

## Chapter III

# AGRICULTURAL, NATURAL, AND CULTURAL RESOURCES

The conservation and wise use of the natural resources of an area are fundamental to achieving sound development and to providing a pleasant and habitable environment. This planning effort recognizes that the natural resources of the Village of Wales are limited. Future development needs to be properly adjusted to avoid serious environmental problems and to maintain resources for the future. A sound evaluation and analysis of the natural resource base is, therefore, particularly important to planning for the physical development of an area.

This chapter presents an inventory and analysis of the natural and cultural resource base of the Village of Wales study area. Included is descriptive information regarding soils, topography, scenic overlooks, water resources, vegetation, wildlife habitat, natural areas, park and open space sites, and cultural resources. Natural environmentally sensitive resources such as hydric soils, lakes, streams, floodplains, wetlands, woodlands, steep slopes, and wildlife habitat generally occur in elongated areas of the landscape and are interdependent. The wise use and preservation of one resource is critical to the continued existence of the others. Areas of concentrated natural resources have been delineated by the SEWRPC and are known as environmental corridors. The environmental corridors encompass those areas in which concentrations of recreational, aesthetic, ecological, and cultural resources occur.

The large number of potentially significant historic buildings, especially in the Historic Village Center, indicates that the Village is rich in historic resources. Seventy-three other historic places in the study area were identified in one or more surveys as potentially significant pending further research, including 21 potential sites within the Village of Wales.

### SOILS

Soil properties exert a strong influence on the manner in which people use land, since they affect the costs and feasibility of building site development and provision of public facilities. In the case of productive agricultural lands and potential mineral extraction areas, soils are a valuable and irreplaceable resource. A need exists, therefore, in any planning effort to examine not only how land and soils are presently used, but also how they can best be used and managed for future use.

A soil survey of the Southeastern Wisconsin Region was completed in 1965 by the U.S. Department of Agriculture, Soil Conservation Service,<sup>1</sup> under contract to the Regional Planning Commission. The results of the survey are set forth in SEWRPC Planning Report No. 8, *Soils of Southeastern Wisconsin*, June 1966; and in five

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<sup>1</sup>The U.S. Soil Conservation Service was renamed the U.S. Natural Resources Conservation Service in 1996.

county reports subsequently published by the Soil Conservation Service. Soil survey information for the Village of Wales study area is included in the *Soils Survey of Waukesha County*, published in June 1971. The soil survey data are definitive with respect to physical, chemical, and biological properties. The survey also includes interpretations of the soil properties for planning, engineering, agricultural, and resource conservation purposes.

#### **Soil Suitability for Development Using Onsite Sewage-Disposal Systems**

As shown in Map III-1 and Table III-1, approximately 5.7 square miles (about 23%) of the study area, or 0.37 square miles (about 11.6%) of the Village of Wales, is covered by soils unsuitable for the use of conventional onsite sewage-disposal systems, i.e., septic tanks with underground disposal fields. These soils have low permeability rates, high or fluctuating water tables, high shrink-swell ratios, and may be located on steep slopes and be subject to flooding and surface ponding. The suitability of an additional approximately 7.8 square miles, (about 31 %) of the study area, or 0.65 square miles (about 20.4%) of the Village of Wales, cannot be determined without detailed site inspections. Such inspections would probably reveal additional lands that have underlying soils unsuitable for the use of absorption fields for septic tank effluent. As indicated in Table III-1, only approximately 10.9 square miles, (about 43 %) of the study area, or 2.1 square miles (about 66.0%) of the Village of Wales, can be generally identified on the basis of the soil surveys as suitable for septic tank systems.

The data in Table III-1 and a comparison between Maps III-1 and III-2 show that the development of the mound sewage-disposal system and other alternative systems may significantly increase the amount of area which may be able to accommodate development served by onsite sewage-disposal systems. It should be recognized that Maps III-1 and III-2 are intended to illustrate the overall pattern of soil suitability for onsite sewage-disposal systems. Detailed site investigations based on the requirements of Chapter Comm. 83 and Comm. 85 of the *Wisconsin Administrative Code* are necessary to determine if the soils on a specific parcel of land are suitable for development proposed to be served by either type of onsite system. In general, areas covered by soils that are unsuitable for both conventional and mound sewage-disposal systems should not be considered for urban development unless public sanitary sewers are provided.

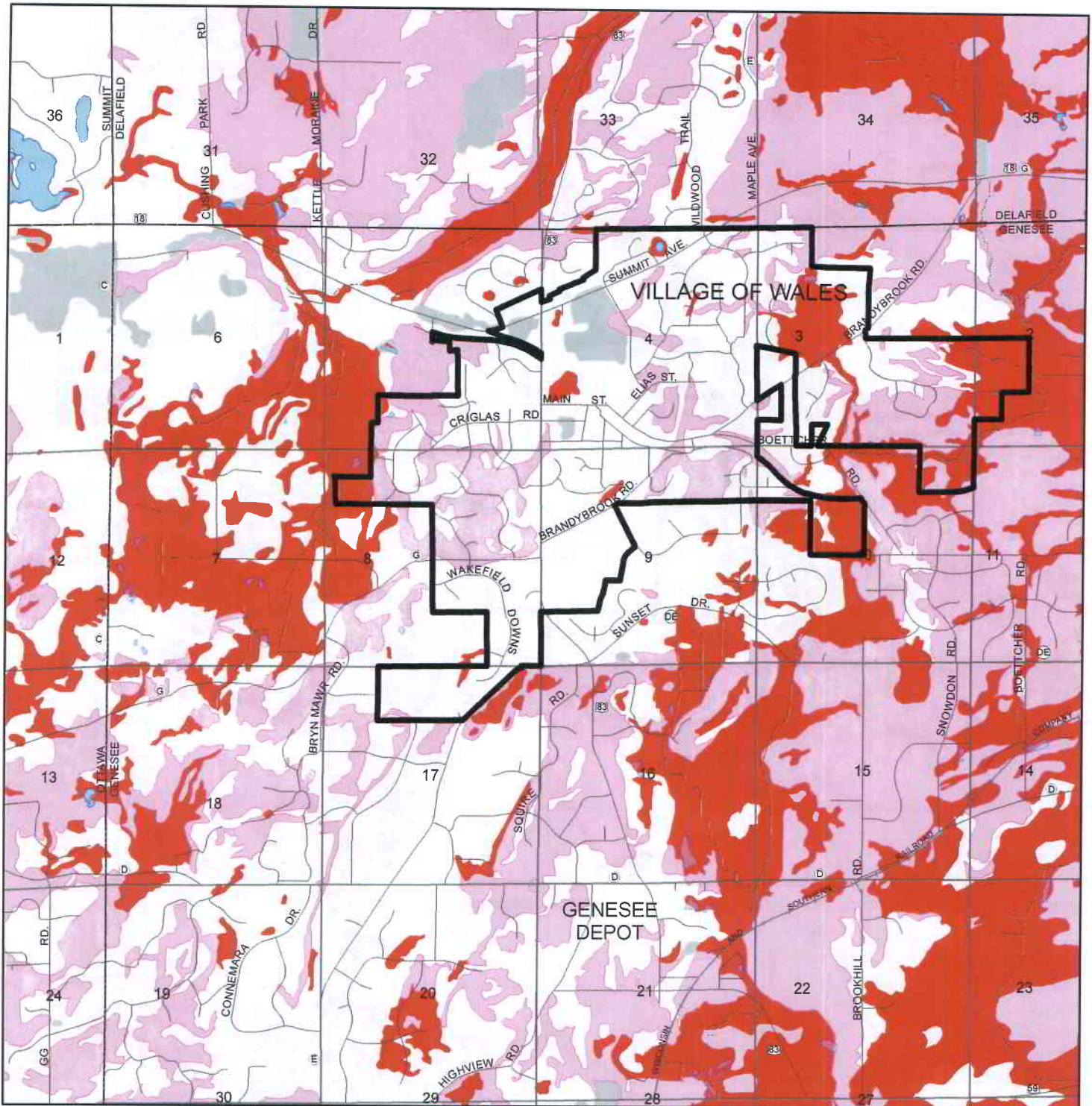
#### **Soil Suitability for Residential Development Using Public Sanitary Sewer Service**

Map III-3 and Table III-1 indicate that about 7.9 square miles, (about 31%) of the study area, or 0.81 square miles (about 25.5%) of the Village of Wales, are covered by soils that would have severe limitations for residential development, if served by public sanitary sewer facilities. Such areas may also be considered poorly suited for residential development of any kind. The severe limitations are due to such soil properties as high or fluctuating water tables, slow permeability rates, erodability on slopes, low bearing capacity, high shrink-swell potential, and frost heave potential. These soils are found throughout the study area, but primarily in steeply sloped areas and in association with rivers, streams, flood lands, wetlands, and other low-lying areas. The development of these areas for residential use would likely require particularly careful planning and above average design and management to overcome the limitations; such developments may be expected to be more costly and difficult than developments in areas with more suitable soils. Soils shown on Map III-3 as having slight or moderate limitations for such developments encompass approximately 16.5 square miles, (about 66%) of the study area, or 2.31 square miles (about 72.6%) of the Village of Wales. The remaining soils encompassing about 0.7 square miles (about 3%) of the study area are covered by mostly surface water or are soils that have not been classified.



