Sewer Service Area Plan

CITY OF WATERTOWN
WISCONSIN

June 2002

Prepared By

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1 Background

The City of Watertown completed a Smart Growth Comprehensive Master Plan (hereafter referred to as the " Comprehensive Plan") in August 2000 and a Wastewater Facilities Plan in September 2000. This Sanitary Sewer Service Area Plan is intended to complement these previous planning efforts and provide a framework for guiding future development in the area. The Plan takes into account the technical, environmental and growth projections of the City in establishing the sewer service area. A separate report titled, "Sanitary Sewer System Hydraulic Model City of Watertown, Wisconsin", includes a hydraulic evaluation of the City's existing sanitary sewers to determine the capacity needs to meet current deficiencies and to address future extensions of the sanitary sewer system.

This Plan identifies and seeks to protect environmentally sensitive areas including, but not limited to, wetlands, floodplains, shorelands, steep slopes, and highly erodible soils from indiscriminate urban growth. These areas are excluded from the sanitary sewer service area.

1.1 Introduction

The federal government enacted the Federal Water Pollution Control Act Amendments (Public Law 92-500) in 1972. This federal law created a process to establish locally developed areawide water quality management plans. These water quality management plans were codified at the state level through the development of NR 121 of the Wisconsin Administrative Code. NR 121 specifies that Areawide Water Quality Management Plans include components that deal specifically with sanitary sewer service areas and projected needs for 20 years into the future. Sewer Service Area Plans and related water quality plans are sometimes referred to as "Section 208" plans due to the original stipulation in Section 208 of the Clean Water Act for Areawide Water Quality Management Plans.

The Wisconsin Department of Natural Resources (DNR) has established the concept and procedural details of sewer service area planning. The DNR reviews these plans as part of the ongoing water quality management planning process to ensure consistency between local water quality plans and plans of the larger drainage basins.

This Sewer Service Area Plan represents the official water quality management plan for the City of Watertown. The planning area for this Plan includes the City of Watertown and portions of the surrounding Townships of Emmet and Shields in Dodge County and the Townships of Watertown and Milford in Jefferson County.

1.2 Purpose and Scope

1.2.1 Purpose

Sewer service area plans are a key component of the comprehensive long range planning undertaken by counties, cities, villages and townships. Sewer service area plans serve as the basis for DNR approval of federal and state grants for the construction of wastewater

collection and treatment facilities. They also serve as a basis for DNR approval of locally proposed sanitary sewer extensions and approval of private laterals by the Department of Commerce, Division of Safety and Buildings.

The purpose of the Plan is to provide a policy framework and a set of guidelines to enforce the federal, state and local water quality programs in the City of Watertown and surrounding townships. The purpose of the Plan is to:

1. In conjunction with the City's Comprehensive Plan, establish the geographic boundaries of a sewer service area for the 20-year (Year 2022) period.

2. Serve as a guideline for government involvement in water quality management of the Rock River Basin.

3. Establish common goals for developing detailed community plans.

4. Identify environmentally sensitive areas that should be protected from development. Such areas include, but are not limited to, wetlands, shorelands, floodways and floodplains, steep slopes, highly erodible soils and other limiting soil types, groundwater recharge areas, and other physical constraints.

5. Develop a plan for implementing the Sewer Service Area Plan and providing conformance reviews and detailed site inspection requirements, if required, to determine the extent of an environmentally sensitive area.

1.2.2 Scope

The Sewer Service Area Plan identifies existing sewered areas as well as adjacent land area most suitable for new development. The Plan also identifies areas where development should not go: environmentally sensitive areas where development would have an adverse impact on water quality. The Sewer Service Area Plan inventories land use and environmental features in the planning area, projects future population and land use, and develops a proposed boundary to guide the development of public sewer facilities.

The scope of work for this Sanitary Sewer Service Area Plan included the following activities:

1. Organize a Sewer Service Area Advisory Committee and meet periodically throughout the study.

2. Attend a kickoff meeting with the City, DNR and Advisory Committee. The meeting will include reviewing project goals and objectives, review scope of services and schedule, identify key project personnel, obtain background information, and discuss project issues.

3. Assemble and review background information, including the Watertown Comprehensive Master Plan, Wastewater Facilities Plan, 1990 Collection System Study, Dodge and Jefferson County Planning Documents, sewer system flow monitoring, land use maps, aerial photographs, wetlands inventory, soil survey, U.S.G.S. maps, floodplain maps, sewer system maps, and other resource maps.

4. Review policies, plans and programs such as zoning, land division and erosion control ordinances and relevant Wisconsin Administrative Code sections that may affect the planning area or delineation of the sewer service area.

5. Delineate environmentally sensitive areas within the planning area including, but not limited to, wetlands, shorelands, floodways and floodplains, steep slopes, highly erodible soils and other limiting soils types, groundwater recharge areas, and other such physical constraints.

6. Establish a 20-year planning area and develop a base map.

7. Review the existing 20-year population projections in the Watertown Comprehensive Master Plan and Wastewater Facilities Plan, DOA projections, and Jefferson and Dodge Counties projections and make any refinements as necessary. The 50-year or ultimate future population will also be projected to determine the flow rates for sizing gravity sewers as part of the sewer system hydraulic analysis task.

8. Determine the additional land areas needed over the 20-year planning period. This is based on the projected population growth, commercial/industrial development, and population densities. Much of the data from this analysis will be from the Watertown Comprehensive Master Plan.

9. Identify the sewer service area on the base map taking into account the extension of existing sewers, environmentally sensitive areas previously identified, projected growth areas, and "infill", or vacant areas.

10. Meet with the City, DNR and Advisory Committee to review project progress and answer questions and obtain input and comments on the proposed sewer service area.

11. Prepare a draft report incorporating the findings, conclusions, and recommendations along with the sewer service area with identified environmentally sensitive areas. The report will also include an implementation section and a discussion on amending and updating the

Sewer Service Area Plan. Provide the City, DNR, and Advisory Committee members with copies for their review and comment.

12. Meet with the City, DNR and Advisory Committee to discuss the report and solicit comments.

13. Prepare 30 copies of the final report incorporating comments from the City, DNR, and Advisory Committee.

14. Prepare materials, assist in conducting and solicit comments on the Sewer Service Area Plan at a Public Hearing.

1.2.3 Previous Reports and Studies

The Sewer Service Area Plan utilizes information from the following reports and studies:

- City of Watertown, Wisconsin Comprehensive Plan by Vandewalle & Associates, August 2000.
- City of Watertown Wastewater Facilities Plan by Applied Technologies, Inc., September 2000.
- City of Watertown Wastewater Collection System Study by Kaempfer and Associates, October 1990.
- Draft Environmental Impact Statement STH 26 by U.S. Department of Transportation, Federal Highway Administration and State of Wisconsin Department of Administration, July 2000.
- Wellhead Protection Plan Wells 7 and 9 Wells 8 and 10, City of Watertown, Wisconsin by Earthtech, Inc. October 2001.
- The State of the Rock River Basin by Wisconsin DNR, February 2000.
- Intermunicipal Cooperation Agreement between the City of Watertown and the Town of Emmet.
- Preliminary Planning Efforts related to an Agreement between the City of Watertown and the Town of Watertown.
- Soil Survey of Dodge County, Wisconsin by USDA SCS.
- Soil Survey of Jefferson County, Wisconsin by USDA SCS.

2 Goals and Objectives

Establishing goals and objectives is critical to the sewer service area planning process. The diversity of community interests and local government bodies involved in urban development activities and sewer extensions require that common goals be established for urban service area planning. Well thought out goals and objectives provide the framework for decision making and eliminate the need to act quickly to unanticipated growth or events.

An Advisory Committee was created to involve the public in local land use planning. The Advisory Committee consisted of representatives from the City of Watertown, Town of Emmet, Town of Watertown, and the DNR and met throughout the project. The Committee provided input into the process to ensure that the sewer service area plan goals and objectives were consistent with previous community land use planning efforts.

2.1 Goals

Goals are defined as statements of direction in which the Plan is aimed. For the Watertown Sewer Service Area Plan the following goals were established:

- Preserve and enhance the natural features that make Watertown an attractive healthy place to live, visit, and do business while encouraging development in appropriate and suitable areas.

- Provide the infrastructure necessary to serve the level of development proposed in the Comprehensive Plan while continuing to provide environmentally safe, efficient, and cost-effective utilities to the community.

- Encourage infilling of existing City land area and promote sound, environmentally sensitive, and economically efficient urban development on the fringe of the present urbanized area through sequential, orderly and compatible growth.

- Protect the natural resources, including groundwater recharge areas, in Watertown and surrounding environs.

- Maximize the capacity and promote efficient use of the wastewater treatment facilities.

- Coordinate the efforts of local governments (City of Watertown, Town of Watertown, Town of Emmet) to promote responsible planning and implementation of shared facilities.

2.2 Objectives

Objectives are specific statements of desired results, which are measurable and contribute to the accomplishment of a goal. For the Watertown Sewer Service Area Plan the following objectives were established:

- Identify, map, protect and, if possible, restore in a natural state, the features that make Watertown and the surrounding area a desirable place to live, visit, and do business

- Prepare and implement a Sanitary Sewer Service Area Plan which:

  - Correlates with the development vision and trends outlined in the Comprehensive Plan.
  - Protects environmentally sensitive areas, i.e. those areas that are unsuitable for sewered development because of the potential significant adverse impact upon water quality.
  - Recognizes environmentally limited areas, i.e. those areas that could benefit from protective measures. Environmentally limiting features may include: shallow depth to groundwater or bedrock; physical features which may have a significant local or statewide importance such as woodlands or plant stands of rare or endangered species; rare or endangered animal habitats; or historical or archaeologic sites.
  - Identifies appropriate development areas.

- Protect environmental resources and groundwater by applying high-quality design standards and an assessment of impacts for all new sewer extensions.

- Use advance planning to identify the most desirable locations for new sanitary sewer interceptor sewers and lift stations. Protect these locations through development and approval processes.

- Encourage public input and request active participation by adjacent governmental bodies in the development and implementation of plans, studies, and actions that have a common interest.

3 Study Area Description

3.1 Study Area Defined

The Study Area considered in the development of the Watertown Sewer Service Area Plan is shown on Figure 1. The area includes parts of the Town of Emmet and Town of Shields in Dodge County, Wisconsin and parts of the Town of Watertown and town of Milford in Jefferson County, Wisconsin. The planning area is located within the 3-mile extraterritorial jurisdictional boundary for the City of Watertown.

The Study Area includes all or part of the following Sections in Township 9 North, Range 15 East in the Town of Emmet, Dodge County, Wisconsin: 13, through 36.

The Study Area includes all or part of the following Sections in Township 9 North, Range 14 East in the Town of Shields, Dodge County, Wisconsin: 13, 24, 25, and 36.

The Study Area includes all or part of the following Sections in Township 8 North, Range 15 East in the Town of Watertown, Jefferson County, Wisconsin: 1 through 24.

The Study Area includes all or part of Sections 1, 12, and 13 in Township 8 North, Range 14 East in the Town of Watertown, Jefferson County, Wisconsin.

The Study Area includes all or part of Section 24 in Township 8 North, Range 14 East in the Town of Milford, Jefferson County, Wisconsin.

3.2 Development and Trends

The existing land use and future development pattern for the City of Watertown are presented in the City's 2000 Comprehensive Plan. Figure No. 2 depicts the existing land use for the City's Urban Service Area. Figure Nos. 3, 4, and 5 show the proposed land uses for the Central Area, Urban Area, and Peripheral Areas, respectively

In addition to the land uses identified in the Comprehensive Plan, the City has established a border agreement with the Town of Emmet in Dodge County and is in the process of working toward a border agreement with the Town of Watertown in Jefferson County. Copies of the land use maps at these border locations are shown in Figure Nos. 6 and 7.

The City also encourages cooperative planning with Dodge and Jefferson Counties to ensure that urban development is guided to areas that can be served by City's sewerage system

3.3 Land Use Plans

The City of Watertown adopted the Comprehensive Plan in February 2000. The Plan was designed to comply with the State's new "Smart Growth" planning law and addresses the City's key planning issues, challenges, and articulates the overall objectives, policies, goals, and programs to guide the future development and redevelopment of the City for a 20 to 25 year period. The Sanitary Sewer Service Area Plan incorporates much of the vision of the Comprehensive Plan.

3.4 City Utility Extension Policy

The City of Watertown strongly encourages annexations to occur prior to urban development to ensure that such development is consistent with City plans, zoning and subdivision design standards, and City Utility systems. Unless an alternative approach is advantageous to the City, the City of Watertown will not extend public utilities beyond the City's corporate limits, and may do so only when there exists a certain date by which annexation will occur.

3.5 Infill and Existing Development

The City seeks to promote infilling of existing vacant areas and promote sound, environmentally sensitive, and economically efficient urban development on the fringe of the present urbanized area through sequential, orderly and compatible growth.

3.6 Growth Projections

Population projections are a key element in the forecasting of future growth. The following information is taken from the City's Comprehensive Plan and discussions with representatives from the Wisconsin Department of Administration (DOA).

The Year 2000 population for the City of Watertown was 21,598 persons. The City has experienced a moderate increase in population growth in recent years and the DOA projects that this trend will continue through the twenty-year planning period. The DOA population forecasting methodology bases future population projections on the most recent 30-year history with greater weighting placed on the most recent ten years. Using this methodology, the Year 2022 population projection for the City is 25,711 persons. The 50-year population for the City is estimated to be 31,882 persons. These projections are reasonable given that there are very few physical or jurisdictional boundaries to continued City development and expansion. Derivation of these estimates is provided in Table 1.

3.7 Sewerage System Capacity

3.7.1 Collection System

3.7.1.1 Sanitary Sewers

The wastewater collection system conveys wastewater from all occupied buildings in the City to the wastewater treatment facility. The City of Watertown sanitary sewer system consists of approximately 500,000 linear feet of sewer ranging in size from 6-inch through 42-inch diameter and 19 lift stations. A summary of sanitary sewer pipe lengths is presented in Table 2.

3.7.1.2 Interceptor Sewers

There are three interceptor sewers and one relief interceptor that transport wastewater to the treatment plant. These interceptors are described in Table 3. The table also highlights improvements to the interceptor sewer system that are currently being undertaken by the City. The interceptor sewers are shown on Figure 8.

3.7.1.3 Lift Stations

Nineteen (19) lift stations convey wastewater from areas that cannot be cost-effectively served by gravity. The lift stations are summarized in Table 4 and are shown on Figure 8.

3.7.1.4 Collection System Summary

A detailed evaluation of the collection system, including interceptor sewers and lift stations is presented in a report titled, "Sanitary Sewer System Hydraulic Model," by Applied Technologies, Inc.

3.7.2 Wastewater Treatment Plant

The City of Watertown owns and operates a wastewater treatment plant, which discharges to the Rock River. The City recently completed a Facilities Plan that recommended abandoning the existing treatment plant and constructing a new facility on an adjacent site. It is expected that the new facility will become operational in 2004. The following sections briefly describe the existing plant and provide a full summary of the proposed new facility.

3.7.2.1 Existing Wastewater Treatment Plant

The existing facility consists of a coarse screen, comminutors, raw wastewater pumps, aerated grit tanks, primary clarifiers, first stage trickling filters, intermediate pumps, intermediate clarifiers, second stage trickling filter, final clarifiers, final effluent pumps, tertiary sand filters, chlorination system, post aeration tanks and cascade aerator, and anaerobic digesters.

The existing plant stated design capacity is:

Average Flow:	5.2 mgd
Peak Hour Flow:	11.7 mgd
BOD:	5,640 lb/d
TSS:	4,800 lb/d
NH_3-N:	1,200 lb/d

3.7.2.2 New Wastewater Treatment Plant

The new wastewater treatment plant will be located adjacent to the existing plant and will utilize some structures and tanks from the existing plant. The following paragraphs describe the new plant. The new plant is designed to meet the City's wastewater treatment needs through the Year 2024.

The stated capacity of the new plant is:

Average Flow:	5.2 mgd
Peak Hour Flow:	27 mgd
BOD:	6,600 lb/d
TSS:	5,300 lb/d
TKN:	1,015 lb/d
Total-P:	215 lb/d

Process Description

The new treatment plant is described in terms of the major sub-components and processes including preliminary treatment, primary treatment, secondary treatment, disinfection, chemical addition, and sludge handling. Detailed design criteria for the new plant are provided in Table 5.

Preliminary Treatment

The preliminary treatment processes include fine screening, raw wastewater pumping, and grit removal. This section also includes a discussion of the proposed septage receiving station. Wastewater will be conveyed by the interceptor sewers to a new Raw Sewage Building and screened using two automatic fine screens. The screens will remove large objects from the wastewater including branches, wood, rags, and plastic items. The screens will be sized for the projected peak flow of 27.0 MGD. The fine screens will include provisions for washing and compaction of the screenings before disposal at a landfill. Following screening, new raw sewage pumping facility will be provided to convey wastewater to the grit removal and downstream treatment processes. The proposed pumping system will be made up of five 4,700 gpm variable speed-driven pumps. The proposed multiple pump system will provide the needed flexibility to meet the wide variation of flows anticipated at the WWTP, and the capacity to meet the peak flow with the largest pump out of service.

Once the raw wastewater has been screened and pumped to the new site, the wastewater will pass through a grit collection system. The proposed grit facility will be made up of two parallel grit collection and handling systems with each system sized to handle one-half of the influent flow to the WWTP. The grit system will have provisions for cleaning and de-watering of the grit before disposal at a landfill. With the exception of the grit collection tank, the proposed grit handling system will be enclosed in a building to prevent freezing problems. The grit handling facilities will include provisions for enclosed storage of screenings.

In addition to the headworks facilities above, the new treatment plant will include a septage receiving station to provide treatment services to non-sewered waste generators in the planning area. Presently Watertown does not have facilities to accept septage or holding tank waste. The proposed septage receiving station will be made up of two 25,000-gallon tanks that will receive the waste, and two trash pumps to convey the waste into the treatment process. The system will be designed with bar racks to catch debris as waste is dumped from the trucks into the septage receiving tanks. Material caught on the bar racks would need to be removed manually with a rake. This would reduce problems with debris filling the holding tanks, or damaging and plugging equipment in the WWTP. Due to the higher strength of some types of wastes received at the septage receiving area, the holding tanks are sized to hold waste dumped from several trucks while the waste

is slowly pumped to the treatment process over a 24-hour period. This will prevent shock loading of treatment process that could result from trucks directly dumping high strength wastes.

Primary Treatment

Screened and de-gritted wastewater will flow by gravity through two 85-foot primary clarifiers. The clarifiers provide a quiescent or quiet zone that allows most of the particulate matter to settle to the bottom. The clarifiers are furnished with a sludge collection system to collect settled sludge and a skimmer and scum collection box to remove floating material. Approximately 50 percent of the Total Suspended Solids (TSS) and 30 percent of the Biochemical Oxygen Demand (BOD) are removed in this process. Sludge generated from the primary clarifiers is pumped using air operated diaphragm pumps to the anaerobic sludge digestion system.

Secondary Treatment

Secondary treatment will be accomplished using the single stage nitrification activated sludge process. Three rectangular aeration basins, with a total volume of 2,100,000 gallons form the heart of this process. The three tanks will be operated in parallel. Weirs and gates will split the flow equally between each system, and to allow any tank to be taken out of service for maintenance. The aeration tanks are sized to maintain nitrification, and arranged to provide plug flow. At the design flow rate of 5.2 million gallons per day (mgd), the basins provide a hydraulic retention time (hrt) of 9.5 hours. Air is introduced into the system to satisfy the oxygen requirements of the microorganisms and to keep the activated sludge properly mixed in the aeration tanks. The air will be delivered through a fine pore aeration system.

Each of the two aeration tanks will have an anoxic selector at the head end to control filamentous organisms. The selector provides an area where the food to microorganism ratio is high. This allows floc-forming organisms to rapidly absorb the soluble organic matter leaving very little for subsequent assimilation by the filamentous organisms. Each selector tank will have a mechanical mixer to keep the mixed liquor in suspension.

A chemical phosphorous removal system will be provided to meet the anticipated discharge limit for phosphorus. Chemical removal of phosphorus requires the addition of a metal salt such as ferric chloride or alum to precipitate phosphorus from the wastewater. The chemical removal system includes a storage tank and metering pumps. The system will allow for bulk deliveries of metal salts and the ability of the operators to carefully meter the metal salts into the liquid treatment process.

Two 90-foot diameter final clarifiers allow the activated sludge to settle and separate from the water. Most of the activated sludge is pumped back to the aeration system influent and is called return activated sludge (RAS). To maintain a steady population of organisms in the aeration systems, a portion of the activated sludge is removed or "wasted" from the system. The waste activated sludge (WAS) is co-settled in the primary clarifiers and then pumped to the anaerobic sludge digesters.

Effluent from the final clarifiers flows to the ultraviolet disinfection system and effluent aeration system prior to discharge into the Rock River

Disinfection

The new treatment plant will utilize ultraviolet (UV) light for disinfecting wastewater. The UV system utilizes submerged horizontal medium pressure UV lamps and is designed for average day flow of 5.2-mgd and a 24.0-mgd peak day flow.

Sludge Handling

Much of the existing anaerobic sludge digestion system will be re-used in the new plant. Sludge from the primary clarifiers and co-settled WAS is pumped directly to the anaerobic sludge digesters. Primary sludge and WAS will be digested in the existing anaerobic digesters. Digested sludge will be de-watered using a centrifuge and stored as cake. Once de-watered in the centrifuge, the sludge cake will be conveyed into the Cake Storage Building. The Cake Storage Building will be a 20-foot high single story building approximately 84 feet by 142 feet and provide 180 days of sludge storage. Sludge produced at the plant will be contract hauled and land applied on farm fields.

3.7.3 Local Water Quality Assessment

The local water quality assessment includes a review of applicable watershed project reports, basin plans, wastewater facilities plans, as well as local knowledge for pollutant factors. The assessment includes an inventory of point source discharges and non-point sources and discusses the areas contributing to local adverse water quality impacts including industrial, agricultural and other pollutant sources.

3.7.3.1 Point Source Discharges

Point source discharges include municipal and industrial wastewater treatment plants. Within the Study Area, the only point source discharge is the City of Watertown Wastewater treatment Plant. The Plant discharges to the Rock River as the River exits the Southwest part of the City.

3.7.3.2 Non-point Sources

Non-point sources include run-off from agricultural land as well as erosion from residential and industrial construction sites. Non-point sources may contribute nutrients,

sediment, pesticides, herbicides and in more urbanizing areas, heavy metals and other toxic pollutants. Non-point sources can be controlled by on-farm conservation practices such as conservation tillage and streambank buffers as well as through enacting and enforcing erosion control ordinances.

3.7.3.3 Groundwater

Groundwater resources are plentiful in the Study Area at both shallow and deep levels. The shallow dolomite aquifers are likely to be hydraulically linked to certain surface water features. These aquifers are susceptible to contamination from surface and subterranean sources. Most private wells utilize these shallow aquifers. The deep sandstone and limestone aquifers are generally of higher quality and substantially less likely to contamination. The City of Watertown uses these deep aquifers for water supply. Well Nos. 7 and 9 are drilled approximately 190 feet into the sandstone aquifer. Well Nos. 8 and 10 are drilled 225 and 240 feet, respectively into the sandstone aquifer.

The City completed Wellhead Protection Plans for Well Nos. 7 and 9 and Well Nos. 8 and 10 in October 2001. Wellhead Protection Plans protect groundwater quality by controlling land uses with the well recharge area. The Wellhead Protection Areas for these wells are shown on the Sewer Service Area Maps. The Wellhead Protection Plan also identifies known sources of potential contamination.

4 Sewer Service Area

4.1 Planning Area Limits

The Planning Area includes all lands within the City of Watertown as well as adjacent lands where future extension of sanitary sewerage facilities is reasonable. Within the Study Area, all environmentally sensitive areas have been defined.

