I be able to hook my water softner brine discharge up to the sewer?

Will Clark Lake Road be paved after the sewer lines are installed?

Will we get water too?

POSTAL SERVICE  
FEB 13 1 13 PM '98  
FAX NO: 1  
TO: Joe Moore  
FROM: Andy Ward  
Custer-Duesky

**APPENDIX P**  
**Properties that can connect to Genoa Township Sanitary Sewer**



**BRIGHTON TOWNSHIP, MICHIGAN  
 SANITARY SEWER SYSTEM PRELIMINARY DESIGN  
 GENOA/BRIGHTON TOWNSHIP SEWER AGREEMENT**

The following is a list of parcels that have the potential to be provided sanitary sewer service either by Brighton Township or Genoa Township through the agreement established between the two townships

<b>TAX ID NUMBER</b>	<b>OWNERS NAME</b>
12-19-100-006	RIEBLING, PAUL & KAREN
12-19-100-007	First of America Bank
12-19-100-008	PIGGINS, WILLIAM *
12-19-100-010	ROYCE PROPERTIES I, L.L.C.
12-19-100-045	NRH INC BIG ACRES STORES
12-19-100-050	MISTAK, WALTER & MICHAELINE
12-19-100-056	NILES, GORDON & SANDRA *
12-19-100-060	BEATTY, JOHN & CAROL
12-19-100-061	COURSEY, JAMES & CHARLENE
12-19-100-073	ABE'S AUTO GLASS, INC.
12-19-100-074	GRAND RIVER REAL ESTATE CORP *
12-19-300-002	MCINTYRE, R. & RICHARDS, P.
12-19-300-016	MCINTYRE, DONALD
12-19-300-021	PIZZA HUT OF AMERICA
12-19-300-026	AMOCO OIL COMPANY
12-19-300-028	U S RESTAURANT PROPERTIES
12-19-300-032	GRAND RIVER REAL ESTATE CORP *

\* The four parcels shaded in the above list have previously connected to the Genoa Township/Lake Edgewood Sanitary Sewer System as allowed under the agreement between Genoa and Brighton Townships.