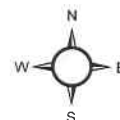
# MAP III-1

## SOIL SUITABILITY FOR CONVENTIONAL ONSITE SEWAGE DISPOSAL SYSTEMS IN THE VILLAGE OF WALES STUDY AREA



### LEGEND

- UNSUITABLE: HIGH PROBABILITY OF NOT MEETING CH. COMM 83 CRITERIA
- UNDETERMINED: NO CLASSIFICATION CAN BE ASSIGNED
- OTHER: DISTURBED LAND/NO INTERPRETIVE DATA AVAILABLE
- Village Boundary
- Other Municipal Boundaries
- Surface Water



0 2,300 4,600 Feet

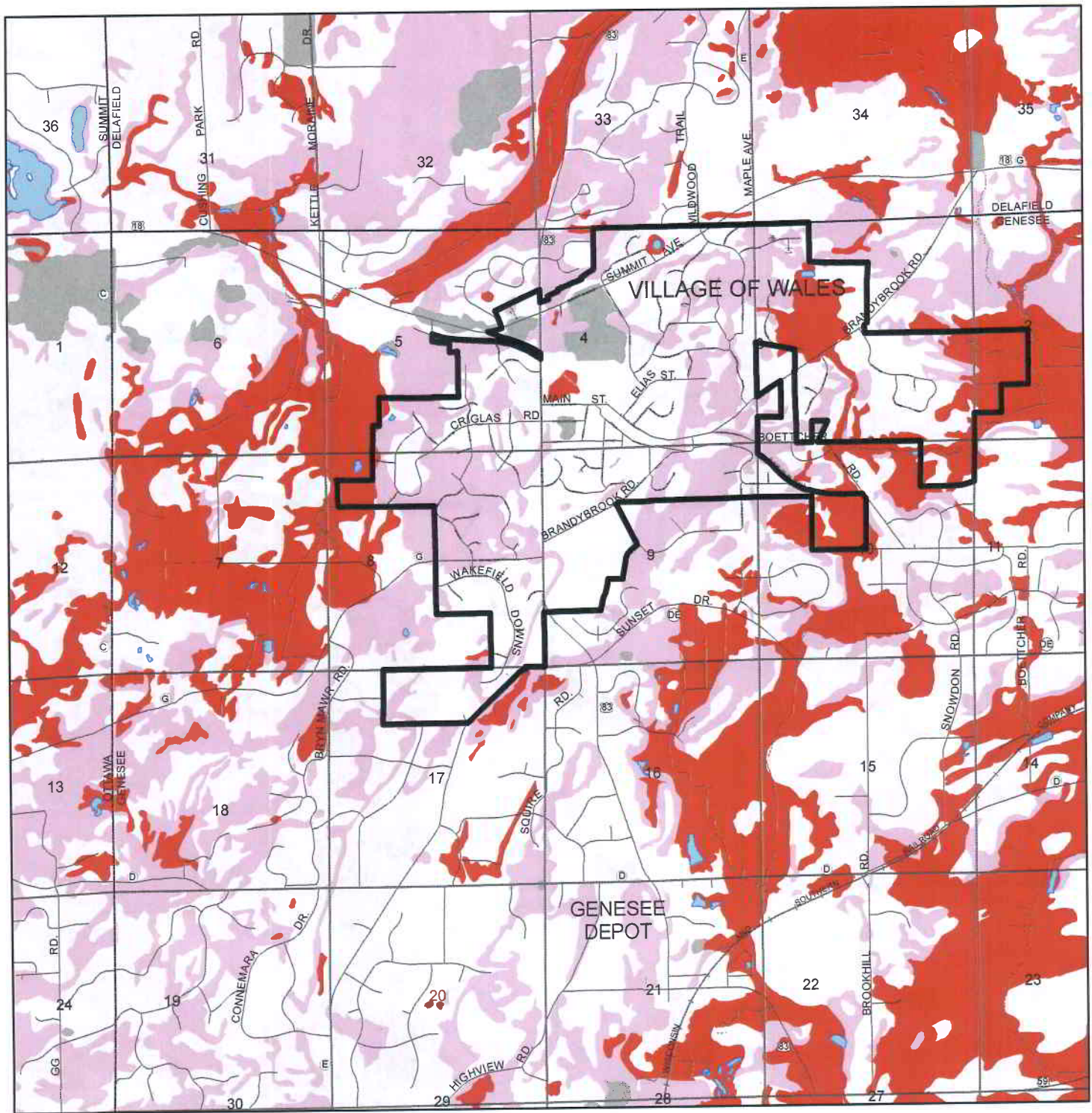


SOURCE: SEWRPC, Ws. Dept. of Commerce, NRCS



## MAP III-2

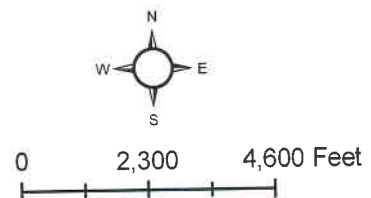
### SOIL SUITABILITY FOR MOUND SEWAGE DISPOSAL SYSTEMS IN THE VILLAGE OF WALES STUDY AREA



#### LEGEND

- UNSUITABLE: HIGH PROBABILITY OF NOT MEETING CH. COMM 83 CRITERIA
- UNDETERMINED: NO CLASSIFICATION CAN BE ASSIGNED
- OTHER: DISTURBED LAND/NO INTERPRETIVE DATA AVAILABLE
- Village Boundary
- Other Municipal Boundaries
- Surface Water

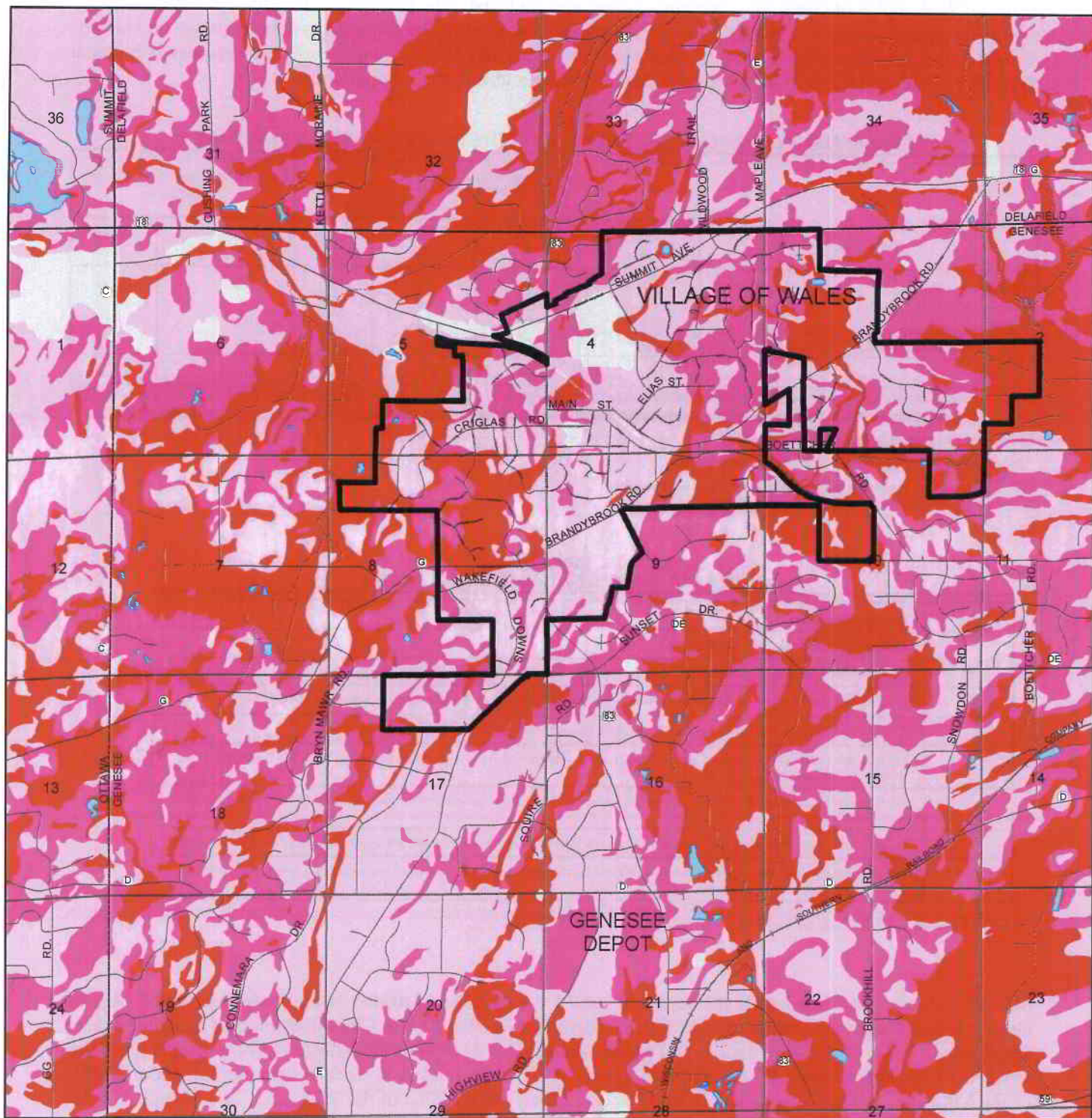
SOURCE: SEWRPC, Ws. Dept. of Commerce, NRCS