4.2 Environmentally Sensitive Areas

Defining environmentally sensitive areas is one of the most important elements of the Sanitary Sewer Service Area Plan. These areas encompass valuable natural resource features such as lakes, rivers, streams, wetlands, and their associated undeveloped shorelands, floodplains and soils with steep slopes. Environmentally sensitive areas need to be protected from sewered development to protect water quality. The City of Watertown's Zoning regulations provide protection for wetlands, shorelands, floodplains, steep slopes, drainageways, and woodlands

The DNR defines environmentally sensitive areas as follows (NR 121.05(1)(g)2.c):

> "Major areas unsuitable for the installation of waste treatment systems because of physical or environmental constraints are to be excluded from the service area. Areas to be considered for exclusion from the sewer service area because of the potential for adverse impacts on the quality of the waters of the state from both point and non-point sources of pollution include, but are not limited to, wetlands, shorelands, floodways and floodplains, steep slopes, highly erodible soils and other limiting soil types, groundwater recharge areas, and other such physical constraints."

4.2.1 Wetlands

Wetlands are defined in NR 103, Wisconsin Administrative Code, as areas where water is at, near, or above, the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and has soils indicative of wet conditions. Wetlands are important for aquifer recharge, groundwater and surface water quality improvement, and wildlife habitat. Wetlands in the Study Area have been identified and mapped by the DNR and are shown on Figure 9. For purposes of identifying the Sanitary Sewer Surface Area, a 75 foot buffer has been incorporated around each wetland area.

4.2.2 Floodplain

Floodplain is defined in NR 116, Wisconsin Administrative Code, as the land calculated to be covered by floodwater during the regional (100-year) flood. The floodplain includes the floodway and the flood fringe. The floodway is the channel of the river or stream and those portions of the floodplain adjoining the channel required to carry and discharge the flood waters or flood flows associated with the regional flood. Floodplain in the Study Area have been identified and mapped by the Federal Emergency Management Association (FEMA) and are shown on Figure 10. For purposes of identifying the Sanitary Sewer Surface Area, a 75 foot buffer has been incorporated around the floodplain boundary.

4.2.3 Shorelands

Shorelands are defined as lands within the following distances above the ordinary high-water mark of navigable waters: 1,000 feet from a lake, pond or flowage and 300 feet from a river or stream to the landward side of the floodplain. Shorelands represent environmental features which should be given high priority for protection from development, and particularly those shorelands which coincide with wetlands as identified in the Wisconsin Wetlands Inventory maps. Shorelands in the Study Area are shown on Figure 11.

4.2.4 Steep Slopes and Highly Erodible Soils

Steep Slopes and Highly Erodible Soils are defined as any slope or gradient equal to or greater than 12 percent and any soil type occurring on a slope equal to or greater than 12 percent. In general, slopes equal to or greater than 12 percent, regardless of the soil type, and which are near surface waters should be excluded from sewered development areas. Steep slopes in combination with other environmental features should also be considered for designation as an environmentally sensitive area. Steep slopes are identified in the County Soil Surveys and are shown in Figure 12. For purposes of identifying the Sanitary Sewer Surface Area, a 75 foot buffer has been incorporated around the identified steep slopes boundary.

4.2.5 Other Limiting Factors

Other Limiting Factors that may define an area as environmentally sensitive include any environmental feature that could benefit from protective measures. This definition can include discrete areas of natural resources, and scenic and recreational resource amenities that are critical to maintaining water quality and quantity. They also provide habitat and linkages that are essential for protection of biological diversity and are often associated with rivers and streams. These features may include:

- shallow depth to groundwater and/or bedrock (groundwater recharge and discharge areas);
- physical features which may have a significant local or statewide importance such as woodlands or plant stands of rare or endangered species;
- rare or endangered animal habitats;
- Historical or archaeologic sites.

The State Historical Society and DNR Bureau of Endangered Resources were contacted during the preparation of this Sewer Service Area Plan to determine if any of these features are present in the Study Area. Correspondence with these agencies is included in Appendix A. Areas containing these features are shown in Figure 13 with a 75-foot buffer around each feature.

4.3 Growth Forecast

In 1999, the City of Watertown encompassed approximately 7,400 acres and a population of 21,151 persons. The 2022 population for the City has been estimated using

Department of Administration methodology at 25,711 persons, resulting in a population multiplier of 1.22 (25,711/ 21,151). The future land use requirements for the City are determined by multiplying the total land area by the population multiplier. This assumes that future development will occur following the same land use distribution as the current land use pattern, which is consistent with recommendations contained in the Comprehensive Plan.

A "market factor" was applied to the incremental land requirements to provide the City with flexibility to accommodate the real world real estate market when implementing the Plan. The market factor provides the City with a conservative acreage estimate and allows them to anticipate the affect of local development trends. For the City of Watertown, a market factor of 2.0 has been utilized. The calculation of the required sewer service area is shown in Table 6.

4.4 Year 2022 Sewer Service Area

The Year 2022 Sewer Service Area boundary is shown on Figures 14a through 14f. The Sewer Service Area for the City of Watertown encompasses approximately 3,313 acres, resulting in a market factor of 2.08. The Sewer Service Area boundary incorporates comments from the Advisory Committee and the City's planning consultant and is consistent with existing and proposed border agreements with the Townships of Emmet and Watertown and incorporates the proposed STH 26 bypass around the City. The Sewer Service Area protects water quality in the area by identifying and protecting environmentally sensitive areas from sewered development.

4.5 Environmental Assessment

NR 150 identifies Sewer Service Area Plans that result in an increase of over 1,000 acres or more than 5 percent increase as a Type II action. Type II actions require an Environmental Assessment to determine if an Environmental Impact Statement should be developed. The City is working with the DNR to determine compliance with this requirement.

4.6 Public Participation

An Advisory Committee was established to prepare and refine this Plan. The Committee consisted of representatives from the City of Watertown, Town of Watertown, Town of Emmet, and the DNR and included the following individuals:

John David, City of Watertown Mayor
Paul Lange, City of Watertown Wastewater Superintendent
Joe Radocay, City of Watertown City Engineer
William Nass, Town of Emmet Chairman
Richard Gimler, Town of Watertown Chairman
David Hertel, City of Watertown Citizen
Ron Krueger City of Watertown Citizen
Ruth Johnson, DNR

A series of public meetings were held to define and shape the Plan. These meetings were held at the Watertown Municipal Building. The meeting dates and general summaries of the meetings are provided below:

- December 13, 2001, 9:00 AM
  - Project kick-off meeting
  - Introduction of Advisory Committee members
  - Review of SSAP process
  - Project schedule

- February 6, 2002, 9:00 AM
  - Review DOA Population projections and methodology
  - Present report outlines for SSAP and Hydraulic Modeling
  - Discuss Town of Watertown and Town of Emmet planning efforts

- March 14, 2002, 8:00 AM
  - Present and discuss Goals and Objectives of SSAP
  - Review required sewer service area acreage
  - Present and discuss preliminary map showing sewer service area
  - Provide sample output from the hydraulic modeling software

- April 15, 2002, 9:00 AM
  - Refine Goals and Objectives of SSAP
  - Refine sewer service area
  - Discuss project schedule through completion

- June 5, 2002, 8:00 AM
  - Discuss final revisions to Sanitary Sewer Service Area map.
  - Review Committee comments on the SSAP report.
  - Discuss project schedule through completion.

- June 24, 2002, 5:00 PM
  - Present Report to Plan Commission and Department of Public Works

- July 16, 2002, 7:00 PM
  - Public Hearing Presentation

5 Implementation

5.1 General

The Department of Natural Resources will require a map of the City of Watertown Sewer Service Area after this plan is adopted. Any proposed sanitary sewer extensions will be reviewed against this map to determine if the extensions are in conformance with the current service area boundary. The City of Watertown will be responsible for advising the Department of Natural Resources on whether the proposed sewer extensions are within the sewer service area. The City will review proposed amendments to the sanitary sewer service area boundary and make recommendations on such proposals.

The City will appoint an Administrative Agent. The Administrative Agent will be responsible for:

- Calling meetings of the required review and approval committees, boards, commissions, and/or agencies as necessary.
- Directing the preparation of conformance review documents in accord with applicable regulations.
- Coordinating review of sanitary sewer extensions by city staff for conformance with the Sanitary Sewer Service Area Plan.
- Providing written notification of conformance or non-conformance of sanitary sewer extensions submitted for approval within fifteen (15) working days of receiving the written request for approval. Plans should be approved if the request for sanitary sewer extension is within the sanitary sewer service area and the plans conform to the goals and policies of the Sanitary Sewer Service Area Plan. Notification should indicate that the acceptance letter should be forwarded to the Department of Natural Resources as part of the applicant's submittal for sanitary sewer extension plan approval.
- Directing the presentation of technical information to appropriate City Committees regarding sanitary sewer extension requests, plan amendments, and package treatment proposals within the planning area.

5.2 Approval Process

The City of Watertown prepares plan updates and amendments with the assistance of the Towns of Emmet and Watertown, and Dodge and Jefferson Counties.

The Administrative Agent will review draft updates or amendments to the Plan. The updates or amendments to the Plan are reviewed for consistency with the sewer service area plan policy. Recommendations are made to the City of Watertown Common Council. The meetings for review and recommendation shall be properly noticed and conducted as public informational hearings. The Common Council will make the final recommendation to forward the plan to the Department of Natural Resources.

The Department of Natural Resources reviews the plan for approval, based upon consistency with applicable state statutes and administrative code. Following Department of Natural Resources approval, the city, town, and county agencies will be required to

incorporate changes to the sanitary sewer service area on their respective development plans.

5.3 Procedures For Sanitary Sewer Extensions

A sanitary sewer extension involves the applicant submitting plans and specifications to the City of Watertown for a sewer extension. The Engineering and Wastewater Departments will review the documents. The City may issue an owner approval letter to the applicant upon the finding that the applicant is in conformance with City rules and regulations and this Plan. The applicant then includes that letter along with the standardized submittal forms to the DNR.

+ conf. letter

If the extension is determined to be in an identified environmentally sensitive area or outside of the service area, the conformance letter should indicate that the proposed extension is not in conformance. The applicant then has two options - modify the plans and specifications to make them in conformance or attempt to obtain an amendment to the Plan. The amendment process is discussed in the following section. ~~In almost all cases, a sewer service area amendment will be required.~~ omit

5.4 Plan Amendments

Requests for an amendment to the adopted sewer service area and plan map could involve undeveloped or already developed land and could be initiated by one of several sources: property owners, the City of Watertown, or another governmental agency. Two types of amendments are possible. The first kind involves no change in the total sanitary sewer service area. For every acre added, an acre is deleted. The second kind of amendment involves an increase in the total service area. This type of amendment would be approved by the DNR if it were justified by unanticipated growth or density of development that is different than what is projected in this Plan.

A proposed plan amendment will be reviewed based on the following criteria:

- Sanitary sewer service can be provided in a cost- effective manner.
- The sanitary sewers lift station, interceptor sewers, and treatment plant can adequately transport and treat the wastewater from the proposed area.
- The amendment is consistent with the policies and goals of this Plan.
- The amendment conforms to all local plans.
- There will be no significant adverse water quality and/or environmental impact associated with providing sewer service to the area.
- The amendment will create a common boundary with the current sewer service area and will not create a void within the service area. Satellite sewer service may be extended to serve existing development that has failing onsite sewage systems may be an exception to this criteria.

- The amendment provides sufficient detail to be adequately evaluated.

The steps required for plan amendment are outlined as follows:

1. The property owner(s) may apply to the City to request the Plan amendment. The applicant shall provide information showing that the proposal is consistent with the criteria outlined above.

2. The application should be accompanied by a map of the proposed area to be serviced, existing and anticipated population and wastewater generated within the area, and a description of the type of development that is expected to occur. The Administrative Agent shall evaluate the application against the criteria and other relevant factors and make a recommendation to appropriate City committees.

3. The Administrative Agent shall hold a public hearing before the Public Works Committee and they shall review the request on the basis of the stated criteria and any other relevant factors. The Administrative Agent shall then forward their recommendation to the Common Council. As necessary, the Towns shall be notified of the date and time of the public hearing If the Towns of Emmet and Watertown do not make a recommendation within thirty (30) days of the public hearing, the Common Council may proceed to consider the request without their recommendations.

4. The Common Council will evaluate the recommendation of the Wastewater Superintendent, the City Engineer, Public Works Committee, and the Towns of Emmet and Watertown, if received, and then forward its recommendation to the Wisconsin DNR.

5. If the DNR approves, the requested amendment will be adopted and become part of the existing Plan. The DNR will notify the Common Council and the Administrative Agent of its action.

5.5 Plan Updates

A comprehensive review and update of the Plan should be completed at least every five-(5) years; however, the Plan should be updated whenever there is an obvious change in community needs. The Plan update will be controlled and directed by using the approval and review process outlined in this Plan. Updates to the plan are intended to address the following components:

- Population and demographic projections for the next 20-year planning period. The DOA shall review revisions in accordance with NR121.

- Changes in housing starts, population densities, household size changes, and urban development trends within the Study Area.

- Major land use changes in the Study Area.
- Significant environmental changes.
- Revisions to the goals and objectives of the plan, based on present concepts and needs.
- Social and economic impacts on the area that may affect the area-wide water quality planning efforts.
- Interim amendments to the Plan that have occurred since the last update to the Plan.
- Revisions to the sanitary sewer service area boundary based on 20-year projections.

5.6 Storm Water Management

The City of Watertown enacted an Erosion Control and Storm Water Runoff Ordinance to control storm water runoff and improve overall water quality. New development within the sanitary sewer service area will be required to adhere to the provisions of this ordinance. A copy of the ordinance is included in Appendix B. Development outside of the City's jurisdiction but within the sewer service area will be subject to storm water regulations from the appropriate governing body.

5.7 Erosion Control

The City of Watertown enacted an Erosion Control and Storm Water Runoff Ordinance in order to control pollutant discharge from construction sites. New development within the sanitary sewer service area will be required to adhere to the provisions of this ordinance. A copy of this ordinance is included in Appendix B. Development outside of the City's jurisdiction but within the sewer service area will be subject to storm water regulations from the appropriate governing body.

Tables

Table 1
Population Projections
City of Watertown, Wisconsin

Year	Population
1970	15,683
1980	18,113
1990	19,142
2000	21,598

Annual Growth Rate 1970-2000 (persons/year)	197
Annual Growth Rate 1980-2000 (persons/year)	174
Annual Growth Rate 1990-2000 (persons/year)	246
Weighted Annual Growth Rate 1970-2000 (persons/yr) [1]	206
20-Year Population Projection	**25,711**
50-Year Population Projection	**31,882**

[1] Weighs the 1990-2000 period the highest (3x) followed by 1980-1990 (2x) and 1970-1980 (1x).

Table 2
Existing Collection System
Pipe Length Summary
City of Watertown

Pipe Diameter (in)	Total Length (ft)	Percent of Total Length
6	2,418	0.5%
8	331,739	65.9%
10	58,834	11.7%
12	35,263	7.0%
15	31,410	6.2%
16	400	0.1%
18	13,878	2.8%
20	2,981	0.6%
21	8,287	1.6%
24	7,682	1.5%
27	1,651	0.3%
30	3,511	0.7%
36	3,548	0.7%
42	1,989	0.4%
Total	501,173	100.0%

Table 3
Existing Interceptor Sewer Summary
City of Watertown

Interceptor Sewer	Description
East Interceptor	This interceptor serves the central, northern, eastern and southern portions of the city. The interceptor runs from north to south and ranges in size from 36-inches at the upstream end to 24-inches at the treatment plant. The interceptor crosses the Rock River at the north end of the treatment plant site. This interceptor is currently being replaced by a new 48-inch interceptor sewer
West Interceptor	The 21-inch west interceptor runs from north to south along Hoffmann and Fairview Drives serving west central, western and northwestern parts of the city. New 36-inch and 60-inch interceptors will replace this interceptor.
South Interceptor	The south interceptor sewer enters the treatment plant from the south. It serves the far southern portion of the city and ranges in size from 30-inch to 42-inch. The interceptor crosses the Rock River south of the treatment plant.
Hoffmann Drive Relief Interceptor	The 21-inch sewer runs from north to south along Hoffman Drive paralleling the West Interceptor. The sewer receives flow from the 16-inch force main from the Hyland Street Lift Station. The Hyland Street Lift Station relieves excess flow from the East Interceptor. New 36-inch and 60-inch interceptors will replace this interceptor.

Table 4
Lift Station Summary
City of Watertown

Lift Station	Location	No Pumps	Firm Pump Capacity [1] (gpm)
1	Richards Avenue	2	100
2	Anne Street	2	80
3	N. Church Street	2	80
4	E. Spaulding Street	2	700
5	E. Main Street (Hidde)	3	600
6	Front Street	2	200
7	Riverlawn Avenue	1	27
8	702 N. Water Street	2	100
9	E. Division Street	1	40
10	Oakridge Court	2	80
11	1153 Boughton Street	2	80
12	1029 Boughton Street	2	170
13	Carlson Place	2	125
14	Hyland Street [2]	3	1,215
15	River Drive (Airport)	2	27
16	1334 N. Water Street	2	100
17	Country Club Lane	2	125
18	Silver Creek Road	2	25
19	Fox Creek Drive	2	200

[1] With Largest Pump Out of service

[2] To be eliminated as part of the current interceptor sewer improments.

Table 5
Design Criteria
City of Watertown Wastewater Treatment Plant

RAW SEWAGE PUMPS		
Number/Size:	5 @ 4,700 gpm, variable speed	New
INFLUENT SCREENING		
Screens:	2 - Automatic Fine Screens	New
Capacity:	27 mgd total	
GRIT REMOVAL		
Grit Tanks:	2 - Grit Removal Tanks	New
Grit Pump:	1@ 200gpm Recessed Impeller Pump	New
Grit Concentration/ Dewatering:	2 - Grit Washing Units (Cyclones)	New
SEPTAGE RECEIVING STATION		
Size:	23 ft x 24 ft Drainage/Drying Pad	New
Volume:	4000 gal	
PRIMARY CLARIFIERS		
Size	2 @ 85 ft diameter, 12 ft SWD	New
Surface Area:	11,349 ft^2	
Surface Overflow Rate:		
Average Daily	458 gpd/ft^2	
Peak Month	775 gpd/ft^2	
Peak Hourly	2,379 gpd/ft^2	
BOD Removal (%)	30 %	
TSS Removal (%)	50 %	
Primary Sludge Production	2,830 lb/d, 6,790 gpd @ 5% TS	
Primary Sludge Pumps	4 Air-Operated Diaphragm	New

Table 5 (cont'd)

AERATION TANKS		
Number:	3	New
Shape:	Rectangular 16 ft SWD	
Volume:	283,200 ft^3 (2,118,000 gallons) Includes 3- 25'W x 35'L x 16' SWD Anoxic Selector (104,700 gallon each)	
Process:	Single Stage Nitrification Activated Sludge	
HRT (hrs)		
Average Day	9.7 hours	
Maximum Month	5.7 hours	
Peak Week	4.8 hours	
Loading Rate:		
Average Day	20 lbs. BOD/day/1000 ft^3	
MLSS Average	3,500 mg/L	
F/M Ratio Average Day:	0.16 lbs. BOD / lb MLVSS-day	
MCRT:	10 days	
Diffusers:	Fine Bubble	
Aeration Blowers:	5 – 2,000 scfm each, Positive Displacement	New
FINAL CLARIFIERS		
Size:	2 @ 90 ft diameter, 16 ft SWD	New
Surface Area:	2,723 ft^2	
Surface Overflow Rate:		
Average Daily Flow	409 gpd/ft^2	
Peak Month	692 gpd/ft^2	
Peak Day	817 gpd/ft^2	
Solids Loading Rate		
Average Day	20 lbs/ft^2-day	
Peak Month	34 lbs/ft^2-day	
Peak Week	41 lbs/ft^2-day	
WAS Production Rate	4,860 lb/d, 58,300 gpd @ 1.0% TS	
RAS Pumps	3 @ 2,300 gpm, Centrifugal, variable speed	New
WAS Pumps	2 @ 380 gpm, Centrifugal, variable speed	New
Scum Pumps	1 @ 350 gpm, Submersible	New
PHOSPHOROUS REMOVAL		
Storage Tank	1 @ 10,000 gallons	New
Chemical Feed Pumps	2 @ 350 gpm, positive displacement	New

Table 5 (cont'd)

EFFLUENT DISINFECTION		
Type:	Medium Pressure Ultraviolet Light Disinfection	New
No. Lamp Banks	2	
Modules per Bank	3	
Total No. Lamps	60	
POST AERATION		
Type:	Cascade Aerator	New
PRIMARY ANAEROBIC DIGESTER		
Number	1	Renovated Existing
Size	65-ft diameter, 24 ft SWD	
Volume	79,600 ft^3 (595,700 gallons)	
Loading Rate	63 lb VSS/ 1,000 ft^3-day	
HRT	37 days	
Mixing	3 - Mechanical Draft Tube	
Cover	Floating	
VSS Reduction (%)	50%	
Design Operating Temp.	95° F	
SECONDARY ANAEROBIC DIGESTER		
Number	1	Renovated Existing
Size	50-ft diameter, 24 ft SWD	
Volume	47,100 ft^3 (352,300 gallons)	
HRT	22 days	
Mixing	2 - Mechanical Draft Tube	
Cover	Gas Holding	

Table 5 (cont'd)

DIGESTED SLUDGE DEWATERING		
Number:	2	New
Type:	Centifuge	
Size:	1,500 lb./hr	
Feed Pumps:	2 @ 50-150 gpm, progressing cavity	
Solids Grinder:	2 In-line	
Sludge Production:		
Design Average Day	5,000 lbs./wk	
Hours of Operation	12 hours/week	
CAKE SLUDGE STORAGE		
Number:	1	New
Design Capacity:	180 days	
Volume Required:	52,600 ft^3	
Size:	84 ft x 142 ft, Building	
ADMINISTRATION BUILDING		
Size	6,500 ft^2	New
MAINTENANCE BUILDING		
Size	11,900 ft^2	New

Table 6
Year 2022 Sewer Service Area
City of Watertown

1999 Population	21,151
2022 Population Projection	25,711
Ratio Year 2022 to Year 2000 Population	1.22
1999 City of Watertown Land Area (Ac) [1]	7,376
2022 City of Watertown Land Area (Ac)	8,966
Increase in Land Area 1999-2022 (Ac)	1,590
Suggested Market Factor	2.0
Increase in Sewer Service Area w/Market Factor (Ac)	3,180

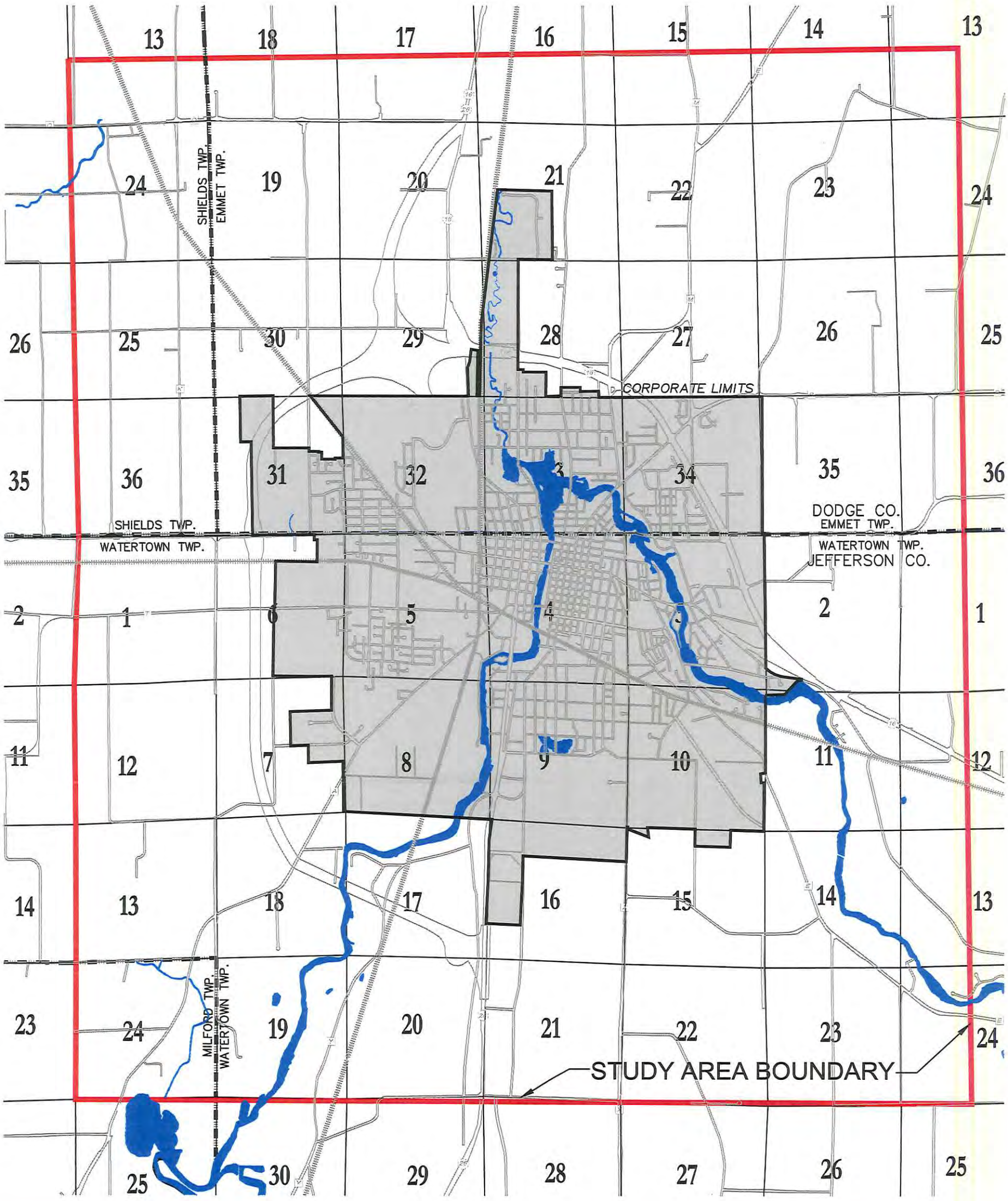
+

= 10,556 acres

[1] From Comprehensive Plan

Figures

3128/FDWLayout.dwg



LEGEND

CORPORATE LIMITS

STUDY AREA BOUNDARY

26 SECTION NO.

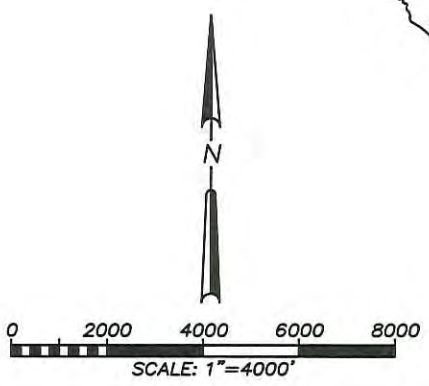


FIGURE 1
STUDY AREA LOCATION MAP
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies