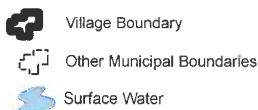
### MAP III-3

## SOIL SUITABILITY FOR RESIDENTIAL DEVELOPMENT IF SERVED BY PUBLIC SANITARY SEWER IN THE VILLAGE OF WALES STUDY AREA

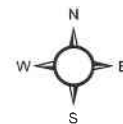


### LEGEND

-  SEVERE LIMITATIONS FOR RESIDENTIAL DEVELOPMENT  
 MODERATE LIMITATIONS FOR RESIDENTIAL DEVELOPMENT  
 SLIGHT LIMITATIONS FOR RESIDENTIAL DEVELOPMENT  
 NO INTERPRETIVE DATA AVAILABLE



SOURCE: SEWRPC, NRCS



0                      2,300                      4,600 Feet





## Village of Wales Comprehensive Development Plan

### Soil Suitability for Agriculture

Much of the outlying area in the Village of Wales study area is covered by soils that are well suited for the production of crops. Such farmland has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when properly treated and managed. Soil suitability for agricultural use within the study area, based on the U.S. Natural Resources Conservation Service classification system, is shown on Map III-4. Table III-2 provides a description of each soil class. Generally, Class I and II soils are considered National Prime Farmland, and Class III soils are considered Farmlands of Statewide Importance.

**Table III-1**  
**SOIL SUITABILITY FOR SELECTED LAND USES IN THE VILLAGE OF WALES STUDY AREA**

Classification	Onsite Sewage-Disposal Systems				Residential Development if Served by Public Sanitary Sewer	
	Conventional Systems		Mound Systems			
	Square Miles	Percent of Total	Square Miles	Percent of Total	Square Miles	Percent of Total
Unsuitable .....	5.7	22.7	5.2	20.7	7.9 <sup>a</sup>	31.5
Undetermined .....	7.8	31.1	5.7	22.7	--	--
Suitable .....	10.9	43.4	13.5	53.8	16.5 <sup>b</sup>	65.7
Other <sup>c</sup> .....	0.7	2.8	0.7	2.8	0.7	2.8
Total	25.1	100.0	25.1	100.0	25.1	100.0

NOTE: Soil suitability determinations for onsite sewage disposal systems are based on the requirements of Chapter Comm 83 of the Wisconsin Administrative Code in effect prior to July 2003. Onsite investigations are essential to the determination of whether a specific tract of land is suitable for an onsite sewage disposal system under current Comm 83 requirements.

<sup>a</sup> Includes soils having severe limitations for such development.

<sup>b</sup> Includes soils having slight or moderate limitations for such development.

<sup>c</sup> Includes surface water and disturbed areas for which no soil survey data are available.

Source: U.S. Natural Resources Conservation Service and SEWRPC.

**Table III-2**  
**AGRICULTURAL SOIL CAPABILITY CLASSES**

Class	Qualitative Description
I	Soils have few limitations that restrict their use.
II	Soils have some limitations that reduce the choice of plants or require moderate conservation practices.
III	Soils have moderate or severe limitations that reduce the choice of plants, require special conservation practices, or both.
IV	Soils have very severe limitations that restrict the choice of plants, require careful management, or both.
V	Soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife food and cover.
VI	Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, range, woodland, or wildlife food and cover.
VII	Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.
VIII	Soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or to aesthetic purposes.

Source: U.S. Natural Resources Conservation Service and SEWRPC.

Map III-4 shows that Class I soils encompass about 0.1 square mile, or (0.4%) of the study area, or 0.03 square miles (about 0.9%) of the Village of Wales. Areas identified on Map III-4 as Class II encompass about 8.2 square miles, (about 33%) of the study area, or 1.0 square miles (about 31.4%) of the Village of Wales. Areas identified as Class III encompass about 4.7 square miles, (about 19%) of the study area, or 0.79 square miles (about 24.8%) of the Village of Wales. As a result, about 13 square miles, (about 52%) of the study area, or 1.82 square miles (about 57.2%) of the Village of Wales, are covered by Class I, II, or III soils.

## TOPOGRAPHIC FEATURES

The topography or relative elevation of the land surface within the Village of Wales study area has been determined by the configuration of the bedrock geology and by the overlying glacial deposits. The topography of the study area, shown in 10-foot interval contours, is depicted on Map III-5. Surface elevations range from a low of about 810 feet above mean sea level in the eastern part of the study area by Genesee Creek and Brandy Brook, to a high of more than 1,110 and 1,230 feet above mean sea level, respectively, in the southwest and north central parts. In general, the topography of the study area is level to rolling hills, with the low-lying areas associated with a lake, stream valleys, or wetland areas.

### Slopes

Slope is an important determinant of land uses practicable on a given parcel of land. Lands with steep slopes are generally poorly suited for urban development as well as for most agricultural purposes and therefore should be maintained in natural cover for erosion control. Lands with less severe slopes may be suitable for certain agricultural uses, such as pasture, and for certain urban uses, such as carefully designed low density residential areas. Lands which are gently sloping or nearly level are best suited to agricultural production and to medium and high-density residential, industrial, or commercial uses. It should also be noted that slope is directly related to water runoff and erosion hazards, and therefore the type and extent of both urban and rural land uses should be carefully adjusted to the slope of the land. In general, slopes of 12 percent or more should be considered unsuitable for urban development and most types of agricultural land uses and therefore should be maintained in essentially natural, open uses. Urban development, if allowed on such slopes, would require careful planning and above average site-specific design and management. As shown on Map III-6, areas having a slope of 12 percent or greater encompass about 5.6 square miles, (about 22%) of the study area, or 1.72 square miles (about 54.1%) of the Village of Wales and are found throughout the study area.

### Scenic Overlooks

Scenic overlooks are defined as areas that provide a panoramic or picturesque view. There are two important components of a scenic overlook: the picturesque view, which usually consists of a diversity of natural or cultural features; and the vantage point or overlook from which the scene and its features are observed. In identifying the scenic overlooks in the Wales area, three basic criteria were applied:

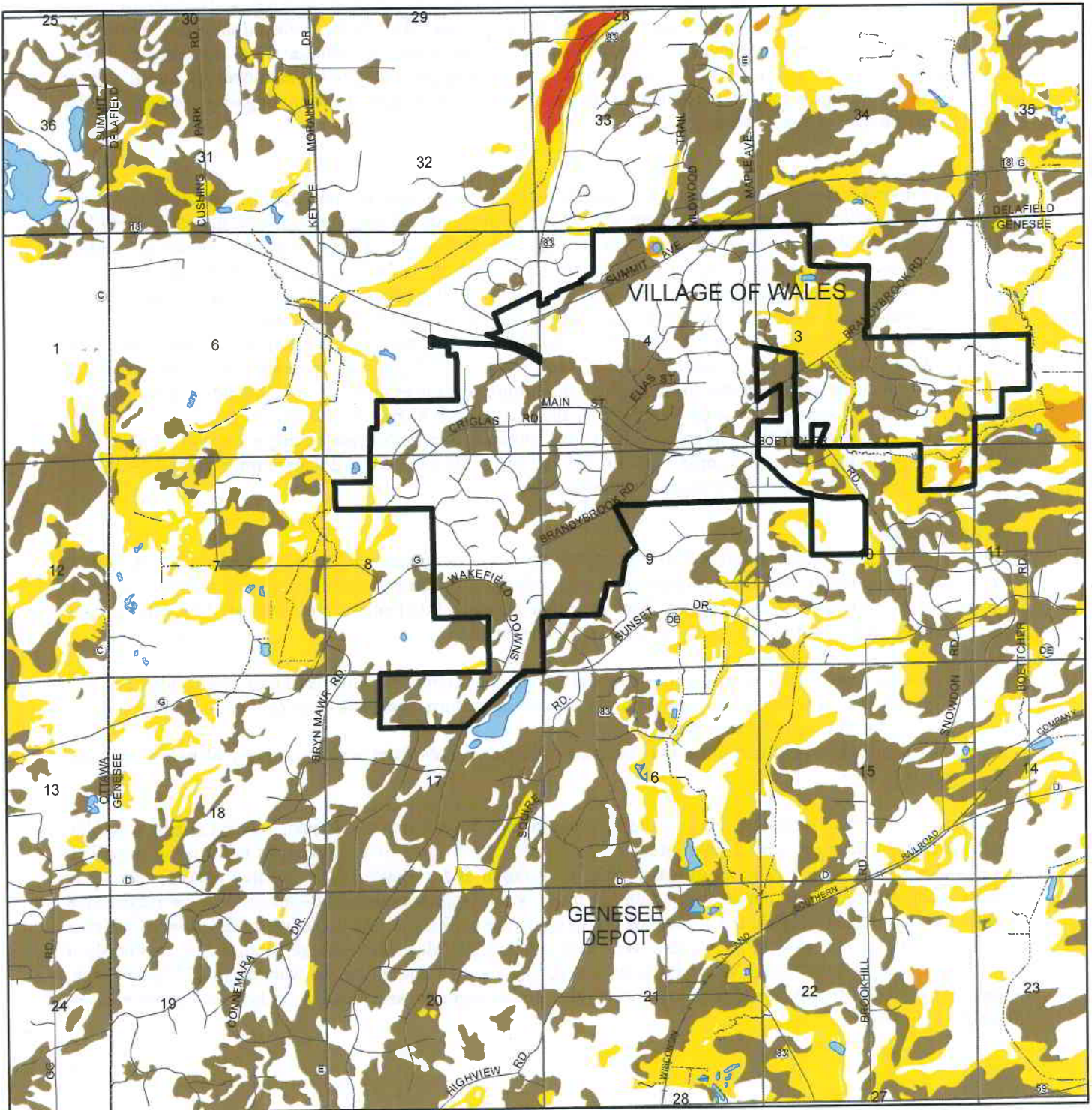
- 1) The view should provide a variety of features that exist harmoniously in a natural or rural landscape.
- 2) There should be a dominant or particularly interesting feature, such as a river or lake, which serves as a focal point of the picturesque view.
- 3) The overlook should permit an unobstructed observation area from which a variety of natural features can be seen.

An inventory of scenic overlooks meeting the aforementioned criteria was conducted. Using the best available topographic maps, all areas with a relief greater than 30 feet and a slope of 12 percent or more were identified. Areas of steep slope with a ridge of at least 200 feet in length and a view of at least three features, including surface water, wetlands, woodlands, or agricultural lands within approximately one-half mile of the ridge, were identified as scenic overlooks. In the Village of Wales study area, 40 scenic overlooks were identified of which 7 were in the Village of Wales. Most of these were long, continuous ridge lines and are located west and north of the Village in the general Kettle Moraine interlobate geological area and along the waterways of Wales Creek, Scuppernong Creek, Brandy Brook, and Genesee Creek. The topography and location of the scenic overlooks are shown on Map III-5.











## MAP III-4

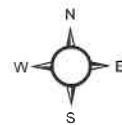
# AGRICULTURAL SOIL CAPABILITY IN THE VILLAGE OF WALES STUDY AREA



### LEGEND

-  Prime Farmland (CLASS I & II)
-  Soils of Statewide Importance (CLASS III)
-  Prime Farmland If Drained
-  Prime Farmland If Drained and Not Subject to Flooding
-  Prime Farmland if Not Subject to Flooding
-  Village Boundary
-  Other Municipal Boundaries
-  Surface Water