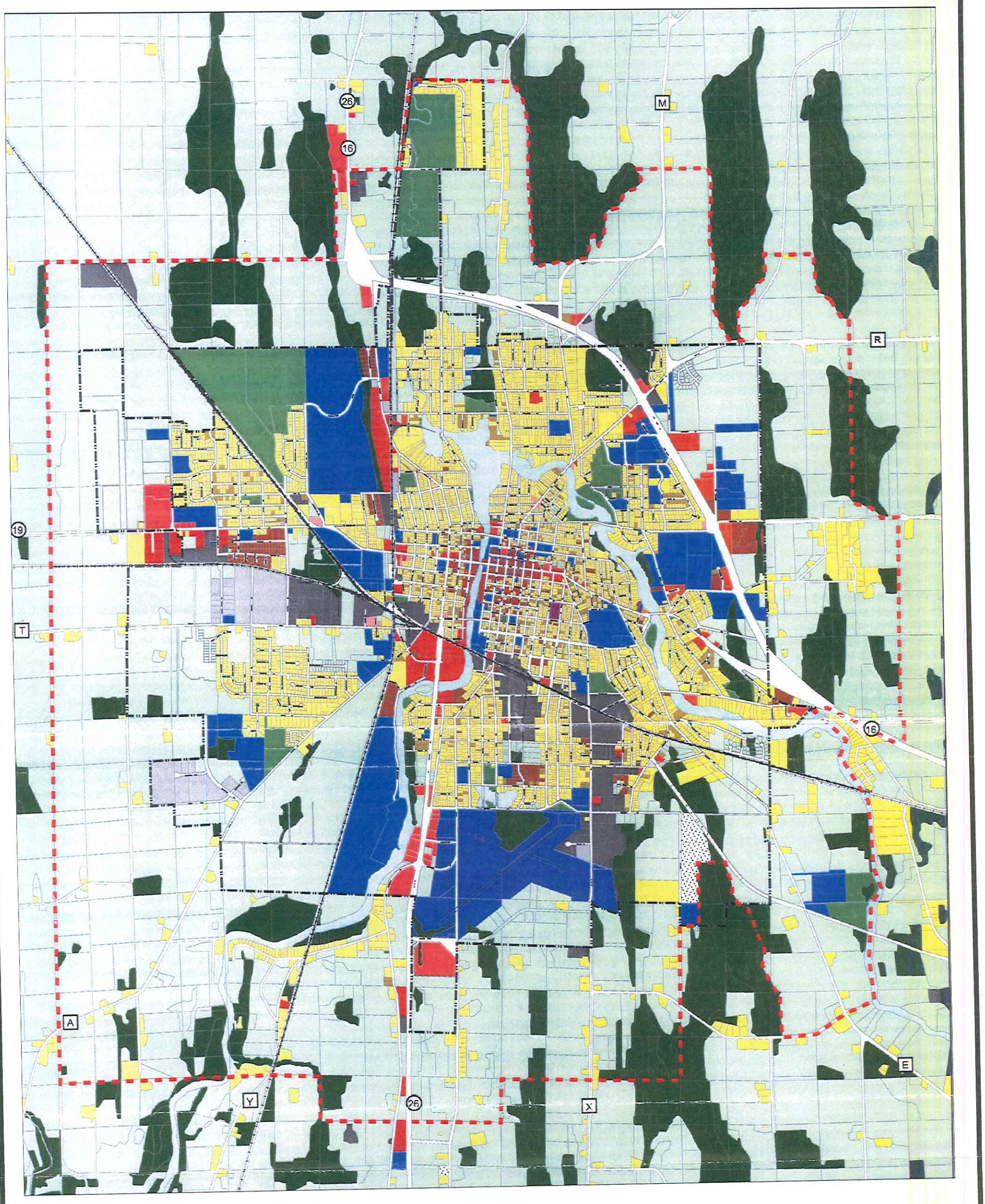


FIGURE 2
EXISTING LAND USE
URBAN SERVICE AREA

WATERTOWN SEWER SERVICE AREA PLAN

February 28, 2000

SOURCE: City of Watertown, Dodge County, Jefferson County

Vandewalle & Associates
Madison & Milwaukee, Wisconsin
Planning - Creating - Rebuilding

ETJ Boundary
Current Urban Service Area
City Boundary

Agriculture/Vacant
Single Family Residential
Two Family Residential
Mixed Residential
Planned Neighborhood
Neigborhood Office
Planned Office
Neighborhood Business
Planned Business
General Business
Central Mixed Use

Planned Industrial
General Industrial
Heavy Industrial
Landfill
Extraction
Planned Mixed Use
Institutional
Airport
Parks & Open Space
Environmental Corridor
Surface Water
Rights-of-Way

N

N.T.S.

AppliedTechnologies

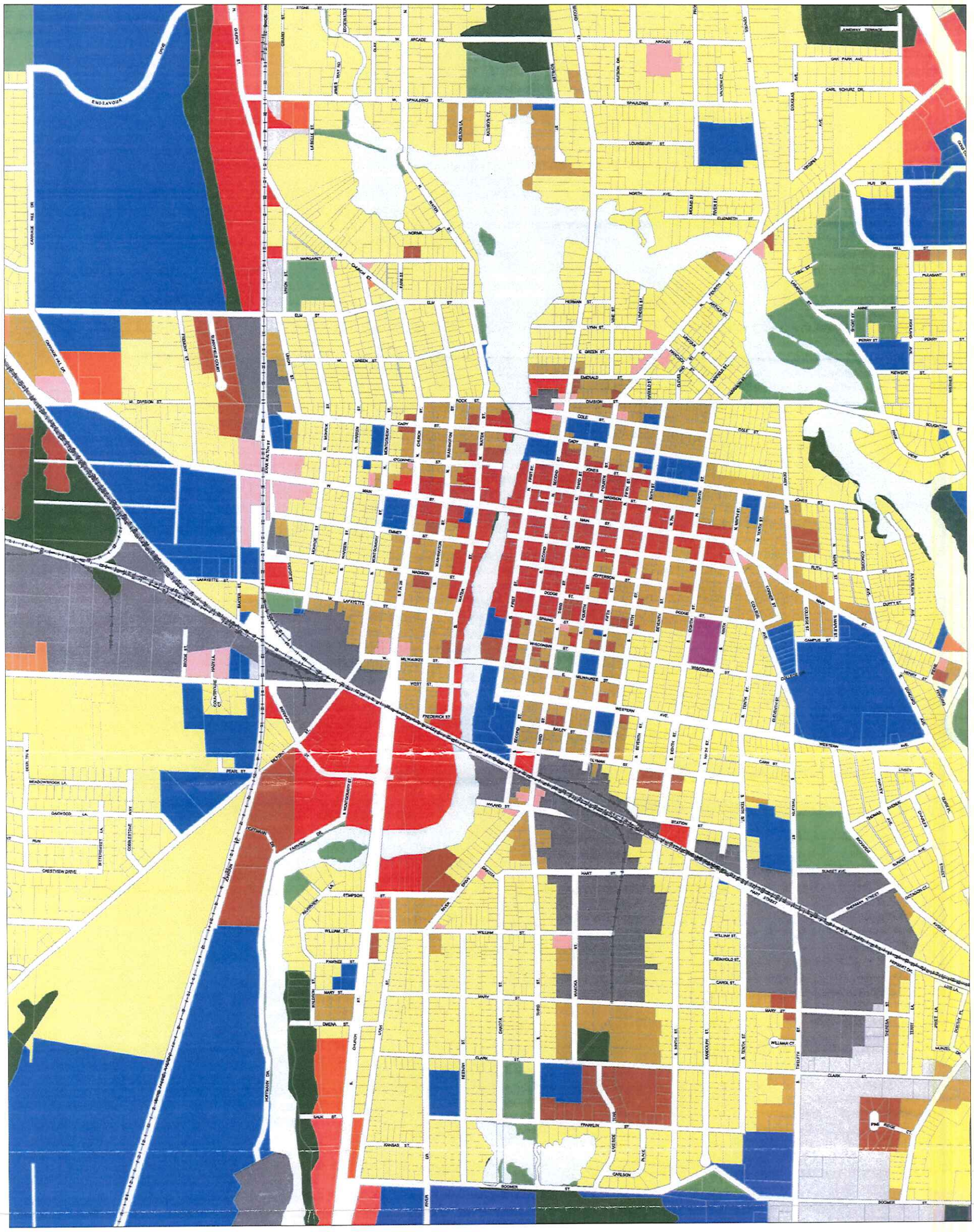


FIGURE 3
PLANNED LAND USE
CENTRAL AREA

WATERTOWN SEWER SERVICE AREA PLAN

February 28, 2000

SOURCE: City of Watertown, Dodge County, Jefferson County

Vandewalle & Associates
Madison & Milwaukee, Wisconsin
Planning - Creating - Rebuilding

AppliedTechnologies

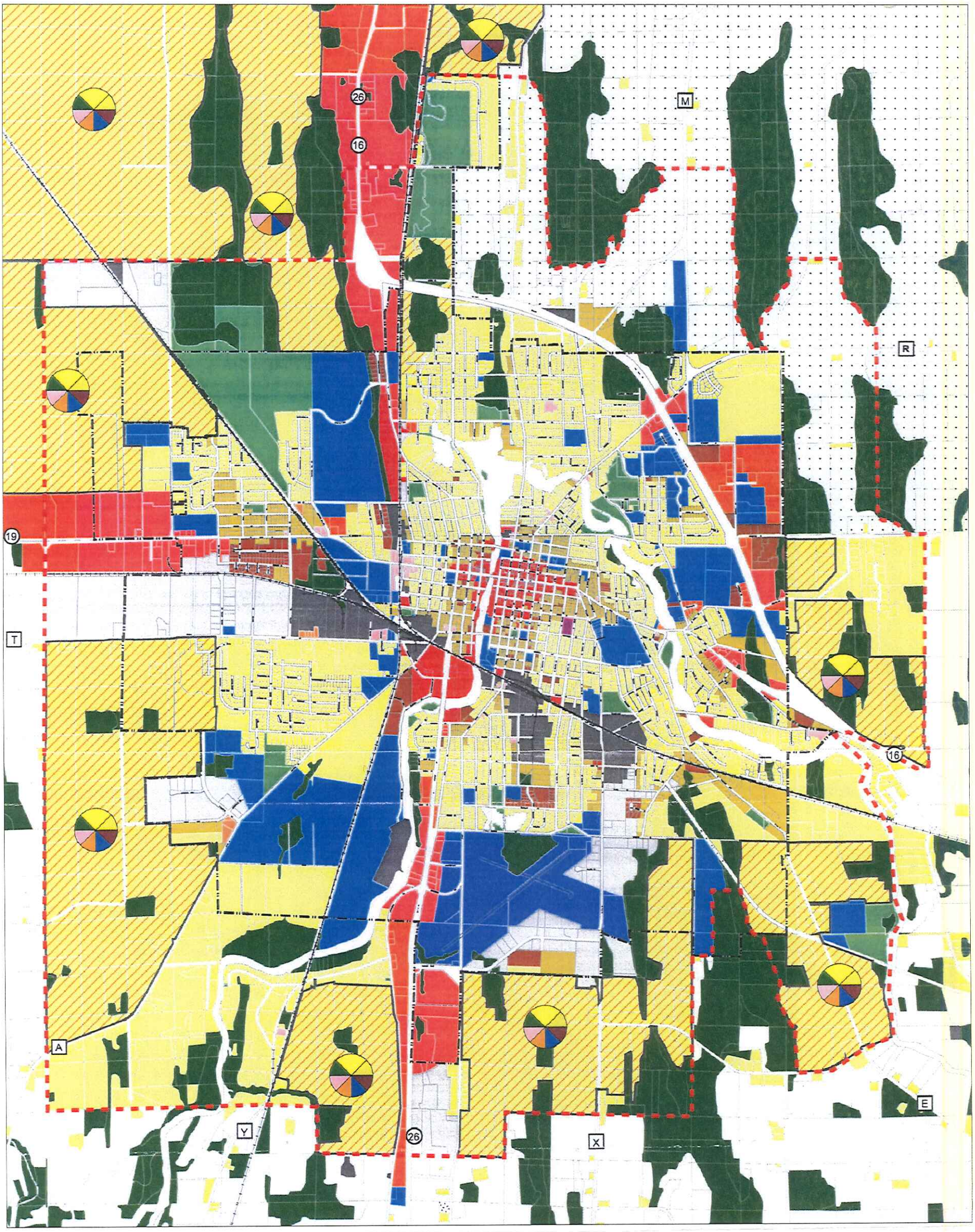


FIGURE 4
PLANNED LAND USE
URBAN AREA

WATERTOWN SEWER SERVICE AREA PLAN

February 28, 2000

SOURCE: City of Watertown, Dodge County, Jefferson County

ETJ Boundary
Current Urban Service Area
City Boundary

1. Single Family
2. Two-Family
3. Mixed Residential
4. Institutional
5. Neighborhood Office
6. Neighborhood Commercial
7. Park & Open Space

Potential Intergovernmental Planning Area

Agriculture/Vacant
Single Family Residential
Two Family Residential
Mixed Residential
Planned Neighborhood
Neigborhood Office
Planned Office
Neighborhood Business
Planned Business
General Business
Central Mixed Use

Planned Industrial
General Industrial
Heavy Industrial
Landfill
Extraction
Planned Mixed Use
Institutional
Airport
Parks & Open Space
Environmental Corridor
Surface Water
Rights-of-Way

N

N.T.S.

Vandewalle & Associates
Madison & Milwaukee, Wisconsin
Planning - Creating - Rebuilding

AppliedTechnologies

FIGURE 5
PLANNED LAND USE
PERIPHERAL AREA

WATERTOWN SEWER SERVICE AREA PLAN

February 28, 2000

SOURCE: City of Watertown, Dodge County, Jefferson County

Vandewalle & Associates
Madison & Milwaukee, Wisconsin
Planning - Creating - Rebuilding

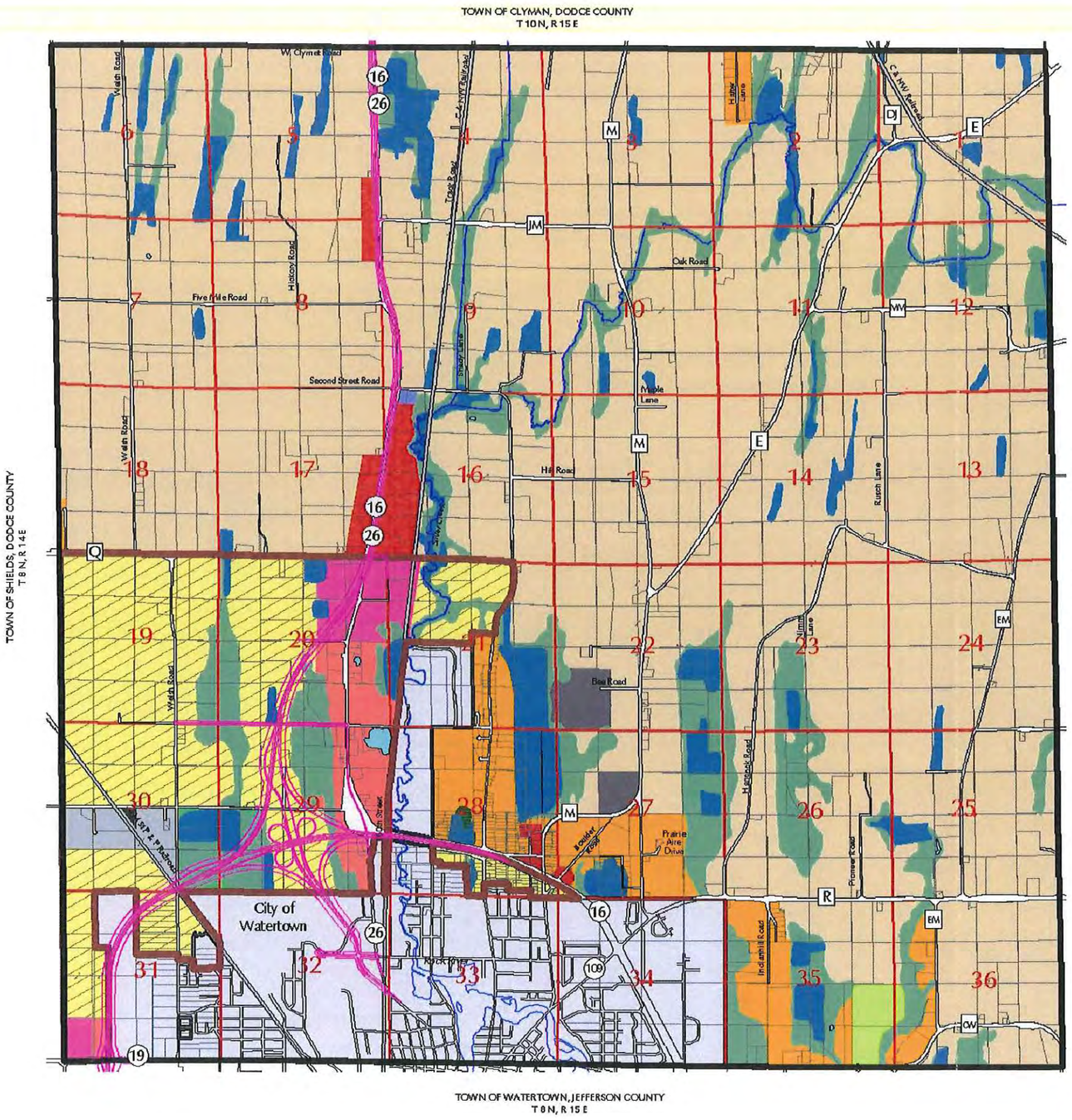
- Potential Intergovernmental Planning Area
- Agriculture/Vacant
- Single Family Residential
- Two Family Residential
- Mixed Residential
- Planned Neighborhood
- Neigborhood Office
- Planned Office
- Neighborhood Business
- Planned Business
- General Business
- Central Mixed Use
- Planned Industrial
- General Industrial
- Heavy Industrial
- Landfill
- Extraction
- Planned Mixed Use
- Institutional
- Airport
- Parks & Open Space
- Environmental Corridor
- Surface Water
- Rights-of-Way

N

N.T.S.

AppliedTechnologies

YEAR 2025 PREFERRED LAND USE
Town of Emmet
Dodge County, Wisconsin



State of Wisconsin

Town Growth Area
- Agriculture
- Industrial
- Government/Institutional
- Residential
- Commercial
- Recreation

City Growth Area
- City Growth Area Boundary
- Single Family Residential
- Planned Neighborhood or Traditional Neighborhood
- Planned Office
- Planned Business
- Planned Industrial
- Heavy Industrial
- Parks & Open Space

Environmental Features
- Wetlands
- 100 Year Flooplain
- 100-500 Year Floodplain

Other Features
- Town Border
- Roads
- Railroad Centerline
- Streams
- Section Lines
- Proposed Highway '26' Bypass
- Railroad Right of Way
- Surface Water
- City of Watertown
- 36 Section Numbers

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Source: Jefferson County and WDOT, Foth & Van Dyke

FIGURE 6
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies

TOWN OF EMMET, DODGE COUNTY
T 9 N, R 15 E

City of Watertown

TOWN OF IXONIA, JEFFERSON COUNTY
T 8 N, R 16 E

TOWN OF FARMINGTON, JEFFERSON COUNTY
T 7 N, R 15 E

DRAFT

DRAFT

YEAR 2020 PREFERRED LAND USE
Town of Watertown
Jefferson County, Wisconsin

State of Wisconsin

Legend

Year 2020 Preferred Land Use
- Planned Transition
- Commercial
- Rural Residential
- Environmental Corridor
- Agriculture Preservation

Other Features
- Surface Water
- Existing Rural Development
- Parcels
- Hwy 26 bypass with Interchange
- Town Border
- Major Roads
- Local Roads
- Section Lines
- Streams
- State Roads
- County Roads
- 36 Section Numbers

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Source: Jefferson County and WDOT, Foth & Van Dyke

FIGURE 7
WATERTOWN SEWER SERVICE AREA PLAN

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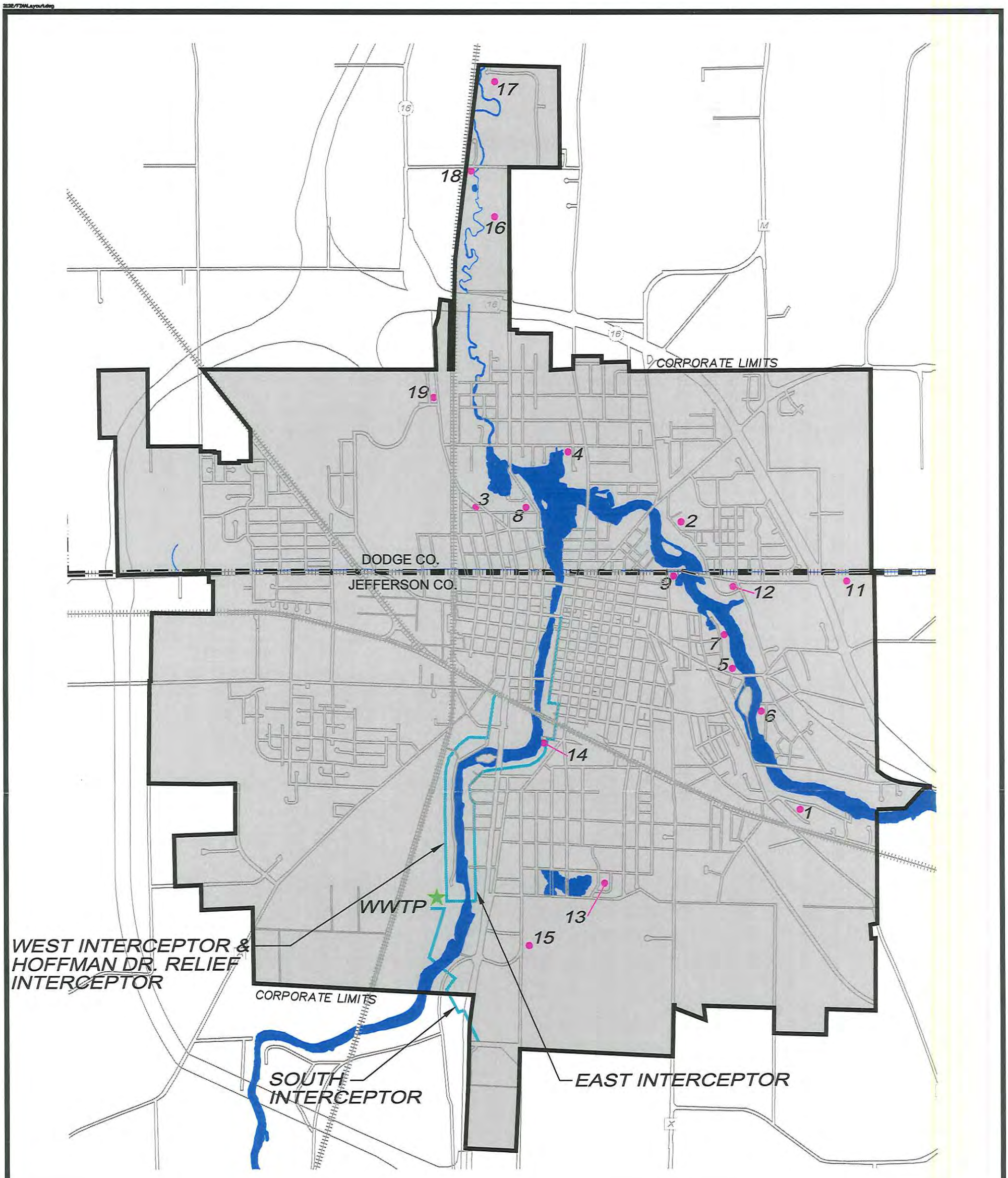