SOURCE: NRCS, SEWRPC



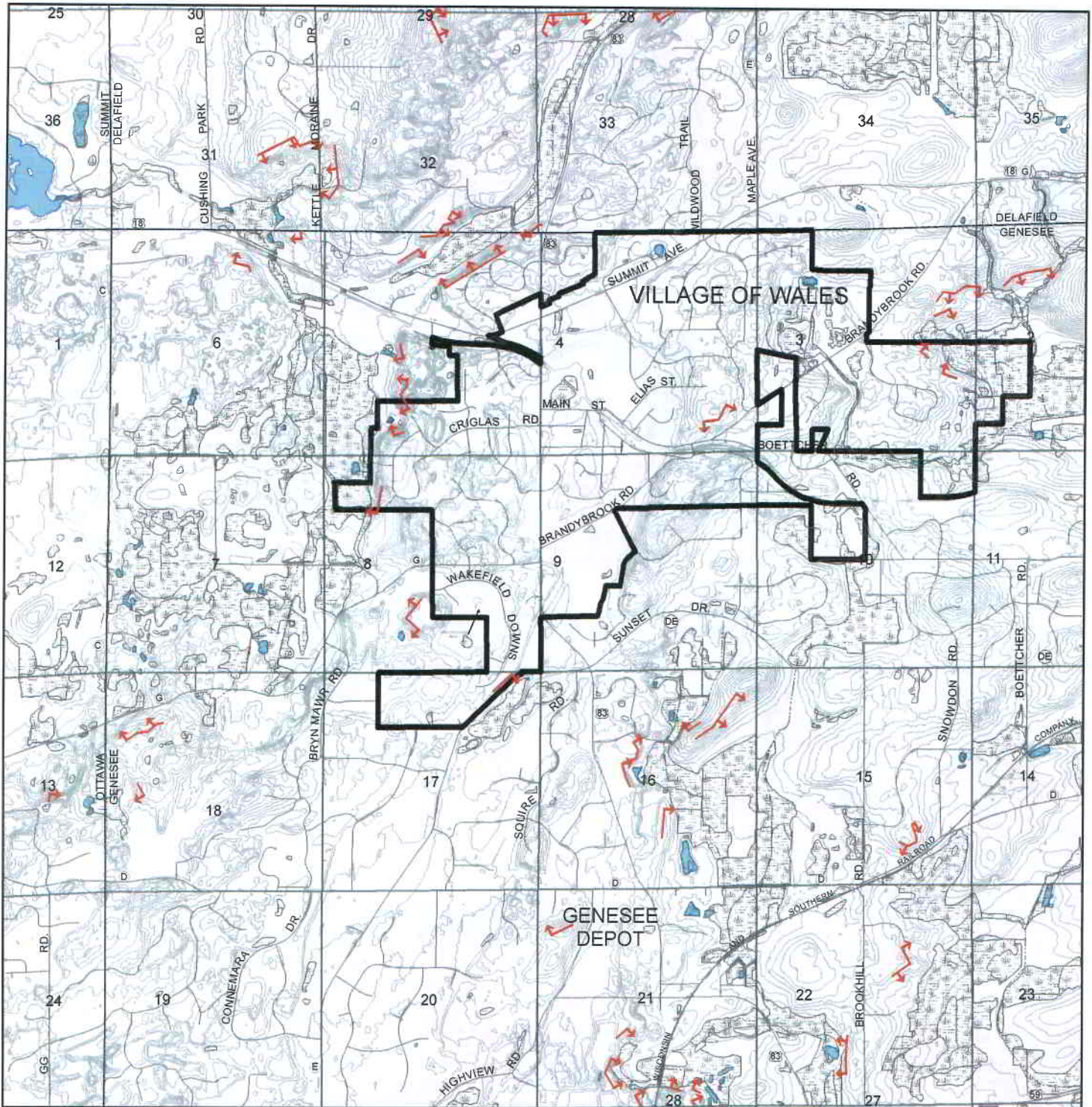
0 2,300 4,600 Feet





## MAP III-5

# TOPOGRAPHY AND SCENIC OVERLOOKS IN THE VILLAGE OF WALES STUDY AREA



### LEGEND

#### WATERSHEDS

CONTOUR INTERVAL LINES - 10 FEET



WETLANDS



SCENIC OVERLOOKS



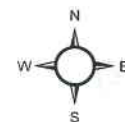
VILLAGE BOUNDARY



OTHER MUNICIPAL BOUNDARIES



SURFACE WATER



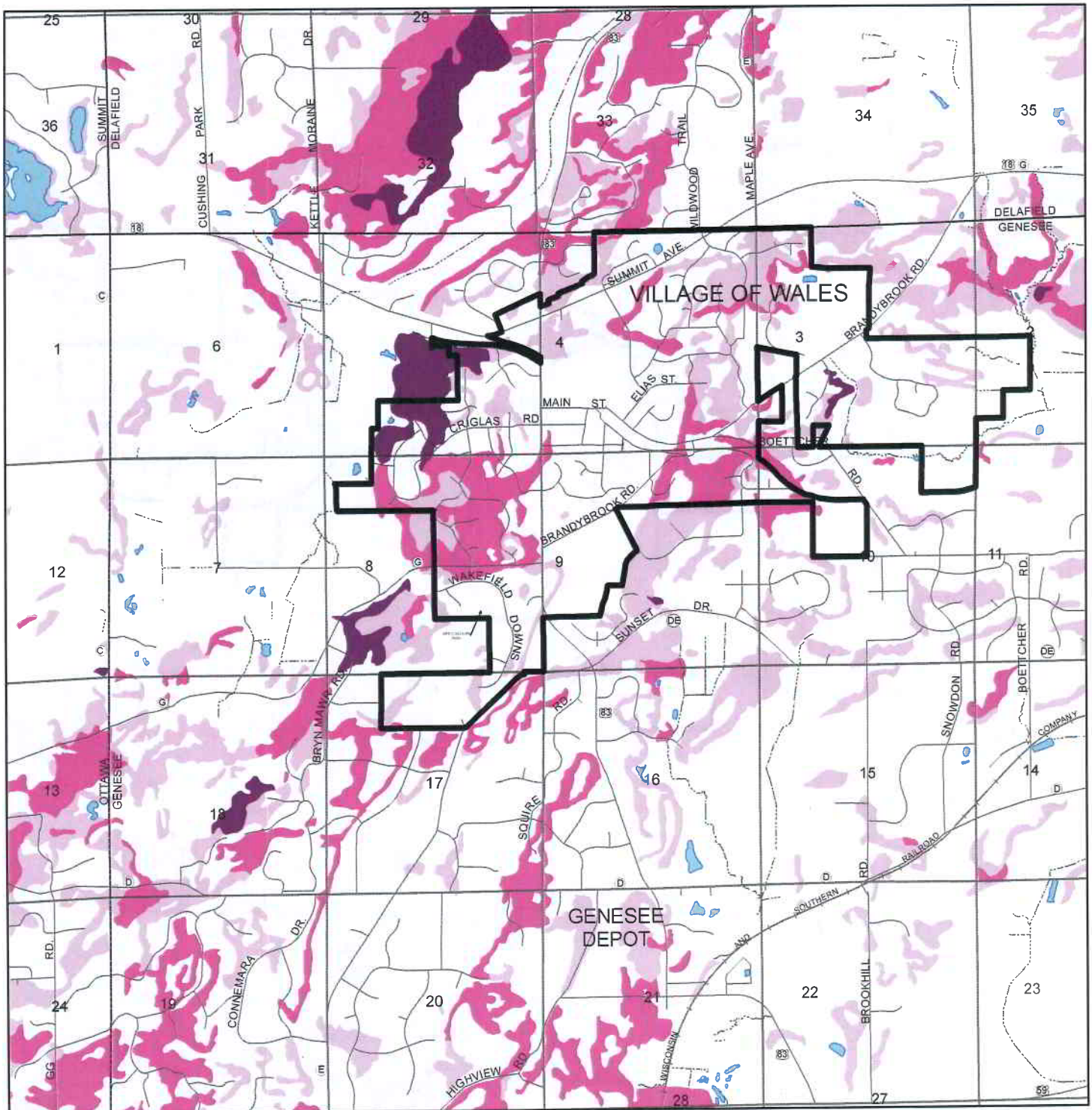
SOURCE: SEWRPC/DNR 2005 WETLAND INVENTORY

0 1,200 2,400 4,800 Feet



## MAP III-6

### SLOPE ANALYSIS FOR THE VILLAGE OF WALES STUDY AREA



#### LEGEND

##### WATERSHEDS

- 12-20% SLOPES
- 20-30% SLOPES
- 30-45% SLOPES



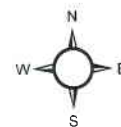
Village Boundary



Other Municipal Boundaries



Surface Water



0 2,300 4,600 Feet

SOURCE: NRCS, SEWRPC





## **WATER RESOURCES**

Surface water resources, such as lakes and streams and their associated floodplains, form a particularly important element of the natural resource base of the Village of Wales study area. The contribution of these resources, including groundwater, is immeasurable to the economic development, recreational activity, and aesthetic quality of the Wales area.

### **Watersheds, Sub-watersheds, and Sub-basins**

The study area lies within two watersheds, the Rock River and Fox River watersheds, which are part of the larger Mississippi River drainage system. As shown on Map III-7, these watersheds can be divided into sub-watersheds in which the Rock River watershed includes the Bark River and Scuppernong Creek sub-watersheds and the Fox River watershed includes the Jericho Creek, Genesee Creek, Pebble Creek, and Pewaukee Lake sub-watersheds.

The Village of Wales is located in both watershed areas and mostly within the Scuppernong Creek, Jericho Creek, Genesee Creek, and Pebble Creek sub-watersheds. For storm water management planning purposes, all of the sub-watersheds may be further subdivided into individual drainage areas, termed sub-basins, also shown on Map II-7.

### **Surface Water**

Surface water resources, consisting of streams, rivers, lakes, and associated floodplains, form important elements of the natural resource base. Lakes and rivers constitute a focal point for water-related recreational activities, provide an attractive setting for properly planned residential development, and when viewed in the context of the total landscape, greatly enhance the aesthetic quality of the environment. Lakes and rivers are, however, readily susceptible to degradation through improper land use development and management. Water quality can be degraded by excessive pollutant loads, including nutrient loads, from malfunctioning and improperly located onsite sewage-disposal systems; sanitary sewer overflows; urban runoff, including runoff from construction sites; and careless agricultural practices. The water quality of lakes and rivers may also be adversely affected by the excessive development of riverine areas and the inappropriate filling of peripheral wetlands, which remove valuable nutrient and sediment traps while adding to nutrient and sediment sources. The surface water resources in the Village of Wales study area are shown on Map III-8.

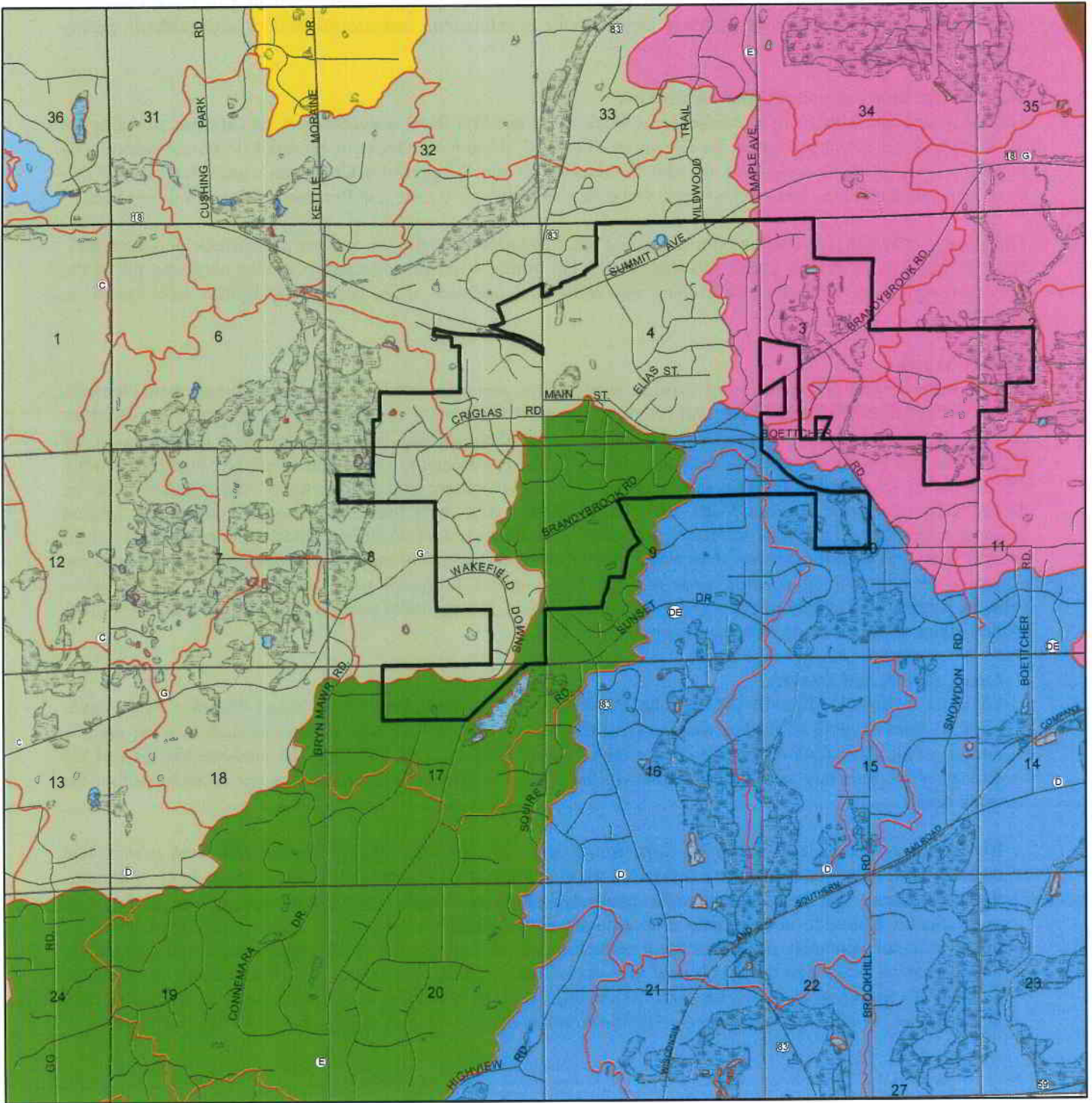
### ***Lakes, Rivers, and Streams***

Lakes have been classified by the Regional Planning Commission as being either major or minor. Major lakes have 50 acres or more of surface water area, and minor lakes have less than 50 acres of surface water area. A portion of an approximately 68-acre major lake, Waterville Lake, lies within the far northwestern part of the Village of Wales study area and none exist in the Village of Wales. No classified minor lakes lie within the study area.

Rivers and streams that are classified as perennial or intermittent also exist within the study area as indicated on Map III-8. Perennial streams are defined as watercourses which maintain, at a minimum, a small continuous flow throughout the year except under unusual drought conditions. Intermittent streams are defined as watercourses which do not maintain a continuous flow throughout the year. A total of approximately 20.3 linear miles of perennial and intermittent watercourses exist within the study area, including Wales Creek, Scuppernong Creek, Brandy Brook, and Genesee Creek. Of this total, about 12.3 lineal miles, or about 61 percent, are perennial watercourses, and the remaining 8.0 lineal miles, or about 39 percent, are intermittent watercourses. A total of approximately 1.85 linear miles of watercourses exist within the Village of Wales.