LEGEND

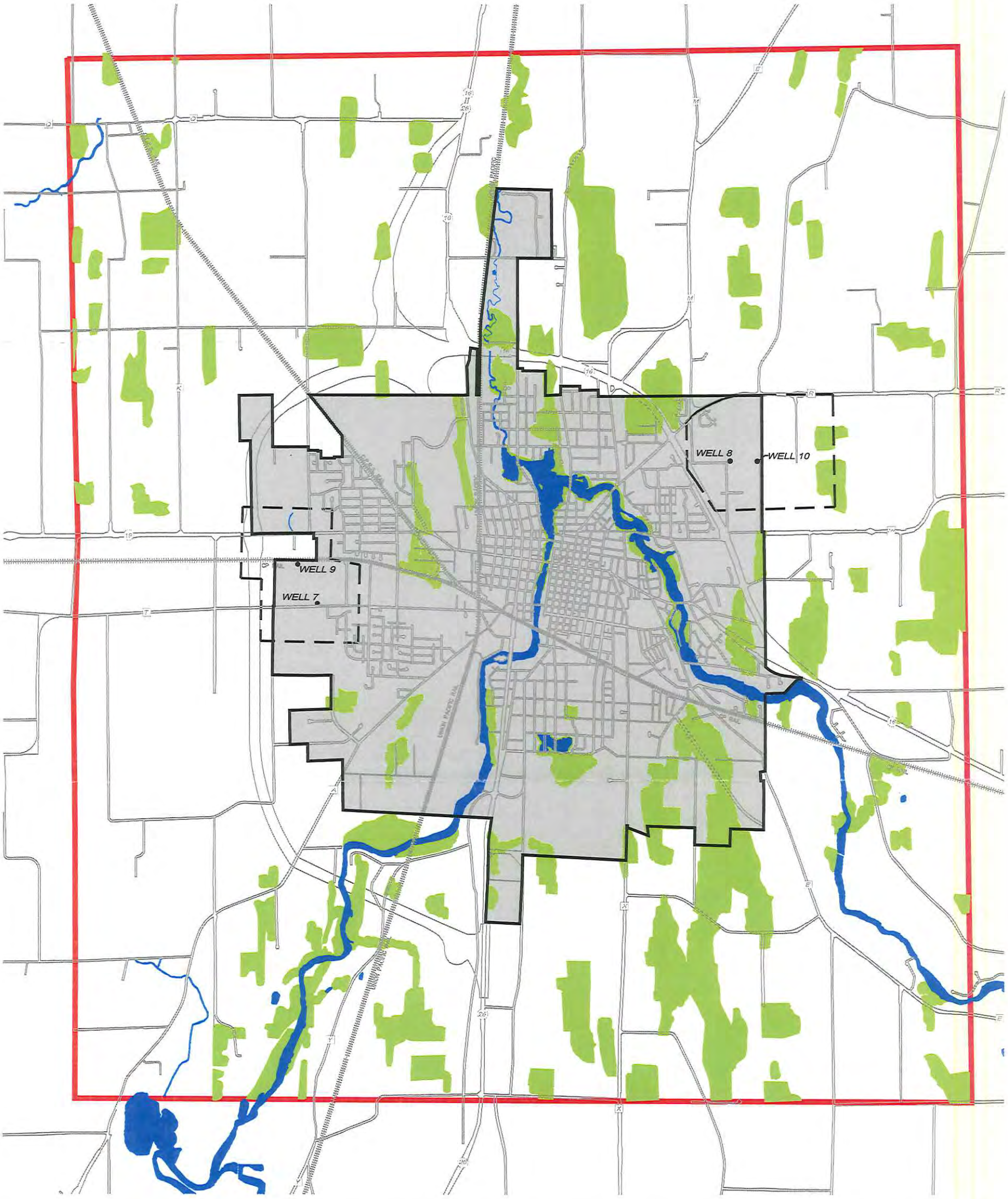
- CORPORATE LIMITS
- 15 LIFT STATION NO.
- WASTEWATER TREATMENT PLANT
- INTERCEPTOR SEWER

FIGURE 8
LIFT STATION -
INTERCEPTOR SEWER LOCATION
WATERTOWN SEWER SERVICE AREA PLAN

N

0 1250 2500 3750 5000
SCALE: 1"=2500'

AppliedTechnologies



NOTES:

THE WETLAND AREAS GREATER THAN 5 ACRES ARE GRAPHICAL INTERPRETATIONS BASED UPON THE "WISCONSIN WETLANDS INVENTORY" MAPS AS PREPARED BY THE DEPARTMENT OF NATURAL RESOURCES.

WETLAND AREAS LESS THAN 5 ACRES WERE BASED UPON "WETLAND INTERPRETATION INFORMATION" AERIAL MAPS PROVIDED BY THE CITY OF WATERTOWN.

ALL WETLAND AREAS INCLUDE A 75' WIDE BUFFER.

WETLANDS DEPICTED ON THIS MAP ARE BASED ON BEST AVAILABLE INFORMATION. EXACT LOCATIONS OF WETLANDS SHOULD BE DETERMINED BY FIELD SURVEY.

LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- WELLHEAD PROTECTION AREA
- WETLAND AREAS

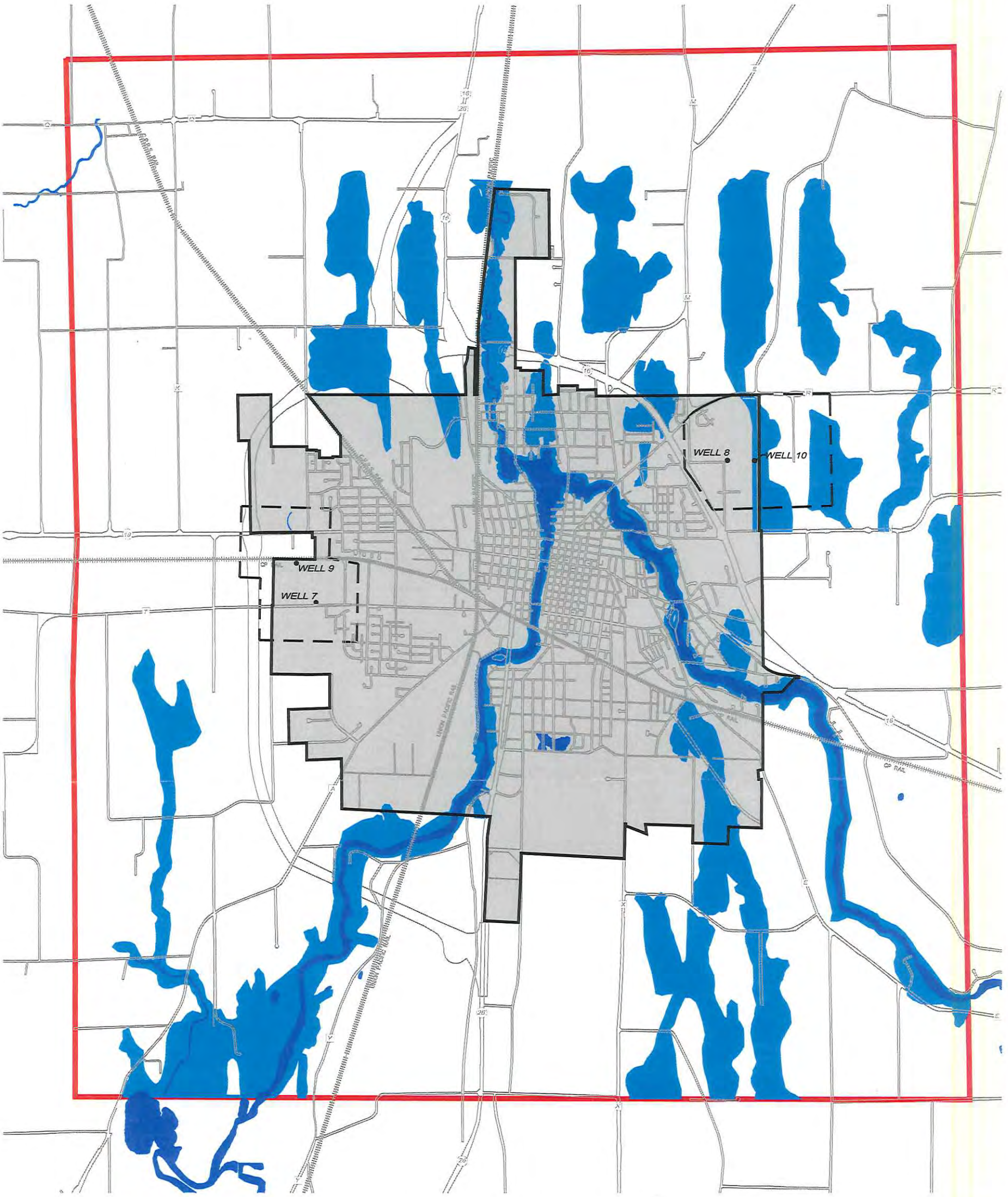
N

0 2000 4000 6000 8000

SCALE: 1"=4000'

FIGURE 9
WETLANDS
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



NOTES:

THE FLOODPLAIN AREAS SHOWN ARE GRAPHICAL INTERPRETATIONS BASED UPON THE "FLOOD INSURANCE RATE MAP" AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

ALL FLOODPLAIN AREAS INCLUDE A 75' WIDE BUFFER.

FLOODPLAIN AREAS DEPICTED ON THIS MAP ARE BASED ON BEST AVAILABLE INFORMATION. EXACT LOCATIONS OF FLOODPLAINS SHOULD BE DETERMINED BY FIELD SURVEY.

LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- WELLHEAD PROTECTION AREA
- FLOODPLAIN

N

0 2000 4000 6000 8000

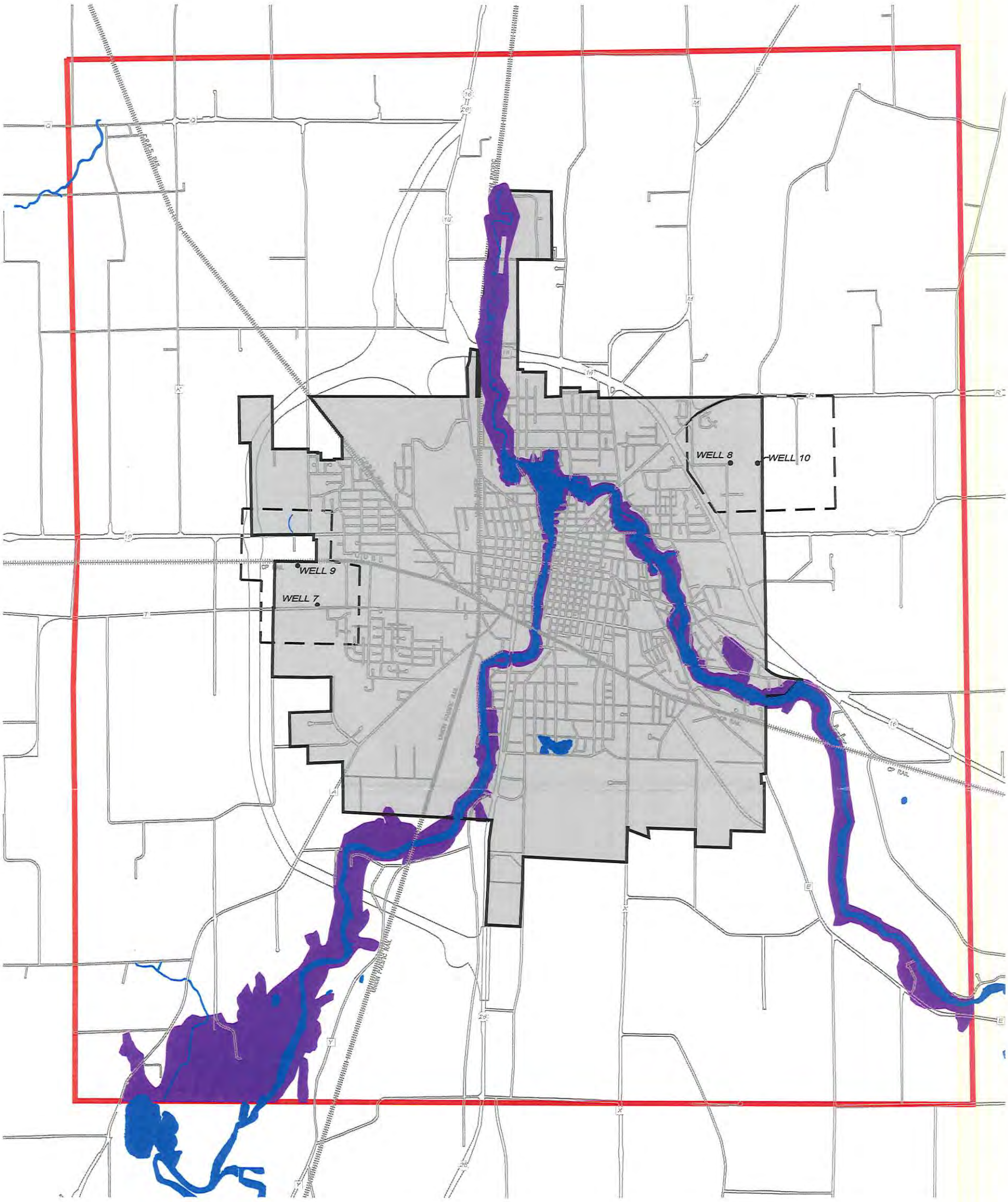
SCALE: 1"=4000'

FIGURE 10

FLOODPLAIN

WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



NOTES:

THE SHORELAND ZONE IS LOCATED WITHIN 1,000 FEET OF THE ORDINARY HIGH WATER MARK (OHWM) OF A "NAVIGABLE" LAKE, POND, OR FLOWAGE OR WITHIN 300' OF THE OHWM OF A "NAVIGABLE" STREAM OR RIVER OR THE THE LANDWARD SIDE OF THE FLOODPLAIN, WHICH EVER DISTANCE IS GREATER.

THE ORDINARY HIGH WATER MARK IS THE BOUNDARY BETWEEN UPLAND AND LAKE OR RIVERBED. IT IS THE POINT ON THE BANK OR SHORE UP TO WHICH THE PRESENCE AND ACTION OF THE WATER IS SO CONTINUOUS AS TO LEAVE A DISTINCT MARK EITHER BY EROSION, DESTRUCTION OF TERRESTRIAL VEGETATION, OR OTHER EASILY RECOGNIZED CHARACTERISTICS.

A WATERWAY IS NAVIGABLE IF IT HAS A BED AND BANKS AND CAN FLOAT A CANOE AT THE SAME TIME EACH YEAR- EVEN IF ONLY DURING SPRING FLOODS. EVEN SMALL INTERMITTENT STREAMS THAT ARE SEASONALLY DRY MAY MEET THE TEST FOR NAVIGABILITY. NAVIGABLE LAKES AND STREAMS ARE PUBLIC WATERWAYS PROTECTED BY LAW FOR ALL CITIZENS.

LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- WELLHEAD PROTECTION AREA
- SHORELANDS

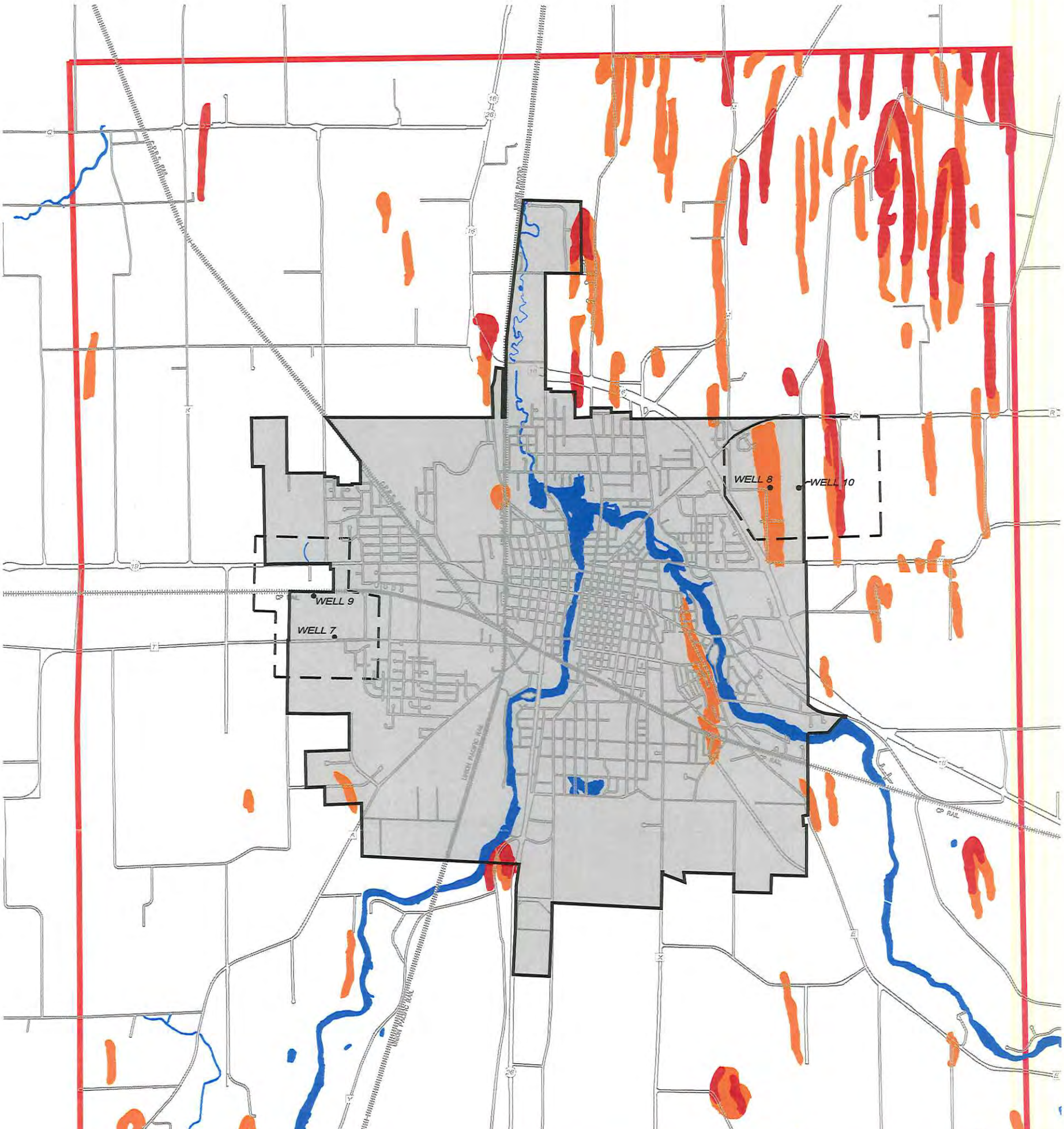
N

0 2000 4000 6000 8000

SCALE: 1"=4000'

FIGURE 11
SHORELANDS
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



NOTES:
THE STEEP SLOPES ARE BASED UPON U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE AND. PROVIDED BY DODGE COUNTY AND JEFFERSON COUNTY.

ALL STEEP SLOPE AREAS INCLUDE A 75' WIDE BUFFER.

LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- WELLHEAD PROTECTION AREA
- 12 - 20%
- 20 - 30%

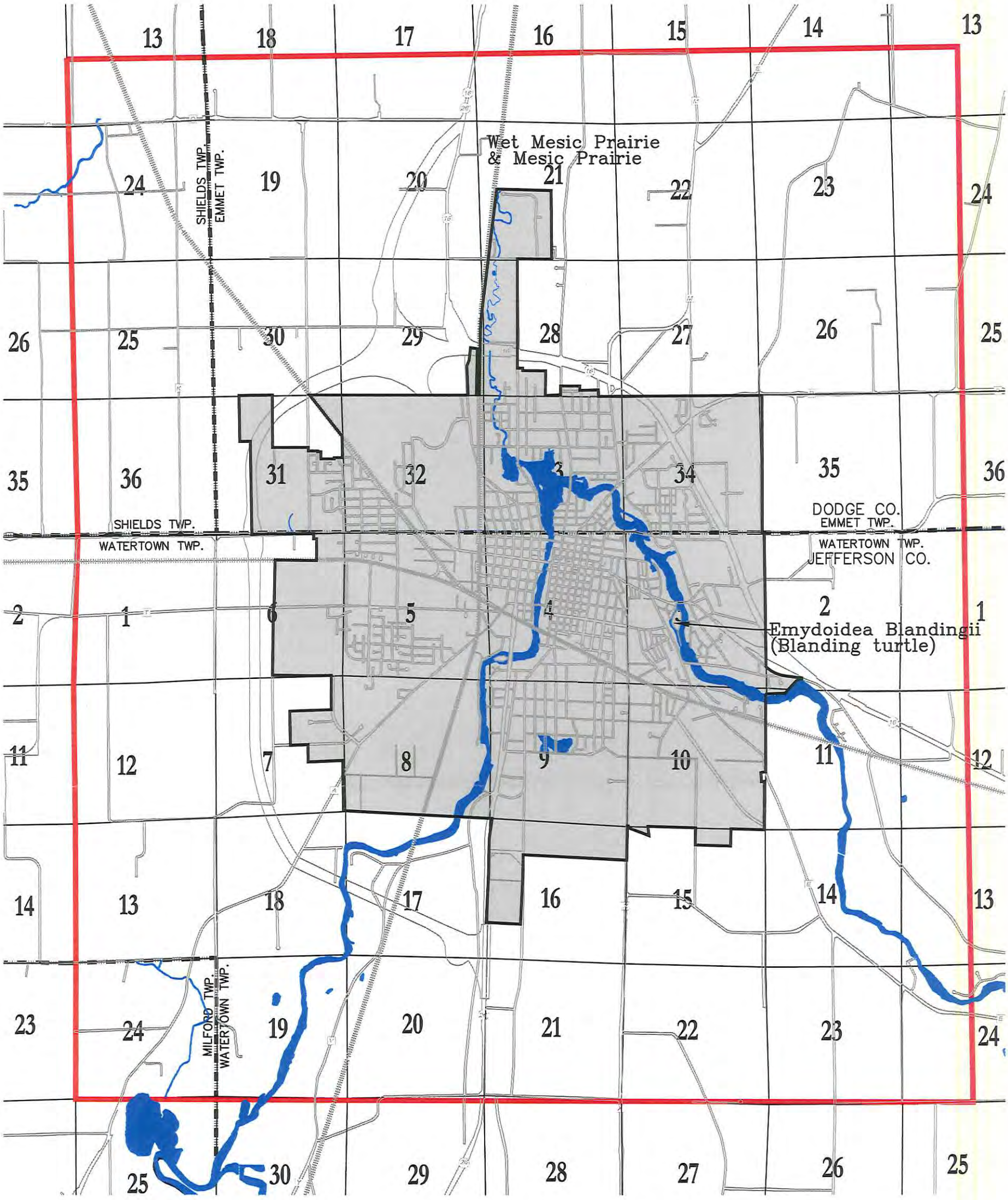
N

0 2000 4000 6000 8000

SCALE: 1"=4000'

FIGURE 12
STEEP SLOPES
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



LEGEND

ENDANGERED RESOURCES -ROCK RIVER

Noturus exilis (slender madtom)

Moxostoma carinatum (river redhorse)

Moxostoma valenciennesi (greater redhorse)

Lythrurus umbratilis (redfin shiner)

Acris crepitans blanchardi (Blanchard's cricket frog)

26 SECTION NO.

CORPORATE LIMITS

STUDY AREA BOUNDARY

N

0 2000 4000 6000 8000

SCALE: 1"=4000'

FIGURE 13

OTHER LIMITING FACTORS

WATERTOWN SEWER SERVICE AREA PLAN

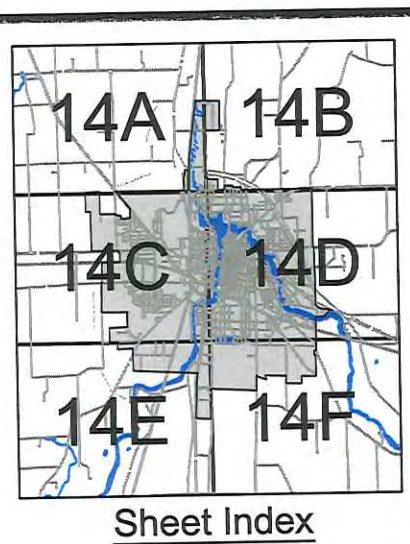
AppliedTechnologies

WELL 8

WELL 10

WELL 9

WELL 7



Sheet Index
N.T.S.

SEE FIGURES 14A, 14B, 14C, 14D, 14E, & 14F

LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- SEWER SERVICE AREA
- ENVIRONMENTALLY SENSITIVE AREAS

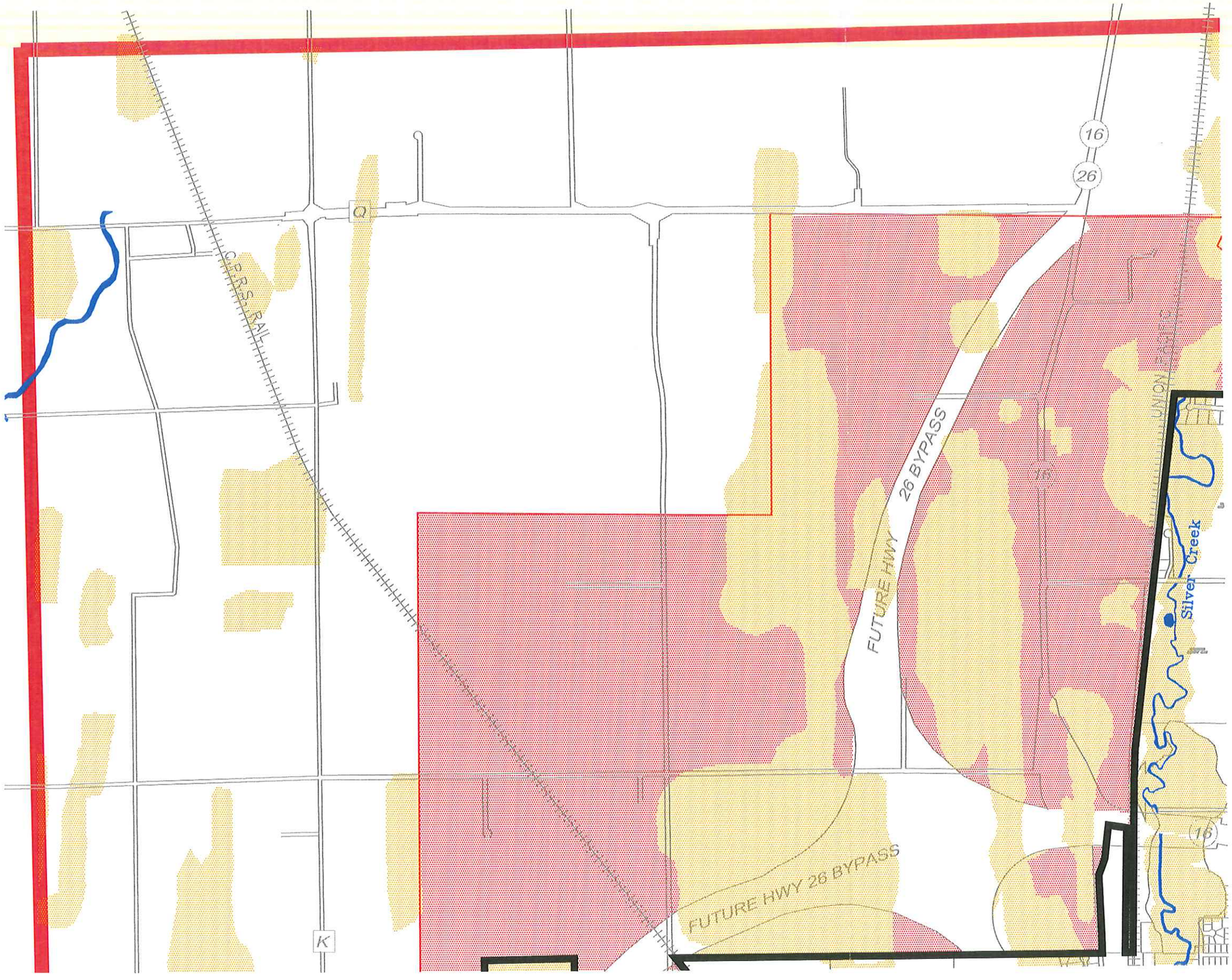
N

0 2000 4000 6000 8000

SCALE: 1"=4000'

FIGURE 14
SEWER SERVICE AREA
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



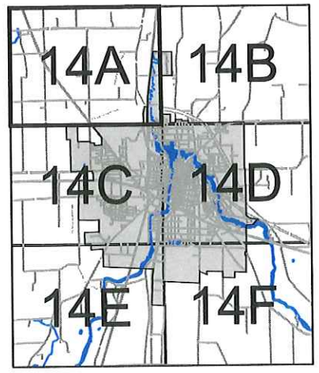
LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- SEWER SERVICE AREA
- ENVIRONMENTALLY SENSITIVE AREAS

N

0 750 1500 2250 3000

SCALE: 1"=1500'



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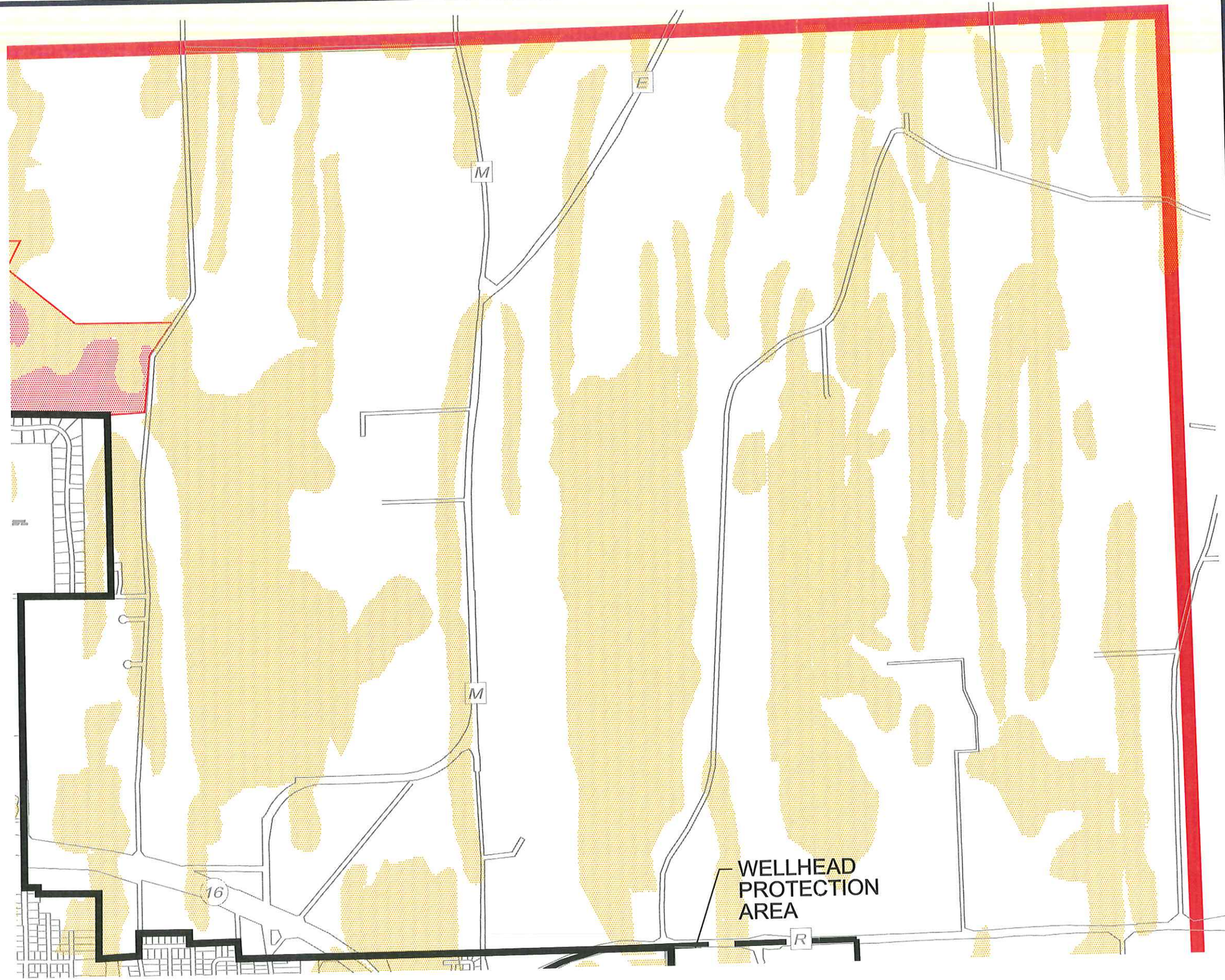
N.T.S.

FIGURE 14A
SEWER SERVICE AREA PLAN
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



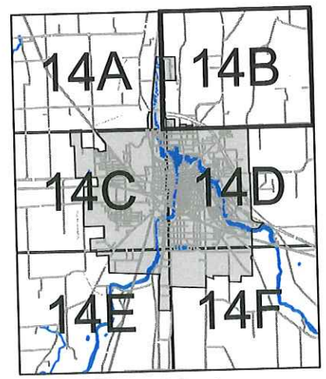
LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- SEWER SERVICE AREA
- ENVIRONMENTALLY SENSITIVE AREAS

N

0 750 1500 2250 3000

SCALE: 1"=1500'



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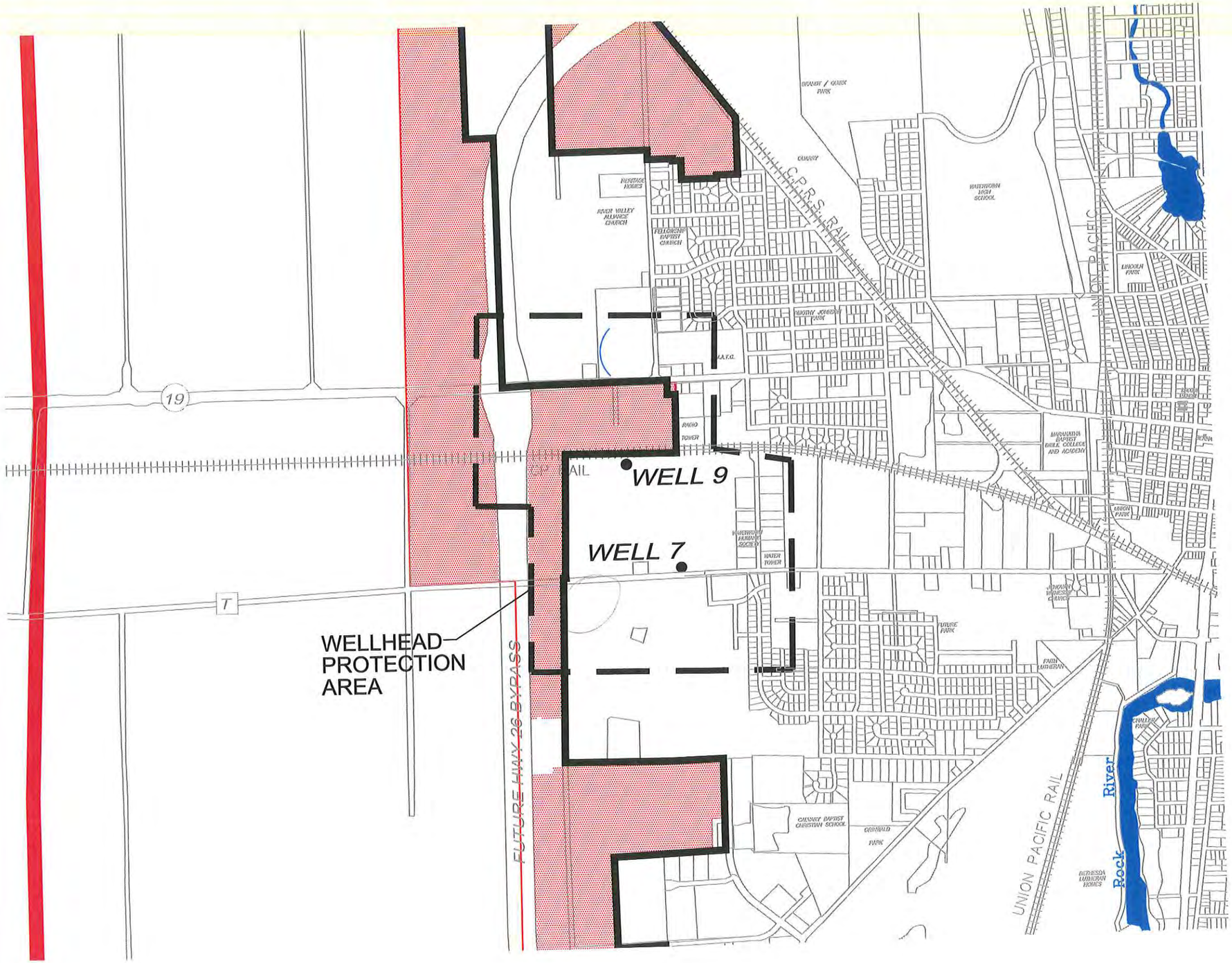
N.T.S.

FIGURE 14B
SEWER SERVICE AREA PLAN
WATERTOWN SEWER SERVICE
AREA PLAN

AppliedTechnologies



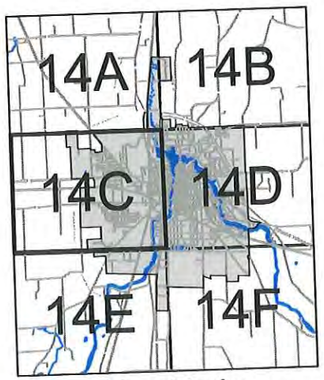
LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- SEWER SERVICE AREA
- ENVIRONMENTALLY SENSITIVE AREAS

N

0 750 1500 2250 3000

SCALE: 1"=1500'

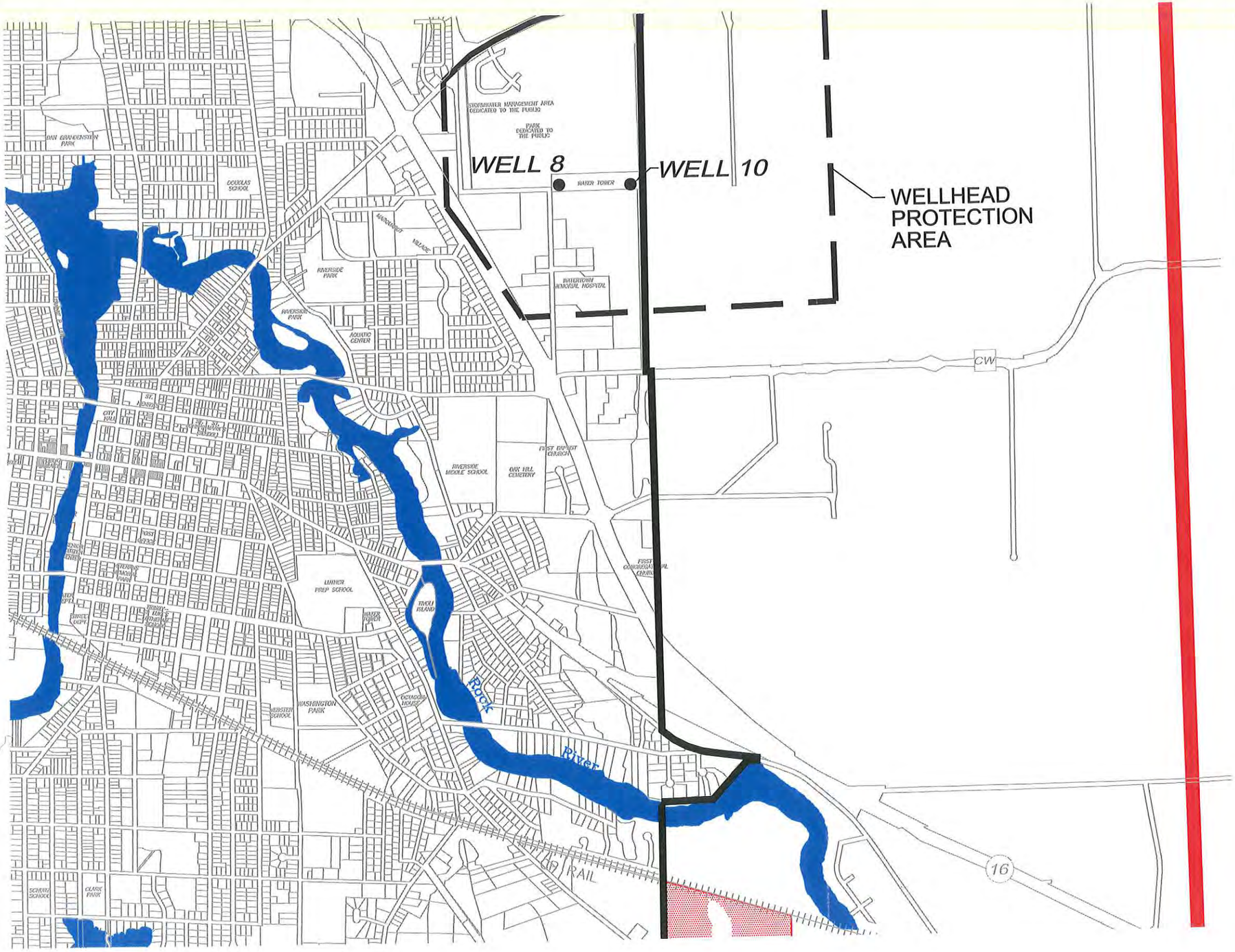


Sheet Index

N.T.S.

FIGURE 14C
SEWER SERVICE AREA PLAN
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



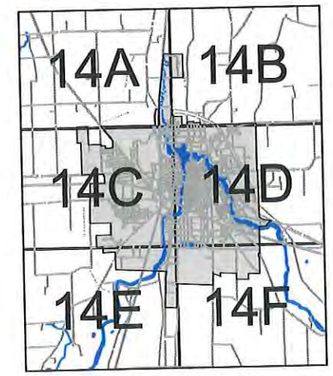
LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- SEWER SERVICE AREA
- ENVIRONMENTALLY SENSITIVE AREAS

N

0 750 1500 2250 3000

SCALE: 1"=1500'

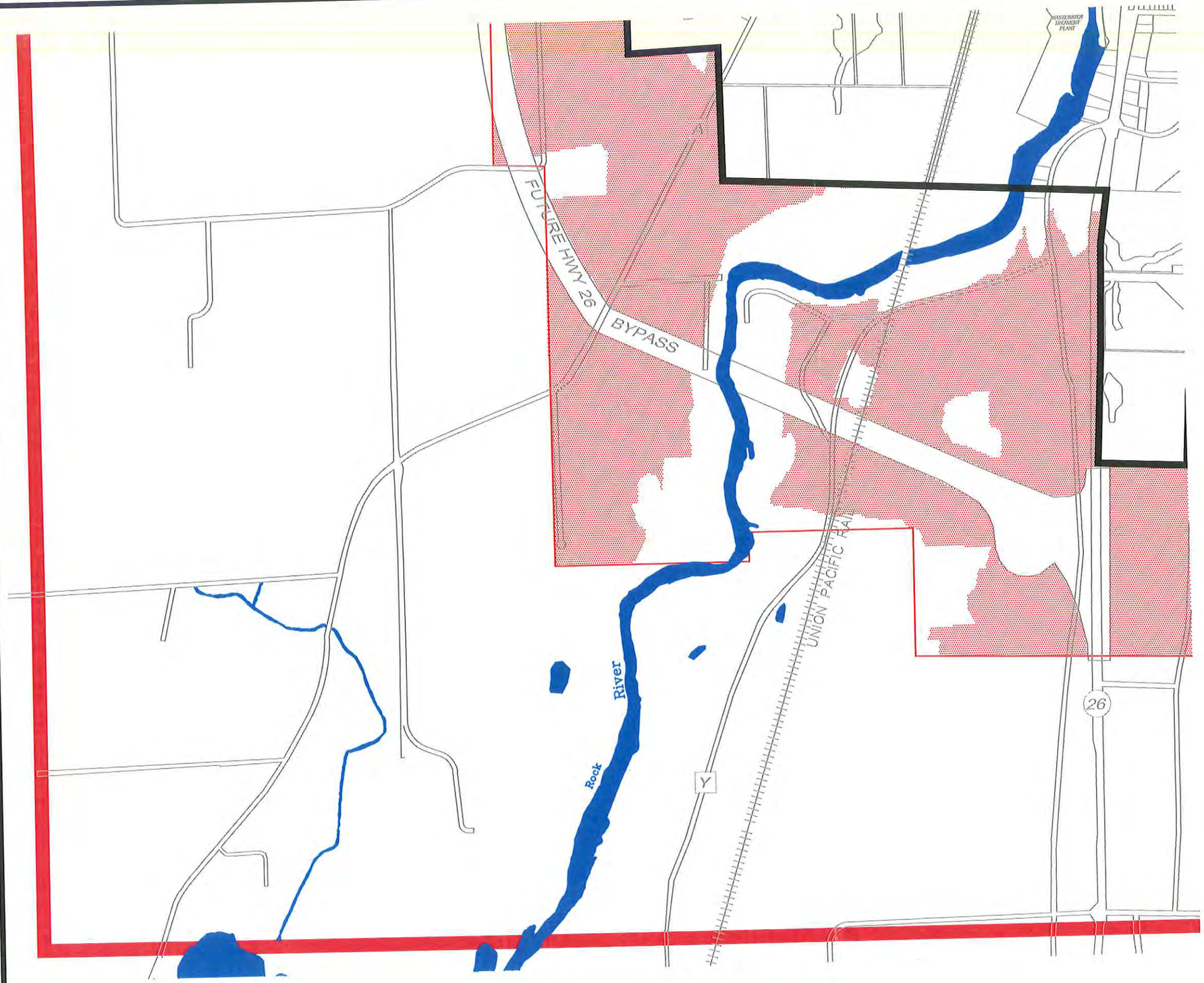


Sheet Index

N.T.S.