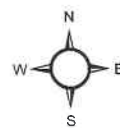
## MAP III-7

### WATERSHED FEATURES IN THE VILLAGE OF WALES STUDY AREA



#### LEGEND

- |                                 |                                      |                            |
|---------------------------------|--------------------------------------|----------------------------|
| Bark River (ROCK RIVER BASIN)   | Pewaukee Lake (FOX RIVER BASIN)      | Village Boundary           |
| Genesee Creek (FOX RIVER BASIN) | Scuppermong Creek (ROCK RIVER BASIN) | Other Municipal Boundaries |
| Jericho Creek (FOX RIVER BASIN) | Sub-Watershed Boundaries             | Surface Water              |
| Pebble Creek (FOX RIVER BASIN)  | Wetlands                             |                            |



0 2,300 4,600 Feet

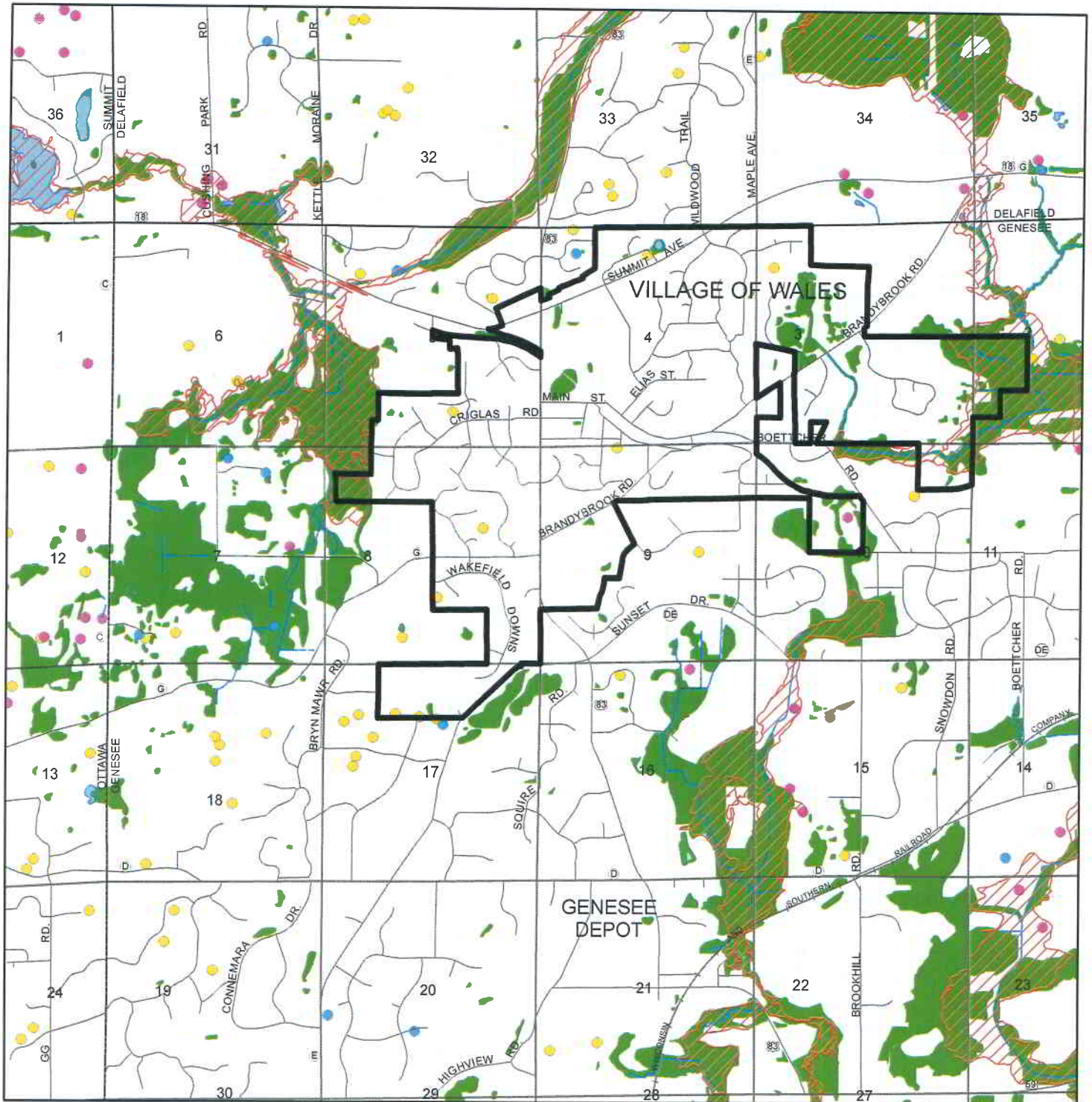


SOURCE: SEWRPC, Updated by YCA, 2008



# MAP III-8

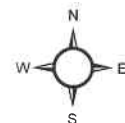
## WETLANDS, SURFACE WATERS, AND FLOODPLAINS IN THE VILLAGE OF WALES STUDY AREA



### LEGEND

- 100-YEAR FLOODPLAIN
- WETLANDS (2005 Wisconsin Wetland Inventory)
- SURFACE WATER

- Wetlands <0.25 acre
- Drained Wetlands
- Ponds
- Wetlands
- Village Boundary
- Other Municipal Boundaries



0 2,300 4,600 Feet



SOURCE: SEWRPC, FEMA, WDNR

### ***Floodplains***

The floodplain of a river or stream includes the wide, gently sloping areas contiguous to, and usually lying on both sides of, the river or stream channel and the channel itself. For planning and regulatory purposes, floodplains are normally defined as the areas subject to inundation by the 100-year recurrence interval flood event. This is the flood event that has a 1 percent chance of occurring in any given year. Floodplain areas are generally not well suited to urban development, not only because of the flood hazard, but also because of the presence of high water tables and, generally, of soils poorly suited to urban uses. The floodplain areas, however, generally contain important elements of the natural resource base such as high-value woodlands, wetlands, and wildlife habitat and, therefore, constitute prime locations for needed park and open space areas. Every effort should be made to discourage indiscriminate and incompatible urban development on floodplains, while encouraging compatible park and open space uses. Map III-8 shows the general location and extent of areas lying within the 100-year recurrence interval flood hazard area, or floodplain, in the study area for those areas in which floodplain studies have been conducted.<sup>2</sup> About 2.3 square miles, or about 9 percent, of the study area are known to be located within the 100-year recurrence interval floodplain.

### **Groundwater Resources**

An adequate supply of high-quality groundwater is essential if used for domestic consumption. Like surface water, groundwater is susceptible to depletion and deterioration. The available quantity of groundwater can be reduced by the loss of recharge areas, excessive or overly concentrated pumping, and changes in ground cover. In addition, groundwater quality is subject to degradation from onsite sewage-disposal systems, surface water pollution, improper agricultural practices, and inadvertent spills or leakage of pollutants at or below the land surface. An understanding of the relationship between groundwater resources and proper master planning is, therefore, important to prevent future development from adversely affecting the availability and quality of groundwater.

Groundwater within the Wales area is available from two main water-bearing geologic units. The upper unit includes shallow limestone, referred to as the Niagara or dolomite aquifer, and overlying glacial deposits, referred to as the sand and gravel aquifer. These two interconnected aquifers are often called collectively the “shallow aquifer.” Separated from the shallow aquifer by a relatively impervious barrier, the Maquoketa shale formation is a deeper sandstone aquifer commonly referred to as the “deep aquifer”.

Water table levels within the shallow aquifer vary seasonally and with topography. Properly constructed wells can obtain adequate yields of groundwater from the shallow aquifer in most portions of the study area. The deep sandstone aquifer can yield large quantities of groundwater suitable for private and municipal water supply purposes. Adequate yields of groundwater from the overlying sand and gravel aquifer are available in the Wales area. The Kettle Moraine High School, The Legend at Brandybrook and the Wales Community Park use the deep aquifer through high-capacity wells as discussed in Chapter IV.

### **Groundwater Use**

In 2002, the Southeastern Wisconsin Regional Planning Commission (SEWRPC) published Technical Report 37 entitled, Groundwater Resources of Southeastern Wisconsin. The Report provided baseline information regarding groundwater availability and use in southeastern Wisconsin.

The importance of groundwater as a source of water supply in Waukesha County and Southeastern Wisconsin can be shown by analyzing water-use data. According to estimates by the U.S. Geological Survey, water users in the Southeastern Wisconsin Region used about 324 million gallons per day (mgd) of water from surface and groundwater sources in 2000, not including water used for thermoelectric-power production (see Table III-3).