FIGURE 14D
SEWER SERVICE AREA PLAN
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



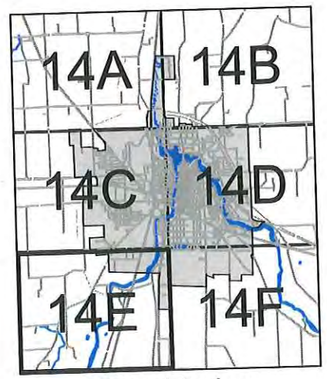
LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- SEWER SERVICE AREA
- ENVIRONMENTALLY SENSITIVE AREAS

N

0 750 1500 2250 3000

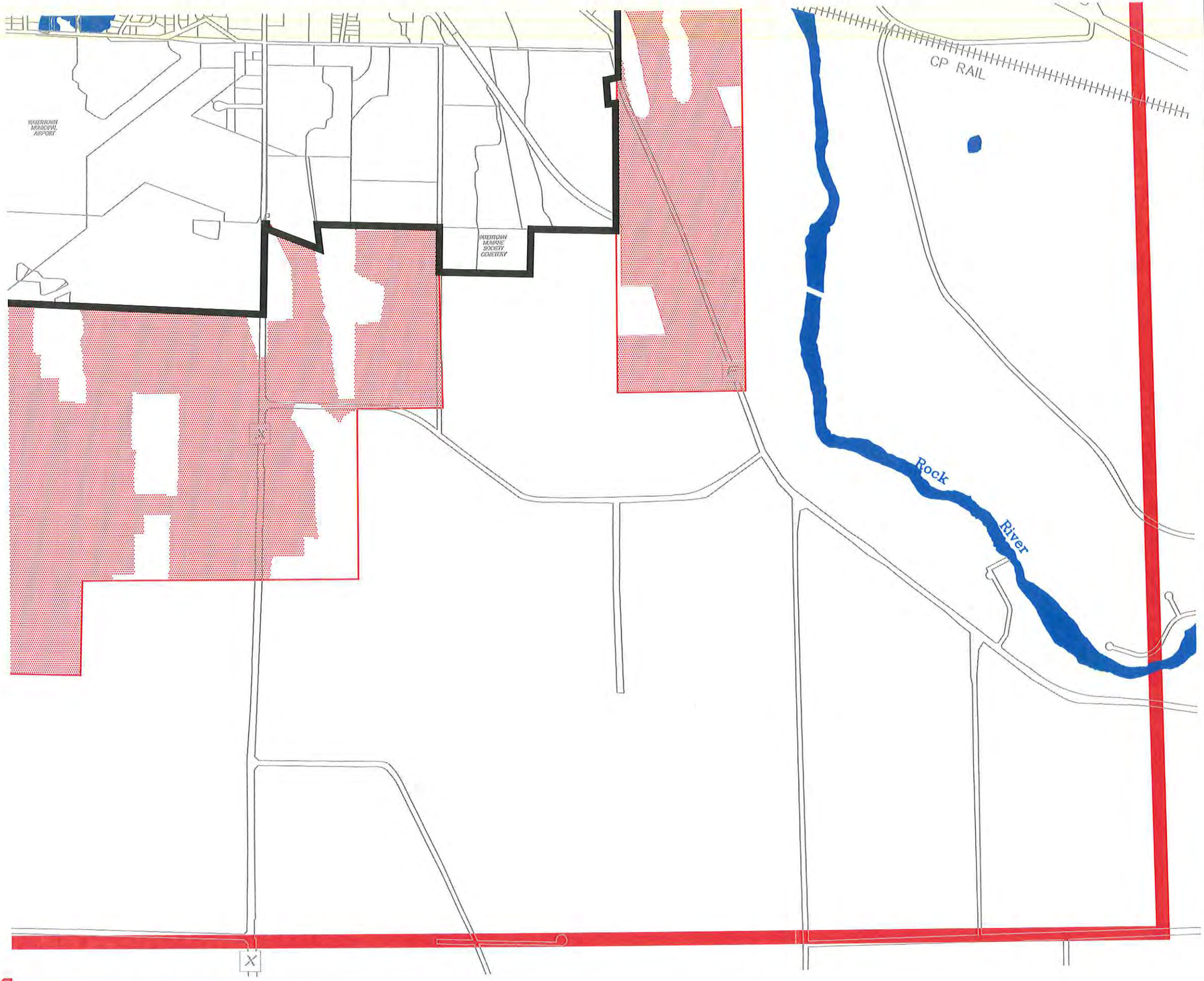
SCALE: 1"=1500'



Sheet Index
N.T.S.

FIGURE 14E
SEWER SERVICE AREA PLAN
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies



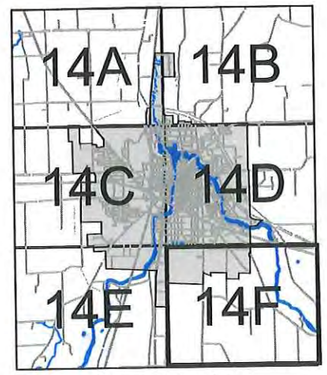
LEGEND

- CORPORATE LIMITS
- STUDY AREA BOUNDARY
- SEWER SERVICE AREA
- ENVIRONMENTALLY SENSITIVE AREAS

N

0 750 1500 2250 3000

SCALE: 1"=1500'



Sheet Index

N.T.S.

FIGURE 14F
SEWER SERVICE AREA PLAN
WATERTOWN SEWER SERVICE AREA PLAN

AppliedTechnologies

APPENDIX A

CORRESPONDENCE WITH STATE HISTORICAL SOCIETY AND DNR BUREAU OF ENDANGERED RESOURCES

AppliedTechnologies

Applied Technologies, Inc.
16815 West Wisconsin Avenue
Brookfield, Wisconsin 53005
Fax 262-784-6847
Telephone 262-784-7690

May 14, 2002

Endangered Resources Impact Review
Bureau of Endangered Resources
P.O. Box 7921
Madison, WI 53707-7921

Subject: Sanitary Sewer Service Area Plan
City of Watertown, Wisconsin

Gentlemen:

Our firm is currently preparing a Sanitary Sewer Service Area Plan for the City of Watertown, Wisconsin. Sanitary Sewer Plans provide a framework for guiding future development patterns in a community. Part of the planning process involves identifying limiting features to development of sewered service. One such limiting feature is the presence of rare or endangered habitats.

We are requesting that your office review the enclosed map and advise us of any rare or endangered habitats in the area that we should be aware of. The study area is described as follows:

The Study Area includes all or part of the following Sections in Township 9 North, Range 15 East in the Town of Emmet, Dodge County, Wisconsin: 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36.

The Study Area includes all or part of the following Sections in Township 9 North, Range 14 East in the Town of Shields, Dodge County, Wisconsin: 13, 24, 25, and 36.

The Study Area includes all or part of the following Sections in Township 8 North, Range 15 East in the Town of Watertown, Jefferson County, Wisconsin: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24.

The Study Area includes all or part of the following Sections in Township 8 North, Range 14 East in the Town of Watertown, Jefferson County, Wisconsin: 1, 12, and 13.

The Study Area includes all or part of the following Sections in Township 8 North, Range 14 East in the Town of Milford, Jefferson County, Wisconsin: 24.

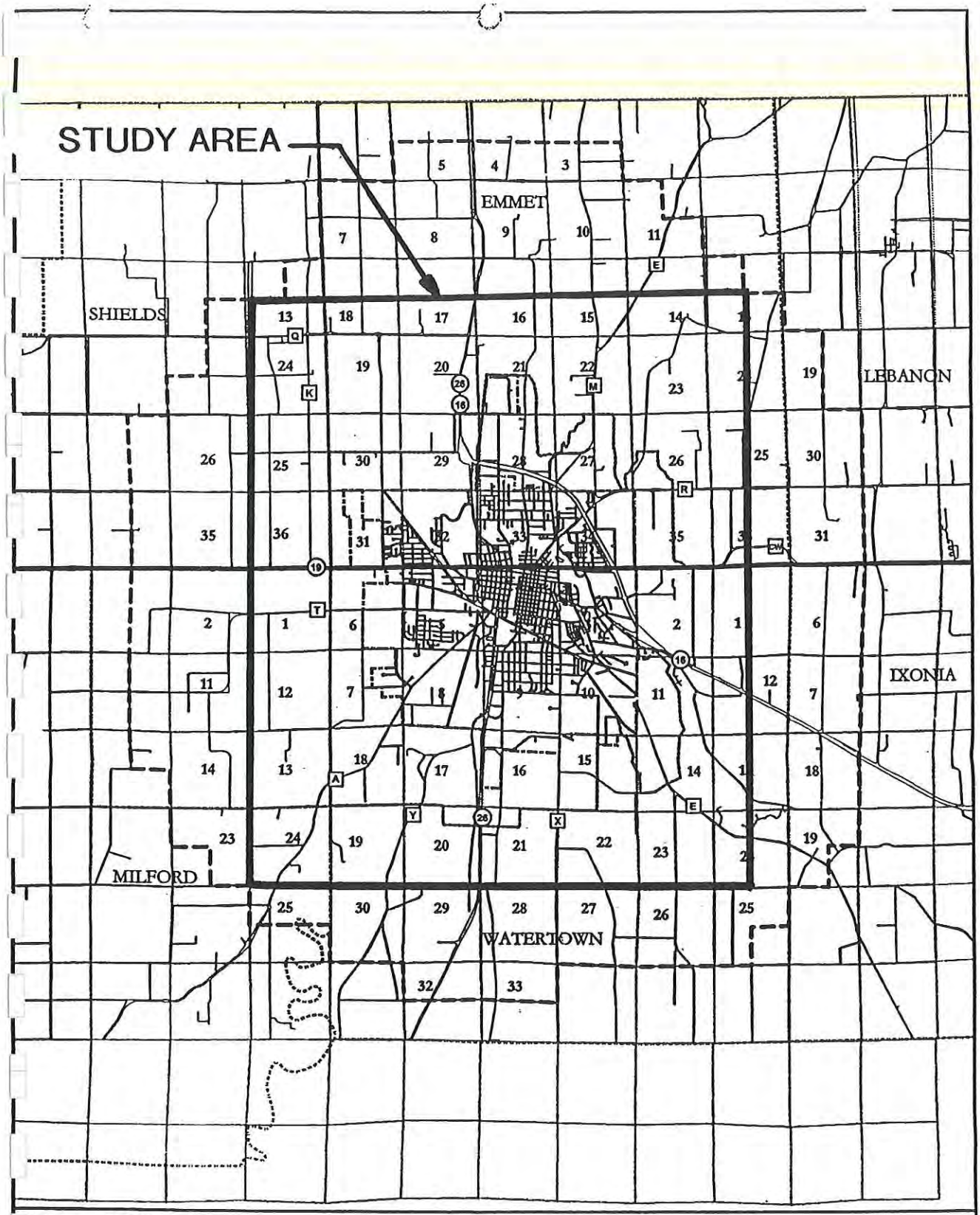
A map of the area is enclosed for your reference. We have also enclosed a completed Wisconsin Natural Heritage inventory Request Form. We appreciate your assistance in this matter. If you have any questions or require additional data, please give me a call.

Sincerely,

Jeffrey D. O'Gorman, P.E.

Attachments

cc Paul Lange, City of Watertown



City of Watertown
Comprehensive Plan
Map 1: Jurisdictional Boundaries

ETJ Boundary
Watertown City Boundary
Current Urban Service Area
Township Boundaries
County Boundary
Sections
Rights-of-Way

...ruary 28, 2000

...Map Sources
...y of Watertown
...Jefferson County Land Information
...Dodge County Planning & Development
...Projection: State Plane-South (NAD 83)

Vandewalle & Associates
...Madison & Milwaukee, Wisconsin
...Planning · Design · Education

N

1 0 1 2 Miles

Wisconsin Department of Natural Resources

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Wisconsin Natural Heritage Inventory Information Request Form

Completion of this form is voluntary; however, information requested by this form is necessary for obtaining NHI data. Personally identifiable information on this form will be used for no other purpose.

Wisconsin's Natural Heritage Inventory (NHI) consists of a combination of historic records and ongoing survey information on rare plants, animals, and natural communities in an integrated system of computer databases, maps, and paper files. The Bureau of Endangered Resources provides this information, along with project timing and location advice and survey recommendations, to private businesses, developers, land use planners, land managers, and others in an effort to minimize impacts to these resources. To receive NHI information complete this form and send it, along with a map delineating the project area and a letter formally requesting endangered resources information, to:

Endangered Resources Impact Review
Bureau of Endangered Resources
P.O. Box 7921
Madison, WI 53707-7921

1. Applicant requesting Natural Heritage Inventory information.

Name: Jeffrey D. O'Gorman, P.E.

Organization: Applied Technologies, Inc.

Address: 16815 W. Wisconsin Avenue, Brookfield WI 53005

Phone: (262) 784-7690

2. Individual/organization/agency proposing project (if different from above.)

Name: Paul Lange, Superintendent

Organization: City of Watertown

Address: 800 Hoffman Drive, Watertown, WI 53094

Phone: (920) 262-4085

3. Location of proposed project. Remember! Include a topographic or plat map delineating the project area. See enclosed map.

County(ies): Dodge & Jefferson County

Town _____N Range _____E W Section(s) See cover letter

Town _____N Range _____E W Section(s) _____

Town _____N Range _____E W Section(s) _____

4. What is the proposed date you intend to begin work on the project?

_____.

5. Briefly describe the project and specify the area of impact. For point source discharges into waterbodies, please indicate the discharge location, and the nature of any increase in discharge.

Preparation of a Sanitary Sewer Service Area Plan in accordance with NR 121 to provide a framework and guideline for future development.

6. Briefly describe current and past land use of the project and surrounding area.

Land use in the area is primarily agricultural and residential with some commercial/industrial interspersed.

7. Has a NHI Information Request Form been submitted for a different phase, portion, or other alternative(s) relating to this project? If so, please describe.

No.

8. What permits, licenses, or regulatory approvals will you be applying for, have you applied for, or have you received as part of this project?

DNR approved of Sanitary Sewer Service Area Plan

Permit, license, or approval	The contact person for permit, etc.	Their Agency, District, or Bureau
Sign off	Mr. Chip Harry Brown III	State Historical Society

Application status (circle one):

will be applying for have applied for have received

To the best of my knowledge the information above is complete and accurate. I understand that the specific location of endangered resources is sensitive information and will use the material provided solely for analysis and review of the above project. I agree not to include exact locations of endangered resources in any publicly disseminated documents. I agree to contact the Bureau prior to publishing any information provided by the Wisconsin Natural Heritage Inventory and to credit the Bureau of Endangered Resources as the source of the material.

Signature: _____

Date: 5/14/02

I also agree to pay within 30 days of receipt of NHI information the charge accrued by the Department. There is a charge of $20/hour (with a minimum fee of $60) for non-DNR requestors. Refer to Chapter NR 29 Wisconsin Administrative Code, for more information on the fee structure and billing exemptions.

Wisconsin Department of Natural Resources
Form 1700-031
Rev. 10-93

Top of page || Endangered Resources || NHI

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WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Scott McCallum, Governor
Darrell Bazzell, Secretary

101 S. Webster St.
Box 7921
Madison, Wisconsin 53707-7921
Telephone 608-266-2621
FAX 608-267-3579
TTY 608-267-6897

APPLIED TECHNOLOGIES
RECEIVED JUN 14 2002

June 12, 2002

Mr. Jeffery O'Gorman
Applied Technologies
16815 West Wisconsin Avenue
Brookfield, WI 53005

SUBJECT: Endangered Resources Review (ERIR Log # 02 - 110)
Sanitary Sewer Service Area Plan, City of Watertown

Dear Mr. O' Gorman,

The Bureau of Endangered Resources has reviewed the project area described in your letter of May 14, 2002 for the Sanitary Sewer Service Area Plan, City of Watertown.

Our Natural Heritage Inventory (NHI) data files contain the following information for the project site located in T9NR15E Sections 13-36; T9NR14E Section 13,24,25,36; T8NR15E Sections 1-24; T8NR14E Sections 1,12,13,24; in Dodge and Jefferson County. In addition to the actual project site, I am providing endangered resource information for an area within two miles of the project's location (within five miles for aquatic species). I provide this information both so impacts to nearby endangered resources can be assessed and to assist in determining which rare species may occur in the project's impact area if appropriate habitat exists. If the described habitat types occur in the project's impact area, then species that occur nearby may be present there. Endangered resources occurring within or near the project site include:

Emydoidea blandingii (Blanding's turtle), a turtle presently under review by the US Fish and Wildlife Service for federal listing and Threatened in Wisconsin, occurs in T8NR15E Section 3. The observation date for this occurrence record is 1981 This species is found in sedge meadows, southern wet and southern wet-mesic forest, wet and wet-mesic prairie, open-water marshes, backwater sloughs, prairie potholes, and large ponds, slow-moving rivers and shallow lakes. The breeding season occurs from April through September.

Noturus exilis (slender madtom), a fish listed as Endangered in Wisconsin, occurs in the Rock River. The observation date for this occurrence record is 1977. This species prefers clear, moderate to swift currents of streams and large rivers over bottoms of gravel and boulders interspersed with fine sand. Spawning occurs from late May through late June.

Moxostoma carinatum (river redhorse), a fish listed as Threatened in Wisconsin, occurs in the Rock River & Watertown pond. The observation date for this occurrence record is 1995. This species prefers moderate to swift currents in large rivers systems, including the lower portions of their tributaries, reservoirs, and pools. River bottoms of clean gravel or rubble are preferred. Spawning occurs from late May through June when water temperatures reach 72 to 76 degrees Fahrenheit.

Moxostoma valenciennesi (greater redhorse), a fish listed as Threatened in Wisconsin, occurs in the Rock River. The observation date for this occurrence record is 1995. This species prefers clear water of large rivers, river reservoirs, and large lakes over bottoms of sand, gravel, or boulders. Spawning occurs from early May through late June.

Natural Communities:
Wet Mesic Prairie & Mesic Prairie (Clyman Railroad Prairie) occurs in T9NR15E Sections 4,9&21. The observation date for this occurrence record is 1978.

Southern Mesic Forest (Watertown Maple Woods) occurs in T8NR15 E Section 25&26. The observation date for this occurrence record is 1984. Sugar maple makes up 90% of the canopy of this mesic woods. Other canopy trees include read oak, black cherry, basswood and shagbark hickory. The woods is situated atop a low, broad drumlin.

Our data files also contain historical records (generally, records that are 25 years old or older) of rare species known to occur within the vicinity of the project site. Unfortunately, the Bureau does not have more current survey information documenting the continued existence of these species in this area. I am including these older records as an indication of species that may still occur in the project area if appropriate habitat exists. Rare species that have been known to occur in this area are:

Lythrurus umbratilis (redfin shiner), a fish listed as Threatened in Wisconsin, occurs in the Rock River. The observation date for this occurrence record is 1928. This species prefers turbid waters of pools in low-gradient rivers/streams over substrates of silt, gravel, or rubble. Spawning occurs from early June through mid-August in sunfish nests and they coexist with the sunfish in the nesting territory

Acris crepitans blanchardi (Blanchard's cricket frog), a frog listed as Endangered in Wisconsin, occurs in the Rock River and Johnson Creek. The observation dates for these occurrence records are 1927 & 1949 respectively. This species prefers marshes along rivers and river floodplains, fens, low prairies, and mud flats with abundant emergent vegetation. The breeding season occurs from late March through early August.

Comprehensive endangered resource surveys have not been completed for the project area. As a result, our data files may be incomplete. The lack of additional known occurrences does not preclude the possibility that other endangered resources may be present. However, given that there is no proposed activity at this time, I do not believe that further endangered resources surveys are warranted. If future projects will impact any of the habitats mentioned above, please contact the Bureau for additional information. If rare species are located in the project's impact area, then construction timing and location may need to be altered to avoid impacting them.

The specific location of endangered resources is sensitive information that has been provided to you for the analysis and review of this project. Exact locations should not be released or reproduced in any publicly disseminated documents.

This letter is for informational purposes and only addresses endangered resource issues. This letter does not constitute Department of Natural Resources authorization of the proposed project and does not exempt the project from securing necessary permits and approvals from the Department.

Please contact me at (608) 264-6057 if you have any questions about this information.

Sincerely,

Jamelle Schlangen

Jamelle Schlangen
Bureau of Endangered Resources

CC: Cathy Bleser SCR/Fitchburg

I:/erirprojects/wp/wpgnwatertown.doc.

AppliedTechnologies

Applied Technologies, Inc.
16815 West Wisconsin Avenue
Brookfield, Wisconsin 53005
Fax 262-784-6847
Telephone 262-784-7690

May 14, 2002

Mr. Chip Harry L. Brown III
SHSW Historic Preservation
816 State Street
Madison, Wisconsin 53706

Subject: Sanitary Sewer Service Area Plan
City of Watertown, Wisconsin

Dear Mr. Brown:

Our firm is currently preparing a Sanitary Sewer Service Area Plan for the City of Watertown, Wisconsin. Sanitary Sewer Plans provide a framework for guiding future development patterns in a community. Part of the planning process involves identifying limiting features to development of sewered service. One such limiting feature is the presence of historical or archaeologic sites.

We are requesting that your office review the enclosed map and advise us of any archaeologically or historically significant sites in the area that we should be aware of. The study area is described as follows:

The Study Area includes all or part of the following Sections in Township 9 North, Range 15 East in the Town of Emmet, Dodge County, Wisconsin: 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36.

The Study Area includes all or part of the following Sections in Township 9 North, Range 14 East in the Town of Shields, Dodge County, Wisconsin: 13, 24, 25, and 36.

The Study Area includes all or part of the following Sections in Township 8 North, Range 15 East in the Town of Watertown, Jefferson County, Wisconsin: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24.

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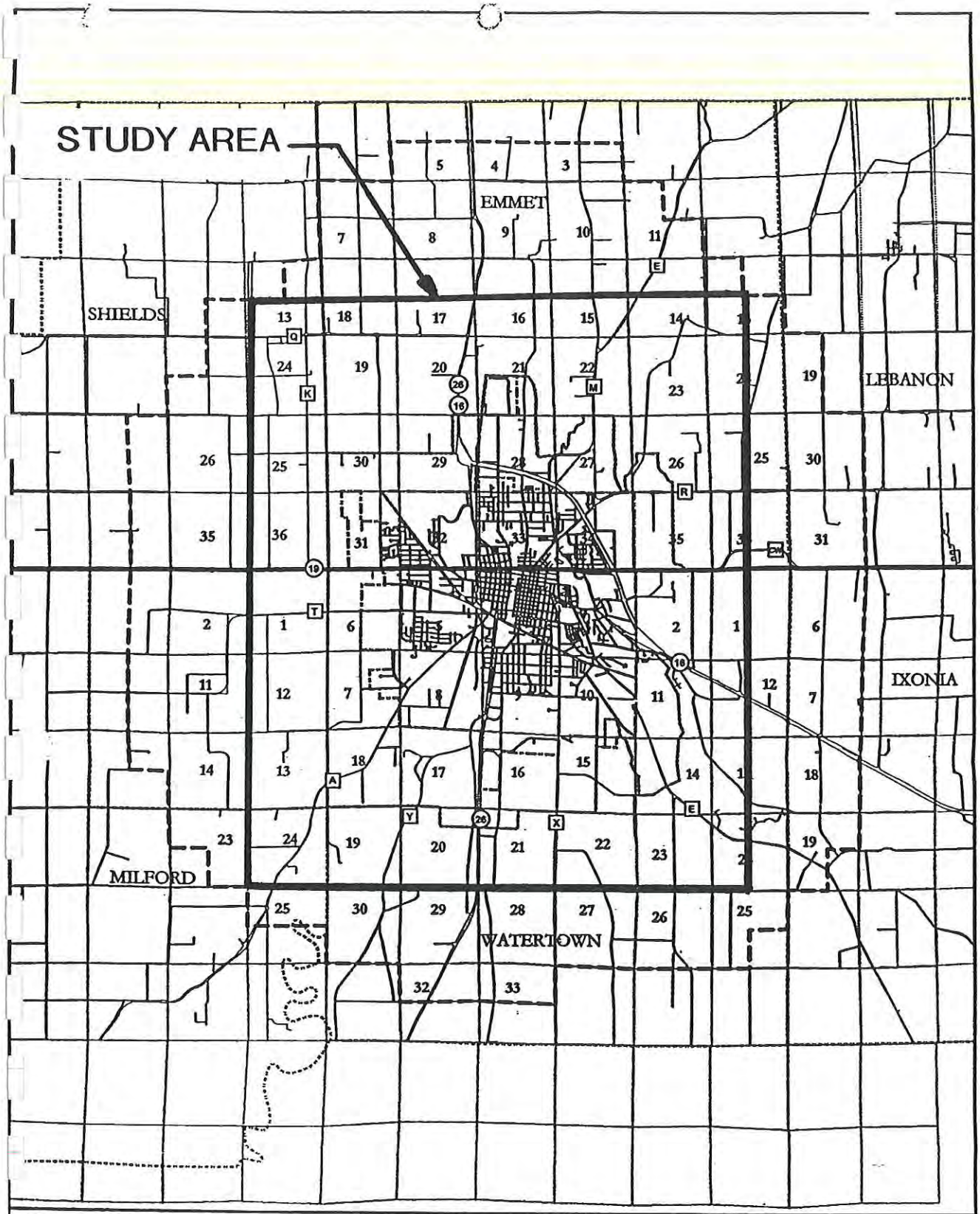
A map of the area is enclosed for your reference. We appreciate your assistance in this matter. If you have any questions or require additional data, please give me a call.