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<sup>2</sup>*Since no floodplain studies have been conducted for the Village of Wales, no floodplains were delineated for the Village even though there appears to be floodplain in the Village based on information for surrounding areas.*



## Village of Wales Comprehensive Development Plan

From this amount, 228 mgd, or about 70 percent, was withdrawn from surface water sources, primarily Lake Michigan; and 96 mgd, or about 30 percent, from groundwater (see Table III-4). In Waukesha County, nearly all of the water supply has historically been obtained from the groundwater system. Groundwater use and total water use in Waukesha County have risen steadily since 1985, increasing by about 36 percent over the period 1985 to 2000.

**Table III-3**  
**ESTIMATED USE OF WATER WITHIN THE COUNTIES LOCATED WITHIN OR PARTIALLY WITHIN THE**  
**REGIONAL WATER QUALITY MANAGEMENT PLAN UPDATE STUDY AREA: 2000 (IN MILLION GALLONS PER DAY)**

County	Domestic	Agricultural	Irrigation	Industrial	Commercial	Public Use and Losses	Total
Kenosha.....	7.02	0.18	0.25	4.44	2.95	3.89	18.73 <sup>a</sup>
Milwaukee.....	54.06	0.01	0.81	57.92	33.14	43.60	189.54 <sup>b</sup>
Ozaukee.....	4.11	0.32	0.51	1.88	1.08	1.42	9.32 <sup>c</sup>
Racine.....	13.00	1.80	2.16	10.82	5.22	6.87	39.87
Walworth.....	5.13	2.16	0.66	3.20	1.67	2.20	15.02
Washington.....	5.64	0.62	0.31	2.55	1.84	2.42	13.38 <sup>d</sup>
Waukesha.....	14.12	0.27	2.68	9.10	5.07	6.67	37.91
<b>Total</b>	<b>103.08</b>	<b>5.36</b>	<b>7.38</b>	<b>89.91</b>	<b>50.97</b>	<b>67.07</b>	<b>323.77</b>
<b>Percent of Total</b>	<b>31.80</b>	<b>1.70</b>	<b>2.30</b>	<b>27.80</b>	<b>15.70</b>	<b>20.70</b>	<b>100.00</b>

<sup>a</sup> Does not include 15.2 mgd of thermo-electric use.

<sup>b</sup> Does not include 1,867.6 mgd of thermo-electric use.

<sup>c</sup> Does not include 118.8 mgd of thermo-electric use.

<sup>d</sup> Does not include 12.4 mgd of thermo-electric use.

Source: B.R. Ellefson, G.D. Muehle, and C.A. Buchwald. U.S. Geological Survey, "Water Use in Wisconsin, 2000."

**Table III-4**  
**TRENDS IN REPORTED WATER USE IN**  
**SOUTHEASTERN WISCONSIN: 1979-2000 (IN MILLION GALLONS PER DAY)**

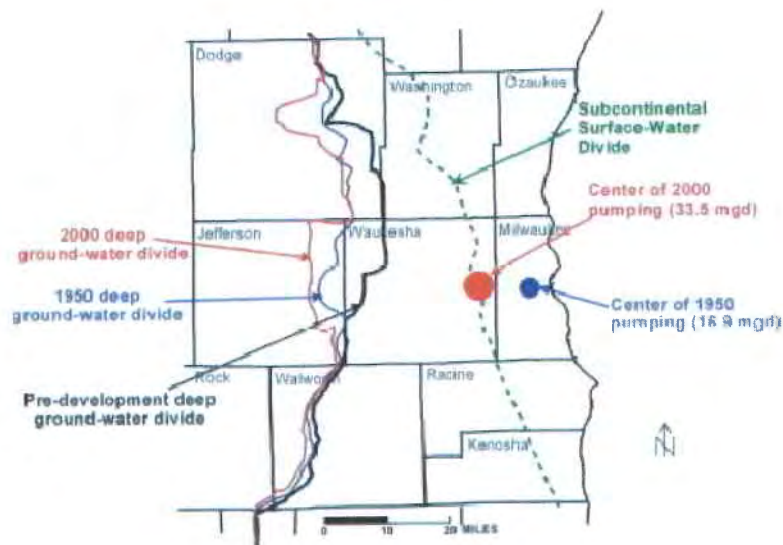
County Name	1979			1985			1990			2000		
	SW	GW	Total	SW	GW	Total	SW	GW	Total	SW	GW	Total
Kenosha .....	17.81	3.42	21.23	17.87	2.54	20.41	20.41	2.56	22.97	16.04	2.69	18.73
Milwaukee ....	172.47	10.18	182.65	213.26	9.91	223.17	184.96	6.17	191.13	183.22	6.32	189.54
Ozaukee .....	1.19	6.66	7.85	1.15	6.33	7.48	1.43	6.66	8.09	1.52	7.80	9.32
Racine .....	22.55	7.69	30.24	22.55	7.28	29.83	29.32	8.85	38.17	26.24	13.63	39.87
Walworth .....	0.14	9.89	10.03	1.16	9.14	10.30	0.08	16.07	16.15	0.07	14.95	15.02
Washington ...	0.15	10.11	10.26	0.06	9.37	9.43	0.08	9.76	9.84	0.08	13.30	13.38
<b>Waukesha ....</b>	<b>0.02</b>	<b>33.37</b>	<b>33.39</b>	<b>0.12</b>	<b>27.84</b>	<b>27.96</b>	<b>0.04</b>	<b>30.78</b>	<b>30.82</b>	<b>0.35</b>	<b>37.56</b>	<b>37.91</b>
<b>Total</b>	<b>214.33</b>	<b>81.32</b>	<b>295.65</b>	<b>256.17</b>	<b>72.41</b>	<b>328.58</b>	<b>236.32</b>	<b>80.85</b>	<b>317.17</b>	<b>227.52</b>	<b>96.25</b>	<b>323.77</b>
<b>Percent of Total</b>	<b>72.5</b>	<b>27.5</b>	<b>100.0</b>	<b>78.0</b>	<b>22.0</b>	<b>100.0</b>	<b>74.5</b>	<b>25.5</b>	<b>100.0</b>	<b>70.3</b>	<b>29.7</b>	<b>100.0</b>

NOTE: The trends are based on currently available data, but the sources of information and accuracy of data may vary from one reporting period to another. The USGS obtains most of water-use data from files of state agencies, and makes estimates for categories for which data are not reported (private domestic and agricultural use). Water used for thermoelectric power is not included. GW = Ground water source; SW = Surface water source.

Source: SEWRPC, U.S. Geological Survey, 2000.

Figure III-1 illustrates the impact of increased groundwater pumping in southeastern Wisconsin on the groundwater divide as well as the shift in the center of pumping (cone of depression). As development occurred west of Lake Michigan with a reliance on groundwater supply, the groundwater divide pushed west along with the center of pumping. Figure III-1 depicts the approximate groundwater divide and center of pumping by the years 1950 and 2000.

**Figure III-1**  
**IMPACTS OF PUMPING ON THE DEEP SANDSTONE AQUIFER**



In 2003, the Wisconsin Legislature passed the Groundwater Protection Act (Act 310) which sets new standards and conditions for approval of high capacity wells by the Department of Natural Resources (DNR) and other requirements for the management of the use of groundwater. Under Act 310, groundwater management areas were established in Southeastern and Northeastern Wisconsin, most notably Waukesha and Brown Counties, respectively. Those areas were designated as such because declining groundwater levels had become a chronic concern.

#### **Groundwater Availability**

Recharge to groundwater is derived almost entirely from precipitation. Much of the groundwater in shallow aquifers originates from precipitation that has fallen and infiltrated within a radius of about 20 or more miles from where it is found. The deeper sandstone aquifers are recharged by downward leakage of water through the Maquoketa Formation from the overlying aquifers or by infiltration of precipitation in western Waukesha County where the sandstone aquifer is not overlain by the Maquoketa Formation and is unconfined. On the average, precipitation annually brings about 32 inches of water to the surface area of the County. It is estimated that approximately 80 percent of that total is lost by evapotranspiration. Of the remaining water, part runs off in streams and part becomes groundwater. It is likely that the average annual groundwater recharge to shallow aquifers is 10 to 15 percent of annual precipitation.

To document the utilization of the shallow aquifers in the County, it may be assumed, for example, that on the average, 10 percent of the annual precipitation reaches groundwater. Then, the average groundwater recharge in the County would be about 88 mgd. As previously noted in Table III-2, the estimated daily use of groundwater in 2000 was about 38 mgd, which is about 43 percent of the total amount of groundwater assumed to be recharged in a given year. This indicates that there is an adequate annual groundwater recharge to satisfy consumptive water demands on the shallow aquifer system in Waukesha County on a countywide basis. However, the availability for consumptive use on a localized area basis and the impact on local surface water resources will vary depending upon usage, pumping system configuration, and groundwater flow patterns.



The situation is different for the deep aquifers where withdrawals of groundwater cause supply/demand imbalance in areas of concentrated use of groundwater, which has resulted in the declining potentiometric surface<sup>3</sup> and mining of groundwater. For example, Professor Douglas Cherkauer of the University of Wisconsin-Milwaukee, estimated that the demand on groundwater from the deep sandstone aquifer in Waukesha County is greater than the available supply (see Table III-5).