Sincerely,

Jeffrey D. O'Gorman, P.E.

Attachment

cc Paul Lange, City of Watertown



City of Watertown
Comprehensive Plan
Map 1: Jurisdictional Boundaries

ETJ Boundary
Watertown City Boundary
Current Urban Service Area
Township Boundaries
County Boundary
Sections
Rights-of-Way

a ...uary 28, 2000

Map Sources
of Wisconsin;
Jefferson County Land Information;
Dodge County Planning & Development

Projection: State Plane South (NAD 83)

Vandewalle & Associates
Professional & Affordable Watershed
Planning · Grants · Consulting

N

1 0 1 2 Miles

APPENDIX B

CITY OF WATERTOWN

EROSION CONTROL AND

STORMWATER RUNOFF ORDINANCE

20.16 EROSION CONTROL AND STORM WATER RUNOFF (Cr. #98-20)

1. AUTHORITY.

(A) This section is adopted by the City of Watertown under the authority granted by s.62.234Wis. Stats. This section supersedes all conflicting and contradictory storm water management regulations previously enacted under s. 62.23, Wis. Stats. Except as specifically provided for in s. 62.234 Wis. Stats., s. 62.23, Wis. Stats. applies to this section and to any amendments to this section.

(B) The provisions of this section are deemed not to limit any other lawful regulatory powers of the same governing body.

(C) The City of Watertown hereby designates the City Engineer to administer and enforce the provisions of this section.

(D) The requirements of this section do not pre-empt more stringent storm water management requirements that may be imposed by WPDES Storm Water Permits issued by the Department of Natural Resources under s. 147.021 Wis. Stats.

2. FINDINGS OF FACT.

The City of Watertown finds that uncontrolled storm water runoff from land development activity has a significant impact upon water resources and the health, safety, and general welfare of the community and diminishes the public enjoyment and use of natural resources. Specifically, uncontrolled storm water runoff can:

(A) degrade physical stream habitat by increasing streambank erosion, increasing streambed scour, diminishing groundwater recharge, and diminishing stream base flows;

(B) diminish the capacity of lakes and streams to support fish, aquatic life, recreational, and water supply uses by increasing loadings of nutrients and other urban pollutants;

(C) alter wetland communities by changing wetland hydrology and by increasing pollutant loads;

(D) reduce the quality of groundwater by increasing pollutant loading;

(E) threaten public health, safety, property, and general welfare by overtaxing storm sewers, drainageways, and other minor drainage facilities;

(F) threaten public health, safety, property, and general welfare by increasing major flood peaks and volumes;

(G) undermine flood plain management efforts by increasing the incidence and levels of flooding.

3. PURPOSE AND INTENT

(A) PURPOSE. The purpose of this section is to set forth storm water requirements and criteria which will prevent and control water pollution, diminish the threats to public health, safety, welfare, and aquatic life due to run-off of storm water from development or redevelopment.

(B) INTENT. The City of Watertown recognizes that the preferred method of addressing storm water management problems and needs is through the preparation of comprehensive storm water management system plans for logical subwatershed areas which are designed to meet the purpose and intent of this section. Accordingly, the standards for on-site storm water management measures set forth in Section 7(A) and 7(B) do not apply in areas where such plans have been prepared and approved by the City of Watertown. In those areas for which approved storm water management plans have been prepared, all land development activities will include storm water management measures set forth in those approved storm water management plans. It is the general intent of the City of Watertown to achieve its purpose through:

(i) managing long-term, construction site erosion and post-construction storm water discharges from land development activities;

(ii) providing two options for developing storm water management requirements including: 1) application of generic requirements in this section on a site-by-site basis in areas for which no approved storm water management plan exists; and 2) implementation of management practices set forth in detailed storm water management plans in areas which are covered by an approved storm water management plan.

4. DEFINITIONS

(A) "Administering authority" means the governmental employee, or a regional planning commission empowered under s. 62.234 Wis. Stats., designated by the City of Watertown to administer this section.

(B) "Agricultural land use" means use of land for planting, growing, cultivating. and . harvesting of crops for human or livestock consumption and pasturing or yarding of livestock.

(C) "Business day" means a day which the offices of the City Engineer are routinely and customarily open for business.

(D) "Cease and desist order" means a court issued order to halt land developing activity that is being conducted without the required permit.

(E) "Commercial land use" means use of land for the retail or wholesale of goods or services.

(F) "Common plan of development or sale" means all lands included within the boundary of a certified survey or subdivision plat created for the purpose of development or sale of property where multiple separate and distinct land developing activity may take place at different times and on different schedules.

(G) "Construction site control measure" means a control measure used to meet the requirements of s..07(B).

(H) "Control measure" means a practice or combination of practices to control erosion and attendant pollution.

(I) "Control plan" means a written description of the number, locations, sizes, and other pertinent information of control measures designed to meet the requirements of this section submitted by the applicant for review and approval by the City of Watertown.

(J) "Design rainfall event" means a discrete rainstorm characterized by a specific duration, rainfall intensity, return frequency, and total depth of rainfall.

(K) "Discharge volume" means the quantity of runoff discharged from the land surface as the result of a rainfall event.

(L) "Division of land" means the creation of four or less parcels or building sites of one or fewer acres from one parcel-each in area where such creation occurs at one time or through the successive partition within a 5-year period.

(M) "Erosion" means the detachment and movement of soil, sediment or rock fragments by water, wind, ice, or gravity.

(N) "Extra-territorial" means the unincorporated area within 3 miles of the corporate limits of a first, second, or third class city, or village.

(O) "Fee in lieu" means a payment of money to the City of Watertown in place of meeting all or part of the storm water performance standards required by this section.

(P) "Gross aggregate area" means the total area, in acres, of all land located within the property boundary containing the land development activity.

(Q) "Groundwater enforcement standard" means a numerical value expressing the concentration of a substance in groundwater which is adopted under s. 160.07 Wis. Stats., and s. NR 140. 10 or s. 160.09 Wis. 'Stats, and s. NR 140.12.

(R) "Groundwater preventive action limit" means a numerical value expressing the concentration of a substance in groundwater which is adopted under s. 160.15 Wis. Stats., and s. NR 140.10, 140.12, or 140.20.

(S) "Irrevocable letter of credit" means an agreement with a bank or other institution to pay money or extend credit to honor the term of the permit with the City.

(T) "Impervious surface" means a surface that releases the rainfall as surface runoff during a large portion of the design rainfall event. "Rooftops," "sidewalks, "parking lots" and "street surfaces" are examples of impervious surfaces.

(U) "Infiltration" means the process by which rainfall or surface runoff percolates or penetrates into the underlying soil.

(V) "Landowner" means any person holding title to or having an interest in land.

(W) "Land user" means any person operating, leasing, renting, or having made other arrangements with the landowner by which the landowner authorizes use of his or her land.

(X) "Land development activity" means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface, or means the construction of buildings; roads; parking lots; paved storage areas; and similar facilities-excluding agricultural land use.

(Y) "Land disturbing construction activity" means any man-made change of the land surface including removing vegetative cover; excavating; filling; and grading, but not including agricultural land uses such as plan growing, cultivating and harvesting of crops; growing and tending of gardens; harvesting of trees; and landscaping modifications.

(Z) "Local municipality" means a town, county, village, or city.

(AA) "Maintenance agreement" means a legal document that is filed with the County Register of Deeds as a property deed restriction and which provides for long-term maintenance of storm water management practices.

(BB) "Maintenance Bond" means a bond which guarantees that the permit holder will perform needed maintenance outlined in the permit. The bond protects the City against loss due to the inability or refusal of the permit holder to perform to the conditions of the permit.

(CC) "Natural wetlands" means an area where water is at, near, or above the land surface long enough to be . capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions, according to the most current Wisconsin Wetland Inventory Maps. These wetlands include existing, mitigation, and restored wetlands as indicated on the most recent Wisconsin Wetland Inventory Maps.

(DD) "Non-storm discharge" means a discharge to the storm sewer system created by some process other than the runoff of rain.

(EE) "Non-structural measure" means a practice, technique, or measure to reduce the volume, peak flow rate, or pollutants in storm water that does not require the design or installation of fixed storm water management facilities.

(FF) "Off-site" means located outside the property boundary described in the permit application for land development activity.

(GG) "Other than residential development" means development of the following land uses: commercial; industrial; government and institutional; recreation; transportation, communication, and utilities.

(HH) "On-Site" means located within the property boundary described in the permit application for the land development activity.

(II) "Peak flow discharge rate" means the maximum rate at which a unit volume of storm water is discharged.

(JJ) "Performance Bond" means a bond which guarantees that the permit holder will perform to the terms of the agreement. The bond protects the City against loss due to the inability or refusal of the permit holder to perform to the conditions of the permit.

(KK) "Performance security" means a performance bond, maintenance bond, surety bond, irrevocable letter of credit, or similar guarantees submitted to the City Engineer by the permit holder to assure that requirements of th section are carried out in compliance with the storm water management plan.

(LL) "Permit" means a written authorization made by the City Engineer to the applicant to conduct land development activities.

(MM) "Permit administration fee" means a sum of money paid to the City of Watertown by the permit applicant for the purpose of recouping the expenses incurred by the authority in administering the permit.

(NN) "Pervious surface" means a surface that infiltrates rainfall during a large portion of the design rainfall event. Well managed lawns, fields and woodlands are examples of pervious surfaces.

(OO) "Post-construction storm water discharge" means any storm water discharged from a site following the completion of land disturbing construction activity and final site stabilization.

(PP) "Post-development condition" means the extent and distribution of land cover types anticipated to occur under conditions of full development that will influence rainfall runoff and infiltration.

(QQ) "Pre-development condition" means the extent and distribution of land cover types present before the initiation of land development activity, assuming that all land uses prior to development activity are managed in an environmentally sound manner.

(RR) "Pre-treatment" means the treatment of storm water prior to its discharge to the primary storm water treatment practice in order to reduce pollutant loads to a level compatible with the capability of the primary practice.

(SS) "Residential development" means that which is created to house people, including the residential dwellings as well as all attendant portions of the development including lawns, driveways, sidewalks, garages, and access streets. This type of development includes single family, multi-family, apartment, and trailer parks.

(TT) "Set of 1 year design storms" means the following rain intensities and rain volumes or corresponding values specific to the community for the storm durations of 0.5, 1, 2, 3, 6, 12 and 24 hours that occur approximately once per year. (Note: the following are typical characteristics of these one-year storms for most of Wisconsin:

Storm Duration (Hours)	Average Rain Intensity (Inches/Hours)	Total Rain (Inches)
0.5	1.8	0.9
1	1.1	1.1
2	0.7	1.3
3	.5	1.5
6	0.3	1.7
12	0.2	2.0
24	0.1	2.31

(UU) "Site" means the entire area included in the legal description of the land on which the land disturbing or land development activity is proposed in the permit application.

(VV) "Site restriction" means any physical characteristic which limits the use of a storm water best management practice as prescribed in the Wisconsin Construction Site Best Management Practice Handbook.

(WW) "Stop work order" means an order issued by the office of the City Engineer which requires that all construction activity on the site be stopped.

(XX) "Storm water management plan" means a document that identifies what actions will be taken to reduce storm water quantity and pollutant loads from post land development activity to levels meeting the performance standards of Section 12 of this section.

(YY) "Storm water runoff" means that portion of the precipitation falling during a rainfall event that runs off the surface of the land and into the natural or artificial conveyance or drainage network.

(ZZ) "Structural measure" means source area practices, conveyance measures, and end-of-pipe treatment that are designed to control storm water runoff pollutant loads, discharge volumes, and peak flow discharge rates.

(AAA) "Surety Bond" means a guaranty provided by a bonding company to pay the City for loss due to the inability or refusal of the permit holder to perform to the conditions of the permit.

(BBB) "Runoff" means the rainfall, snowmelt, or irrigation water flowing over the ground surface.

(CCC) "Wetland functional value" means the type, quality, and significance of ecological and cultural benefits provided by wetland resources, such as: flood storage,water quality protection, groundwater recharge and discharge, shoreline protection, fish and wildlife habitat, floral diversity, aesthetics, recreation, and education.

(DDD) "WPDES Storm Water Permit" means a permit issued by the Wisconsin Department of Natural Resources under s. 147.021 Wis. Stats. that authorizes the point source discharge of storm water to waters of the State.

5. DESIGN CRITERIA, STANDARDS AND SPECIFICATIONS FOR CONTROL MEASURES

All control measures required to comply with this section shall meet the design criteria, standards and specifications for the control measures based on Wisconsin Best Management Practices Handbook accepted design criteria, standards and specifications identified by the City Engineer.

6. MAINTENANCE OF CONTROL MEASURES

All sedimentation basins and other control measures necessary to meet the requirements of this section shall be maintained by the applicant or subsequent landowner during the period of land disturbance and land development of the site in a satisfactory manner to ensure adequate performance and to prevent nuisance conditions.

7. CONTROL OF EROSION AND POLLUTANTS DURING LAND DISTURBANCE AND DEVELOPMENT

(A) APPLICABILITY. This section applies to the following sites of land development or land disturbing activities:

(i) Those requiring a subdivision plat approval or the construction of houses or commercial, industrial or institutional buildings on lots of approved subdivision plats.

(ii) Those requiring a certified survey approval or the construction of houses or commercial, industrial or institutional buildings on lots of approved certified surveys.

(iii) Those involving grading, removal of protective ground cover or vegetation, excavation, land filling or other land disturbing activity affecting A surface area of 4000 square feet or more;

(iv) Those involving excavation or filling or a combination of excavation and filling affecting 400 cubic yards or more of dirt, sand or other excavation or fill material;

(v) Those involving street, highway, road, or bridge construction, enlargement, relocation or reconstruction;

(vi) Those involving the laying, repairing, replacing or enlarging of an underground pipe or facility for a distance of 300 feet or more.

(B) EROSION AND OTHER POLLUTANT CONTROL REQUIREMENTS. The following requirements shall be met on all sites described in sub. (A).

(i) Site dewatering, Water pumped from the site that is not visually clear shall be treated by temporary sedimentation-basins, grit chambers, sand filters, up-flow chambers, hydro-cyclones, swirl concentrators, or other appropriate controls designed and used to remove particles of 100 microns or greater for the highest dewatering pumping rate. If the water is demonstrated to have no particles greater than 100 microns during dewatering operations, then no control is needed before discharge, except as determined by the City Engineer. Water may not be discharged in a manner that causes erosion of the site or receiving channels.

[Note: There are many ways to meet this particle size performance objective, depending on the pumping rate. As an example, if the pumping rate is very low (1 gal/min), then an inclined or vertical enlarged pipe (about 8" in diameter for 1 gal/min) several feet long would be an adequate control device to restrict the discharge of 100 micron, and larger, particles. As the pumping rate increases, then the "device" must be enlarged. At a moderate (100 gal/min) pumping rate, a vertical section of corrugated steel pipe, or concrete pipe section, or other small "tank" (about 4 1/2 feet across for a 100 gal/min pumping rate) several feet tall would be adequate. With these pipe sections or small tanks, inlet baffles would be needed to minimize turbulence. With very large pumping rates (10,000 gal/min), sediment basins (about 35 feet in diameter for a pumping rate of 10,000 gal/min) at least three feet in depth with a simple (but adequately sized) pipe outlet would be needed. More sophisticated control devices (such as swirl concentrators or hydro-cyclones) could be specially fabricated that would generally be smaller than the simple sedimentation devices described above, but they would not be required.

The performance standard of 100 micron maximum particles in the dewatering water at the maximum pumping rate significantly reduces the liability of the contractor when compared to a standard of "no visible particulate matter." If a properly sized device is correctly used, based on the 100 micron particle size performance standard, then discharges of visible particulate matter would not constitute a violation. It is not possible to design a control device that would ensure "no visible particulate matter" discharges. This 100 micron standard is intended to significantly reduce sedimentation problems in downstream drainage systems and in the receiving waters that are caused by large particles. "Visible particulate matter" will probably still occur in water meeting this standard, as most turbidity effects are caused by very small particles that usually do not cause as severe of a sedimentation problem as larger particles. This 100 micron particle size performance standard was, therefore, selected to be easily met and enforced and to reduce sedimentation problems. A "no visible particulate matter" standard in contrast could not be met easily or cheaply, violations would frequently occur, and inspectors would have to make frequent site visits and require frequent control device changes. In addition, particle size measurements would not be required to prove compliance with the 100 micron performance standard. Only the proper use of a device designed to meet this particle size criteria is needed. However, if a contractor or site engineer feels that the dewatering water does not contain any particles larger than 100 microns, no control device would be needed if optional frequent particle size analyses confirm that fact. In most cases, the use of the simple control devices described previously would be less expensive and less bothersome than performing frequent particle size analyses.]

(ii) Waste and material disposal. All waste and unused building materials (including garbage, debris, cleaning wastes, wastewater, toxic materials, or hazardous materials) shall be properly disposed and not allowed to be carried by runoff into a receiving channel or storm sewer system.

(iii) Tracking. Each site shall have graveled roads, access drives and parking areas of sufficient width and length to prevent sediment from being tracked onto public or private roadways. Any sediment reaching a public or private road shall be removed by street cleaning (not flushing) before the end of each workday.

(iv) Drain inlet protection. All storm drain inlets shall be protected with a straw bale, filter fabric, or equivalent barrier meeting accepted design criteria, standards and specifications.

(v) Site erosion control. The following criteria (1. through 5) apply only to land development or land disturbing activities that result in runoff leaving the site.

(1) Channelized runoff from adjacent areas passing through the site shall be diverted around disturbed areas, if practical. Otherwise, the channel shall be protected as described below in S.07(B)(v)(3)c. Sheetflow run-off from adjacent areas greater than 10,000 square feet in area shall also be diverted around disturbed areas, unless shown to have resultant runoff velocities of less than 0.5 ft/sec across the disturbed area for the set of one-year design storms. Diverted runoff shall be conveyed in a manner that will not erode the conveyance and receiving channels.

(Note: Soil Conservation Service guidelines for allowable velocities in different types of channels should be followed.)

(2) All activities on the site shall be conducted- in a logical sequence to minimize the area of bare soil exposed at any one time.

(3) Runoff from the entire disturbed area on the site shall be controlled by meeting either subpar. a. and b. or a. and c.

(a) All disturbed ground left inactive for 30 or more days shall be stabilized by seeding, sodding or by mulching or covering, or other equivalent control measure.

(b) For sites with more than 10 acres disturbed at one time, or if a channel originates in the disturbed area, one or more sedimentation basins shall be constructed. Each sedimentation basin shall have a surface area of at least 1 percent of the area draining to the basin and at least 3 feet of depth and constructed in accordance with accepted design specifications. Sediment shall be removed to maintain a depth of 3 feet. The basin shall be designed to trap sediment greater than 15 microns in size, based on the set of 1-year design storms having durations from 0.5 to 24 hours. The basin discharge rate shall also be sufficiently low as to not cause erosion along the discharge channel or the receiving water.

(c) For sites with less than 10 acres disturbed at one time, filter fences, straw bales, or equivalent control measures shall be placed along all sideslope and downslope sides of the site. If a channel or area of concentrated runoff passes through the site, filter fences shall be placed along the channel edges to reduce sediment reaching the channel.

(4) Any soil or dirt storage piles containing more than ten cubic yards of material should not be located with a downslope drainage length of less than 25 feet to a roadway or drainage channel. For stockpiles remaining for more than 30 days, they shall be stabilized by placing straw bales or filter fence barriers around the downstream side of the piles. Stockpiles greater than 1000 cubic yards shall also be stabilized by mulching, vegetative cover, tarps or other means.

(5) During in-street utility repairs, storm sewer inlets must be protected with straw bales or other appropriate filter barriers prior to the start of construction. Utility repair stockpiles, if exposed more than seven days, shall be covered with tarps or suitable alternative controls.

8. PERMIT APPLICATION, CONTROL PLAN, AND PERMIT ISSUANCE

No landowner or land user may commence a land disturbance or land development activity subject to this section without receiving prior approval of a control plan for the site and a permit from the City of Watertown. At least one landowner or land user controlling or using the site and desiring to undertake a land disturbing or land developing activity subject to this section shall submit an application for a permit, and a control plan and pay an application fee to City of Watertown. By submitting an application, the applicant is authorizing the City of Watertown to enter the site to obtain information required for the review of the control plan.

(A) CONTENT OF CONTROL PLAN STATEMENT FOR LAND DISTURBING ACTIVITIES COVERING LESS THAN ONE ACRE, BUT MEETING THE APPLICABILITY REQUIREMENTS STATED IN S. 14(A).

An erosion control plan statement (with simple map) shall be submitted to briefly describe the site and erosion controls (including the site development schedule) that will be used to meet the requirements of the section.

(B) CONTENT OF THE CONTROL PLAN FOR LAND DISTURBING ACTIVITIES COVERING MORE THAN ONE ACRE.

(i) Existing site map. A map of existing site conditions on a scale of at least 1 inch equals 100 feet showing the site and immediately adjacent areas:

(a) Site boundaries and adjacent lands which accurately identify site location;

(b) Lakes, streams, wetlands, channels, ditches and other water courses on and immediately adjacent to the site.

(c) 100-year flood plains, flood fringes and floodways.

(d) Location of the predominant soil types;

(e) Vegetative cover;

(f) Location and dimensions of stormwater drainage systems and natural drainage patterns on and immediately adjacent to the site;

(g) Locations and dimensions of utilities, structures, roads, highways, and paving; and

(h) Site topography at a contour interval not to exceed five feet.

(ii) Plan of final site conditions. A plan of final site conditions on the same scale as the existing site map showing the site changes.

(iii) Site construction plan. A site construction plan including:

(a) Locations and dimensions of all proposed land disturbing activities;

(b) Locations and dimensions of all temporary soil or dirt stockpiles;

(c) Locations and dimensions of all construction site management control measures necessary to meet the requirements of this section;

(d) Schedule of anticipated starting and completion date of each land disturbing or land developing activity including the installation of construction site control measures needed to meet the requirements of this section; and

(e) Provisions for maintenance of the construction site control measures during construction.

(C) REVIEW OF CONTROL PLAN. Within 10 business days of receipt of the application, control plan, (or control plan statement) and fee, the City Engineer shall review the application and control plan to determine if the requirements of this section are met. The City Engineer may request comments from other departments or agencies. If the requirements of this section are met, the City Engineer shall approve the plan, inform the applicant and issue a permit. If the conditions are not met, the City Engineer shall inform the applicant in writing and may either require needed information or disapprove the plan. Within 10 business days of receipt of needed information, the City Engineer shall again determine if the plan meets the requirements of this section. If the plan is disapproved, the City Engineer shall inform the applicant in writing of the reasons for the disapproval.

(D) PERMITS.

(i) Duration. Permits shall be valid for a period of 180 days, or the length of the building permit or other construction authorizations, whichever is longer, from the date of issuance. The City Engineer may extend the period one or more times for up to an additional 180 days. The City Engineer may require additional control measures as a condition of the extension if they are necessary to meet the requirements of this section.

(ii) Financial Guarantee. As a condition of approval and issuance of the permit, the City Engineer requires the applicant to deposit a surety bond or irrevocable letter of credit to guarantee a good faith execution o approved control plan and any permit conditions. See Section 16 for specific conditions.

(iii) Permit conditions. All permits shall require the permittee to:

(a) Notify the City Engineer within three business days of commencing any land disturbing activity.

(b) Notify the completion of any control measures within three business days after their installation.

(c) Obtain permission in writing from the City Engineer prior to modifying the control plan.

(d) Install all control measures as identified in the approved control plan;

(e) Maintain all road drainage systems, stormwater drainage systems, control measures and other facilities identified in the control plan.

(f) Repair any siltation or erosion damage to adjoining surfaces and drainageways resulting from land developing or disturbing activities;

(g) Inspect the construction control measures after each rain of 0.5 inches or more and at least once each week and make needed repairs;

(h) Allow the City Engineer to enter the site for the purpose of inspecting compliance with the control plan or for performing any work necessary to bring the site into compliance with the control plan; and

(i) Keep a copy of the control plan on the site.

9.INSPECTION

The City Engineer shall inspect construction sites at least once a month during the period starting March 1 and ending October 31 and at least 2 times during the period starting November 1 and ending February 28 to ensure compliance with the control plan.

If land disturbing or land development activities are being carried out without a permit, the City Engineer shall enter the land pursuant to the provisions of s. 66.122 and 66.123, Wis. Stats.

POST DEVELOPMENT STORM WATER RUNOFF

10. APPLICABILITY AND JURISDICTION

(A) APPLICABILITY. This section applies to land development activities which meet the applicability criteria specified in this section. The section also applies to land development activities that are smaller than the minimum applicability criteria if such activities are part of a larger common plan of development or sale that meets the following applicability criteria, even though multiple separate and distinct land development activities may take place at different times on different schedules.

(i) residential land development with a gross aggregate area of 5 acres or more;

(ii) residential land development with a gross aggregate area of at least 3 acres, but less than 5 acres, if there are at least 1.5 acres of impervious surfaces;

(iii) land development, other than a residential land development, with a gross aggregate area of 1.5 acres or more or any nonresidential land development which creates impervious area of 1.0 acres or more.

(iv) land development activities, regardless of size of the development, which in the opinion of the City Engineer is likely to result in storm water runoff which exceeds the safe capacity of the existing drainage facilities or receiving body of water, which causes undue channel erosion, which increases water pollution by scouring or the transportation of particulate matter or which endangers downs property or public safety.

(B) JURISDICTION. This section applies to land development and land disturbing activities within the boundaries of the City of Watertown, and that portion of the town of Emmet, Dodge County, Wisconsin, that is subject to the City's Plat Review Jurisdiction as set forth in Resolution Exhibit # 6152 and recorded on September 25, 1997, in Volume 937 on Page 86 as Document No.851436 in the Dodge County Office of the Register of Deeds.

(C) EXEMPTIONS. This section does not apply to the following activities:

(i) Land development activities conducted or contracted for by any state agency, as defined under s. 227.01(i) Wis. Stats., but also including the office of district attorney.

11. DESIGN CRITERIA, STANDARD AND SPECIFICATIONS

All best management practices required to comply with this section shall meet the design criteria, standards and specifications in the latest edition of the "Wisconsin Storm Water Manual" as published and amended from time-to-time by the State of Wisconsin Department of Natural Resources. Design criteria, standards and specifications for best management practices not contained in the 'Wisconsin Storm Water Manual" shall not be permitted unless approved by the City of Watertown.

Project Watertown Trial 1 By MLC Date 7

Location 560 Welsh Rd. Checked J Date

Circle one: (Present) Developed

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area ☒ acres ☐ mi² ☐ %	Product of CN x area
B	Meadow, Idle	58			2.72	158
	Totals =				2.72	158

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{158}{2.72} = 58$; Use CN = 58

2. Runoff

	Storm #1	Storm #2	Storm #3
Frequency ..... yr	2	10	100
Rainfall, P (24-hour) ..... in	3.0	4.0	6.0
Runoff, Q ..... in (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)	.33	.76	1.92

Unless prior authorization is given by the City Engineer, the following methods shall be used for making hydrologic calculations and for designing storm water management practices to meet the requirements of this section:

(A) All hydrologic and hydraulic design calculations required under this section shall be based on the principles of the document entitled "Urban Hydrology for Small Watersheds" (Technical Release 55) published by the Engineering Division, Soil Conservation Service, United States Department of Agriculture, June 1992, or other methods approved by the City of Watertown.

12. STORM WATER MANAGEMENT STANDARDS

(A) STORM WATER DISCHARGE QUANTITY. Unless otherwise provided for in this section, all land development activities subject to this section shall establish on-site management practices to control the peak flow rates of storm water discharged from the site. Infiltration of storm water runoff from driveways, sidewalks, rooftops, and landscaped areas shall be incorporated to the maximum extent practical, as defined by the City Engineer, to provide volume control in addition to control of peak flows.

On-site management practices shall be used to meet the following minimum performance standards:

(i) The peak flow rates of storm water runoff from the development shall not exceed those calculated for the series of design storms specified in S.12(A)(ii) occurring under development conditions specified in S.12(A)(iii). Discharge velocities must be non-erosive to discharge locations, outfall channels, and receiving streams. Safe overland conveyance must be provided for discharges from the development.

(ii) At a minimum, the 2-, 10-, and 100-year rainfall events shall be used in comparing peak flow discharge rates for predevelopment and post-development conditions.

(iii) Pre-development conditions for land developing activities shall assume a "good" level of land management. When the Soil Conservation Service TR-55 Method is used to calculate peak flow discharge rates and runoff volumes for the predevelopment condition, SCS curve numbers shall not exceed the following for the given soil hydrologic groups. When other methods for computing runoff are used, they shall assume a comparable pre-development condition.

Soil Hydrologic Group	A	B	C	D
SCS Curve Number for Meadow	30	58	71	78
SCS Curve Number for Woodland	v 30	55	70	77

(iv) Significant negative changes to wetland functional values due to increased or decreased storm water runoff volumes should be avoided to the extent practical as defined by the City Engineer. Where such changes are proposed, the impact of the proposal on wetland functional values shall be assessed using a methodology acceptable to the City Engineer. Significant degradation to wetland functional values shall be avoided.

(B) STORM WATER DISCHARGE QUALITY. Unless otherwise provided for in this section, all land development activities subject to this section shall establish on-site management practices to control the quality of storm water discharged from the site. On-site management practices shall be used to meet the following minimum standard:

(i) Storm water treatment practices shall be designed to trap, filter, or otherwise prevent the release of particulate materials that are 5 microns or larger in size for the design event specified in S. 12(B)(ii).

(ii) The 2-year, 24-hour rainfall event shall be used in designing storm water practices for purposes of reducing pollutant loadings and protecting physical stream habitat.

(iii) Discharge of urban storm water pollutants to natural wetlands which negatively change the wetland functional value should be avoided to the extent practical. Where such discharges are proposed, the impact of the proposal on wetland functional values shall be assessed using a method acceptable to the City of Watertown. Significant degradation to wetland functional values shall be avoid.

(iv) Storm water discharges shall be pre-treated prior to infiltration to prolong the life of the infiltration practice and to prevent discharge of storm water pollutants at concentrations that will result in exceedances of groundwater preventive action limits or enforcement standards established by the Department of Natural Resources in NR 140 Wisconsin Administrative Code.

(v) Storm water ponds and infiltration devices shall not be located closer to water supply wells than indicated below without first notifying the City Engineer:

(a) 100 feet from a well serving a private water system or a transient, noncommunity public water system;

(b) 1,200 feet from a well serving a municipal public water system, a non-municipal public water system, or a non-transient non-community public water system;

(c) the boundary of a recharge area to a wellhead identified in a wellhead area protection plan.

(C) EXCEPTIONS. The requirements for on-site storm water management practices established in Sections S. 12(A,B) are not applicable in areas which are determined by the City Engineer to be covered by an approved storm water management plan which was developed and approved as an alternative storm water management planning approach to carrying out on-site measures consistent with the purpose and intent of this section. In such cases the recommendations of the approved storm water management plan shall be applied either through the installation of storm water management provisions recommended to be included on the development site being considered and/or through the payment of a fee as set for in Section 12(D). These minimum requirements ma also be waived in whole or in part by the City Engineer upon. written request of the applicant, provided that at least one of the following conditions applies:

(i) Provisions are made to manage storm water by an off-site facility. This requires that the off-site facility is in place, is designed and adequately sized to provide a level of storm water control that is equal to or greater than that which would be afforded by application of the standards of this section.

(ii) The City Engineer finds that meeting the minimum on-site management requirements is infeasible due to space or site restrictions.

(D) FEE IN LIEU OF ON-SITE STORM WATER MANAGEMENT PRACTICES. Where the City Engineer waives all or part of the minimum on-site storm water management requirements under S. 12(c)(ii), or where the waiver is based on the provision of adequate storm water facilities provided by the City of Watertown downstream of the proposed development, the applicant, if applicable, may be required to pay a fee in an amount determined in negotiation with the City Engineer. In setting the fee for land development projects, the City Engineer shall consider an equitable distribution of the cost of land, engineering design, construction, and maintenance.

(E) GENERAL CONSIDERATIONS FOR ON-SITE AND OFF-SITE STORM WATER MANAGEMENT MEASURES. The following considerations shall be observed in managing storm water runoff.

(i) Natural topography and land cover features such as natural swales, natural stream channels, flood plain, natural depressions, native soil infiltrating capacity, and natural groundwater recharge areas shall be preserved and used, to the extent possible, to meet the requirements of this section.

(ii) Emergency overland flow for all storm water facilities shall be considered to prevent exceeding the safe capacity of downstream drainage facilities and prevent endangerment of due property or public safety.

13. PERMITTING REQUIREMENTS AND PROCEDURES

(A) PERMIT REQUIRED. No land owner or land operator may undertake a land development activity subject to this section without receiving a permit from the City Engineer prior to commencing the proposed activity.

(B) PERMIT APPLICATION AND FEE. Unless specifically excluded by this section, any land owner or operator desiring a permit shall submit to the City Engineer a permit application made on a form provided by the City Engineer for that purpose.

(i) Unless otherwise excepted by this section, a permit application must be accompanied by the following in order that the permit application be considered by the City Engineer: a storm water management plan; a maintenance agreement; and a non-refundable permit administration fee.

(ii) The storm water management plan shall be prepared to meet the requirements of S.14 of this section, the maintenance agreement shall be prepared to meet the requirements of S. 15 of this section, and fees shall be those established by the City of Watertown as set forth in S. 17 of this section.

(C) REVIEW AND APPROVAL OF PERMIT APPLICATION. The City Engineer shall review . any permit application that is submitted with a storm water management plan, maintenance agreement, and the required fee. The following approval procedure shall be used:

(i) Within 10 business days of the receipt of a complete permit application, including all documents as required by s. 13(B)(i), the City Engineer shall inform the applicant in writing whether the application, plan and maintenance agreement are approved or disapproved. The City Engineer shall base the decision on requirements set forth in s. 12, s. 13, and s. 14 of this section.

(ii) If the storm water permit application; plan; and maintenance agreement are approved, the City Engineer shall issue the permit.

(iii) If the storm water permit application; plan; or maintenance agreement are disapproved, the City of Watertown shall detail in writing of the reasons for disapproval.

(iv) If additional information is submitted, the City Engineer shall have 10 business days from the date the additional information is received to inform the applicant that the plan and maintenance agreement are either approved or disapproved.

(v) Failure by the City Engineer to inform the permit applicant of a decision within 15 business days of a required submittal shall be deemed to mean approval of the submittal and the applicant may proceed as if a permit had been issued.

(D) PERMIT CONDITIONS. All permits issued under this section shall be subject to the following conditions, and holders of permits issued under this section shall be deemed to have accepted these conditions. The City Engineer may suspend or revoke a permit for violation of a permit condition, following written notification of the permittee. An action by the City Engineer to suspend or revoke this permit may be appealed in accordance with S. 19 of this section.

(i) Compliance with this permit does not relieve the permit holder of the responsibility to comply with other applicable federal, state, and local laws and regulations.

(ii) The permit holder shall design, install, and maintain all structural and nonstructural storm water management measures in accordance with the approved storm water management plan, maintenance agreement, and this permit.

(iii) The permit holder shall notify the City Engineer at least three (3) business days before commencing any work in conjunction with the storm water management plan, and within three (3) business days upon completion of the storm water management practices. If required as a special condition, the permit holder shall make additional notification according to a schedule set forth by the City Engineer so that practice installations can be inspected during construction.

(iv) Completed storm water management practices must pass a final inspection to determine if they are in accordance with the approved storm water management plan and ordinance. The administering authority shall notify the permit holder in writing of any changes required in such practices to bring them into compliance with the conditions of this permit. The practice installation required as part of this section shall be certified as built by a licensed professional engineer.

(v) The permit holder shall notify the City Engineer prior to any modifications he or she intends to make to an approved storm water management plan. The City Engineer may require that the proposed modifications be submitted for approval prior to incorporation into the storm water management plan and execution.

(vi) The permit holder shall maintain all storm water management practices specified in the approved storm water management plan until the practices either become the responsibility of the City of Watertown, or are transferred to subsequent private owners as specified in the approved maintenance agreement.

(vii) The permit holder authorizes the City Engineer to perform any work or operations necessary to bring storm water management measures into conformance with the approved storm water management plan, and to charging such costs against the performance bond posted for the project.

(viii) The permit holder shall provide a five-year guarantee on all facilities installed as part of the storm water plan.

(ix) If so directed by the City Engineer, the permit holder shall repair, at the permit holder's own expense, all damage to municipal facilities and drainageways caused by storm water runoff, where such damage is caused by activities that are not in compliance with the approved storm water management plan.

(x) The permit holder shall permit property access to the City Engineer for the purpose of inspecting the property for compliance with the approved storm water management plan and this permit.

(xi) Where a storm water management plan involves changes in direction, increases in peak rate and/or total volume of runoff off of a site, the City Engineer may require the permittee to make appropriate legal arrangements with adjacent property owners concerning the prevention of endangerment to downstream property or public safety.

(xii) The permit holder is subject to the enforceable actions detailed in S. 18 of the storm water management section if the permit holders fails to comply with the terms of this permit.

(E) PERMIT DURATION. Permits issued under this section shall be valid from the date of issuance through the date the City Engineer provides written notice to the permit holder that all storm water management practices have passed the final inspection required under Permit Condition S 13(D)(iv).

14. STORM WATER MANAGEMENT PLANS

(A) PLAN REQUIREMENTS. The storm water management plan required under this section shall contain any such information the City Engineer may need to evaluate the environmental characteristics of the area affected by land development activity, the potential impacts of the proposed development upon the quality and quantity of storm water discharges, the potential impacts upon water resources and drainage utilities, and the effectiveness and acceptability of proposed storm water management measures in meeting the performance standards set forth in this section. Unless specified otherwise by this section, storm water management plans shall contain, at a minimum, the following information.

(i) Name, address, and telephone number for the following or their designees: landowner; developer; project engineer for practice design and certification; person(s) responsible for installation of storm water management practices;
person(s) responsible for maintenance of storm water management practices prior to the transfer, if any, of maintenance responsibility to another party.

(ii) A proper legal description of the property proposed to be developed referenced to the U.S. Public land Survey system or to block and lot numbers within a recorded land subdivision plat.

(iii) Pre-development site conditions, including:

(a) One or more site maps at a scale of not less than 1 inch equals 50 feet. The site maps shall show the following: site location and legal property description; predominant soil types and hydrologic soil groups; existing cover type and condition; topographic contours of the site at a scale not to exceed two foot contour interval; topography and drainage network including enough of the contiguous properties to show runoff patterns onto, through, and from the site; watercourses that may affect or be affected by runoff from the site; flow path and direction for all storm water conveyance sections, including time of travel and time of concentration applicable to each; watershed boundaries used in determinations of peak flow discharge rates and discharge volumes from the site; lakes, streams, wetlands, channels, ditches, and other watercourses on and immediately adjacent to the site; limits of the 100 year flood plain; location of wells located within 1,200 feet of storm water detention ponds, infiltration basins, or infiltration trenches; delineation of wellhead protection areas delineated pursuant to NR 811.16 Wis. Admin. Code

(b) Computations of the peak flow discharge rates and discharge volumes from each discharge point in the development. At a minimum, computations must be made for the following storms: 2-, 10-, and 100year. All major assumptions used in developing input parameters shall be clearly stated. The areas used in making the calculations shall be clearly cross-referenced to the required map(s).

(iv) Post-development site conditions, including:

(a) Explanation of the provisions to preserve and use natural topography and land cover features to minimize changes in peak flow runoff rates and volumes to surface waters and natural wetlands.

(b) Explanation of any restrictions on storm water management measures in the development area imposed by wetland protection plans and ordinances.

(c) One or more site maps at a scale of not less than 1 inch equals 50 feetshowing: revised pervious land use including vegetative cover type and condition; impervious land use including all buildings, structures, and paver revised topographic contours of the site at a scale not to exceed two feet; revised drainage network including enough of the contiguous properties to show runoff patterns onto, through, and from the site; locations and dimensions of drainage easements; locations of maintenance easements specified in the maintenance agreement; flow path and direction for all storm water conveyance sections, including time of travel and time of concentration applicable to each; location and type of all storm water management conveyance and treatment practices, including the on-site and off-site tributary drainage area; location and type of conveyance system that will carry runoff from the drainage and treatment practices to the nearest adequate outlet such as a curbed street, storm drain, or natural drainage way; watershed boundaries used in determinations of peak flow discharge rates and discharge volumes; any changes to lakes, streams, wetlands, channels, ditches, and other watercourses on and immediately adjacent to the site.

(d) Computations of the peak flow discharge rates and discharge volumes from each discharge point in the development including analysis of the safe capacity of downstream drainage conveyance systems. At a minimum, computations must be made for the following storms: 2-, 10-, and 100-year. All major assumptions used in developing input parameters. shall be clearly stated. The areas used in making the. calculations shall be clearly cross-referenced to the required map(S)-

(e) Detailed investigations of soils and groundwater required for the placement and design of storm water management measures.

(f) Results of impact assessments on wetland functional values.

(g) Design computations and all applicable assumptions for storm water conveyance (open channel, closed pipe) and storm water treatment practices (sedimentation type, filtrations, infiltration-type) as needed to show that practices are appropriately sized and capable of meeting the discharge performance standards of this section.

(h) Detailed drawings including cross-sections and profiles of all permanent storm water conveyance treatment practices.

(v) A storm water plan construction schedule.

(vi) A maintenance plan developed for the life of each storm water management practice including the required maintenance activities and maintenance activity schedule.

(vii) Cost estimates for the construction, operation, and maintenance of each storm water management practice.

(viii) Other information as needed by the City Engineer to determine compliance of the proposed storm water management measures with the provisions of this section.

(B) EXCEPTIONS. The City Engineer may prescribe alternative submittal requirements for applicants seeking an exemption to on-site storm water management performance standards under S.12(c) of this section.

15. MAINTENANCE

(A) MAINTENANCE AGREEMENT REQUIRED. The maintenance agreement required for storm water management practices under S. 14 of this section shall be an agreement between the City Engineer and the permittee. The agreement or recordable document shall be recorded with the County Register of Deeds so that it is binding upon all subsequent owners of land served by the storm water management practices.

(B) AGREEMENT PROVISIONS. The maintenance agreement shall contain the following provisions:

(i) Identification of the landowner(s), organization or municipality responsible for maintenance of the storm water management practices.

(ii) The landowner(s), organization or municipality shall maintain storm water management practices in accordance with the storm water practice maintenance provisions contained in the approved stormwater management plan submitted under S. 14 of this section.

(iii) The City Engineer is authorized to access the property to conduct inspections of storm water practices as necessary to ascertain that the practices are being maintained and operated in accordance with the approved storm water management plan.

(iv) A schedule for regular maintenance of each aspect of the property's storm water management system.

(v) That if the City Engineer notifies the party designated under the maintenance agreement of maintenance problems which require correction, the specified corrective actions shall be taken within a reasonable time frame as set by the City Engineer.

(vi) The City Engineer is authorized to perform the corrected actions identified in the inspection report if the landowner does not make the required corrections in the specified time period. The City Engineer shall assess the landowner for the cost of such work and shall place a lien on the property which may be collected as ordinary taxes by the City of Watertown.

(vii) Identification of the storm water facilities, design components and designation of the drainage area served by the facilities.

16. FINANCIAL GUARANTEE

The City Engineer may require the submittal of a financial guarantee, the form and type of which shall be acceptable to the City Engineer. The financial guarantee shall be in an amount determined by the City Engineer to be the estimated cost of construction and the estimated cost of maintenance during the period which the designated party in the maintenance agreement has maintenance responsibility. The financial guarantee shall give the City Engineer the authorization to use the funds to complete the project if the landowner defaults or does not properly implement the approved storm water management plan.

Conditions for the release of the financial guarantee are as follows:

(A) The financial guarantee shall be released in full or part as the components of the approved storm water management plan are completed and the practice installation has been certified as built by a licensed professional engineer.

(B) The financial guarantee minus any costs incurred by the City of Watertown to conduct required maintenance, shall be released at such time that the responsibility for practice maintenance is passed on to another private entity, via an approved maintenance agreement, or to the City of Watertown.

17. FEE SCHEDULE

The fees referred to in other sections of this section shall be established by the Common Council and may from time to time be modified by resolution. A schedule of the fees shall be available for review in the office of the City Engineer and Clerk.

18. ENFORCEMENT AND PENALTIES

A. Any land development activity initiated after the effective date of this section by any person, firm, association, or corporation subject to the ordinance provisions shall be deemed a violation unless conducted in accordance with said provisions.

B. The City Engineer shall notify the responsible owner or operator by certified mail of any non-complying land development activity. The notice shall describe the nature of the violation, remedial actions needed, a schedule for remedial action, and additional enforcement action which may be taken.

C. Upon receipt of written notification from the City Engineer, the permit holder shall correct work which does not comply with the storm water management plan or other provisions of this permit. The permit holder shall make corrections as necessary to meet the specifications and schedule set forth by the City Engineer in the notice.

D. If the violations to this section are likely to result in damage to adjacent properties, the City Engineer may enter the land and take emergency actions necessary to prevent damage to adjacent properties. The costs incurred by the City Engineer plus interest and legal costs shall be billed to the owner of title of the property.

E. The City Engineer is authorized to post a stop work order on all land development activity in violation of this section, or to request the City attorney to obtain a cease and desist order from a court of competent jurisdiction.

F. The City Engineer may revoke a permit issued under this section for non-compliance with ordinance provisions.

G. Any permit revocation or stop work order shall remain in effect unless retracted in writing by the City Engineer.

H. Any cease and desist order shall remain in effect unless retracted by a court of competent jurisdicti

I. The City Engineer is authorized to refer any violation of this section, or of a stop work order or cease and desist order issued pursuant to this section, to the City Attorney for the commencement of further legal proceedings.

J. Any person, firm, association, or corporation issued a written notice under s. 18(B) who does not comply with the provisions of this section shall be subject to a court ordered forfeiture of not less than 100 dollars nor more than 100 dollars per offense, together with the costs of prosecution. Each day that the violation exists shall constitute a separate offense.

K. Every violation of this section is a public nuisance. Compliance with this section may be enforced by injunctional order at the suit of the City of Watertown pursuant to s. 62.23(8) Wis. Stats. It shall not be necessary to prosecute for forfeiture before resorting to injunctional proceedings.

L. When the City Engineer determines that the holder of a permit issued pursuant to this section has failed to follow practices set forth in the Storm Water Management Plan submitted and approved pursuant to S.08 of this section, or has failed to comply with schedules set forth in said Storm Water Management Plan, and has received a written notice under s. 18(B), the City Engineer or a party designated by the City Engineer may enter upon the land and perform the work or other operations necessary to bring the condition of said lands into conformance with requirements of the approved plan. The City Engineer shall keep a detailed accounting of the costs and expenses of performing this work. These costs and expenses shall be deducted from any performance or maintenance bond posted pursuant to s. 16 of this section. Where such a bond has not been established, or where such a bond is insufficient to cover these costs, the costs and expenses shall be entered on the tax roll as a special charge against the property and collected with any other taxes levied thereon for the year in which the work is completed.

19. APPEALS

A. ADMINISTRATIVE APPEALS BOARD. The Administrative Appeals Board created under Chapter 24 of the City of Watertown zoning ordinance pursuant to s. 62.23(7)(e) Wis. Stats, shall hear and decide appeals where it is alleged that there is error in any order, decision or determination made by the City Engineer in administering this section. The Board shall also use the rules, procedures. duties, and powers authorized by statute in hearing and deciding appeals.

Upon appeal, the Board may authorize variances to the stormwater management plan and from the provisions of this section which are not contrary to the public, interest and the intent of this section, and where owing to special conditions a literal enforcement of the ordinance will result in unnecessary hardship.

(i) WHO MAY APPEAL. Appeals to the Board of Administrative Appeals may be taken by any aggrieved person or by an officer, department, board, or bureau of the City of Watertown affected by any decision of the City Engineer.

20. SEVERABILITY

If any section, clause, provision or portion of this section is judged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the ordinance shall remain in force and not be affected by such judgment.

21.EFFECTIVE DATE

This section shall be in force and effect from and after its adoption and publication.