**Table III-5**  
**ESTIMATES OF AVAILABLE GROUNDWATER IN WAUKESHA COUNTY: 1999**

Aquifer	Recharge Area (square miles)	Estimated Recharge Rate (inches per year)	Average Daily Recharge (mgd)	Average Daily Demand (mgd)
Shallow	400	3.1	59	3.5
Deep	100	3.1	14.8	31.5

Source: D.S. Cherkauer, 1999

### **Vulnerability to Contamination**

Groundwater quality conditions can, through improper construction or management, be impacted by such sources of pollution on the surface as infiltration of storm water runoff, landfills, agricultural fertilizer, pesticides, manure storage and application sites, chemical spills, leaking surface or underground storage tanks, and onsite sewage disposal systems. The potential for groundwater pollution in the shallow aquifer is dependent on the depth to groundwater, the depth and type of soils through which precipitation must percolate, the location of groundwater recharge areas, and the subsurface geology.

Compared to the deep aquifer, the shallow aquifers are more susceptible to pollution from the surface because they are nearer to the source in terms of both distance and time, thus minimizing the potential for dilution, filtration, and other natural processes that tend to reduce the potential detrimental effects of pollutants. Isolated cases of contamination have been identified in portions of Waukesha County. Such problems can often be traced to runoff pollution sources, septic system discharges, and chemical spills or leakage.

### **WETLANDS**

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally occur in depressions and near the bottom of slopes, particularly along lakeshores and stream banks, and on land areas that are poorly drained. Wetlands may, however, occur on slopes and even hilltops under certain conditions.

Wetlands are generally poorly suited for most agricultural or urban purposes. Wetlands, however, have important recreational and ecological values. Wetlands contribute to flood control and water quality enhancement, since such areas naturally serve to store excess runoff temporarily, thereby tending to reduce peak flows and to trap sediments, undesirable nutrients, and other water pollutants. Wetlands may also serve as groundwater recharge and discharge areas. Additional important natural functions of wetlands include the provision of breeding, nesting, resting, and feeding grounds and predator escape cover for many forms of wildlife. In view of these important functions, continued efforts should be made to protect these areas by discouraging wetland draining, filling, and urbanization. The latter can be particularly costly in both monetary and environmental terms. Wetlands in the study area, as shown on Map III-8, covered about 2.9 square miles, (about 12%) of the study area, or 0.88 square miles (about 27.7%) of the Village of Wales in 2000. The largest concentrations of wetlands in the study area occur adjacent to intermittent streams and the waterways of Wales, Scuppernong, and Genesee Creeks and Brandy Brook.

<sup>3</sup> The potential level which water will rise above the aquifer's water level in the well that penetrates the confined aquifer.

## **WOODLANDS**

Under good management, woodlands can serve a variety of beneficial functions. In addition to contributing to clean air and water and regulating surface water runoff, the woodlands contribute to the maintenance of a diversity of plant and animal life. Unfortunately, woodlands which required a century or more to develop can be destroyed through mismanagement in a comparatively short time. The destruction of woodlands, particularly on hillsides, can contribute to increased storm water runoff and soil erosion, the siltation of lakes and streams, and the destruction of wildlife habitat. Woodlands should be maintained for their scenic, wildlife habitat, open space, educational, recreational, and air and water quality protection values. In 2000, wooded areas covered about 3.0 square miles (about 12%) of the study area, or 0.38 square miles (about 12.0%) of the Village of Wales. As shown on Map III-9, woodlands occur in scattered locations throughout the study area.

## **WILDLIFE HABITATS**

Wildlife in the Village of Wales study area includes species such as rabbit, squirrel, woodchuck, raccoon, fox, turkey, whitetail deer, pheasant, and water fowl. The remaining wildlife habitat areas provide valuable recreation opportunities and constitute an invaluable aesthetic asset to the study area. The spectrum of wildlife species has, along with the habitat, undergone tremendous alterations since settlement by Europeans and the subsequent clearing of forests and draining of wetlands for agricultural purposes and urban development.

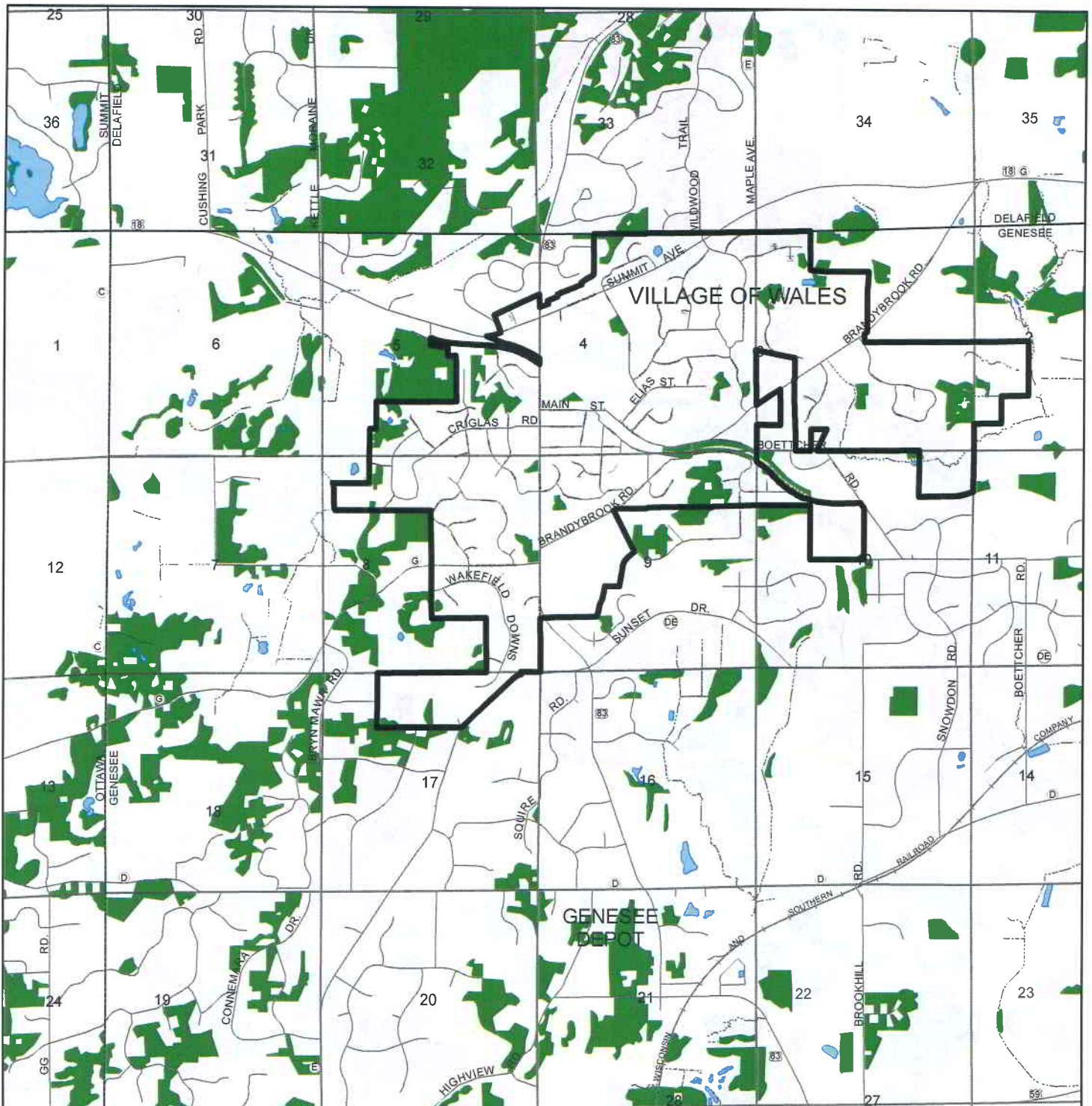
In 1985, the Regional Planning Commission and the Wisconsin Department of Natural Resources cooperatively inventoried wildlife habitat in Southeastern Wisconsin. The results of that inventory, as it pertains to the study area, are shown on Map III-10. Three classes of wildlife habitat are identified: Class I areas contain a good diversity of wildlife, are large enough to provide all of the habitat requirements for each species, and are generally located near other wildlife habitat areas. Class II areas lack one of the three criteria necessary for a Class I designation and Class III areas lack two of the three criteria for Class I designation.

Wildlife habitats in the study area generally occur in association with existing surface water, wetland, or woodland resources. Wildlife habitat areas covered about 9.5 square miles (about 38%) of the study area, or 1.92 square miles (about 60.4%) of the Village of Wales. Of this total habitat area, about 4.5 square miles (about 18%) of the study area, or 1.04 square miles (about 32.7%) of the Village of Wales, were rated as Class I. About 2.6 square miles (about 10%) of the study area, or 0.66 square miles (about 20.7%) in the Village of Wales, were rated as Class II; and, finally, Class III-rated included about 2.4 square miles (about 10%) of the study area, or 0.49 square miles (about 15.4%) of the Village of Wales.



# MAP III-9

## WOODLANDS IN THE VILLAGE OF WALES STUDY AREA



### LEGEND



Woodlands



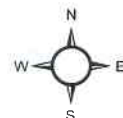
Village Boundary



Surface Water



Other Municipal Boundaries



0 2,300 4,600 Feet



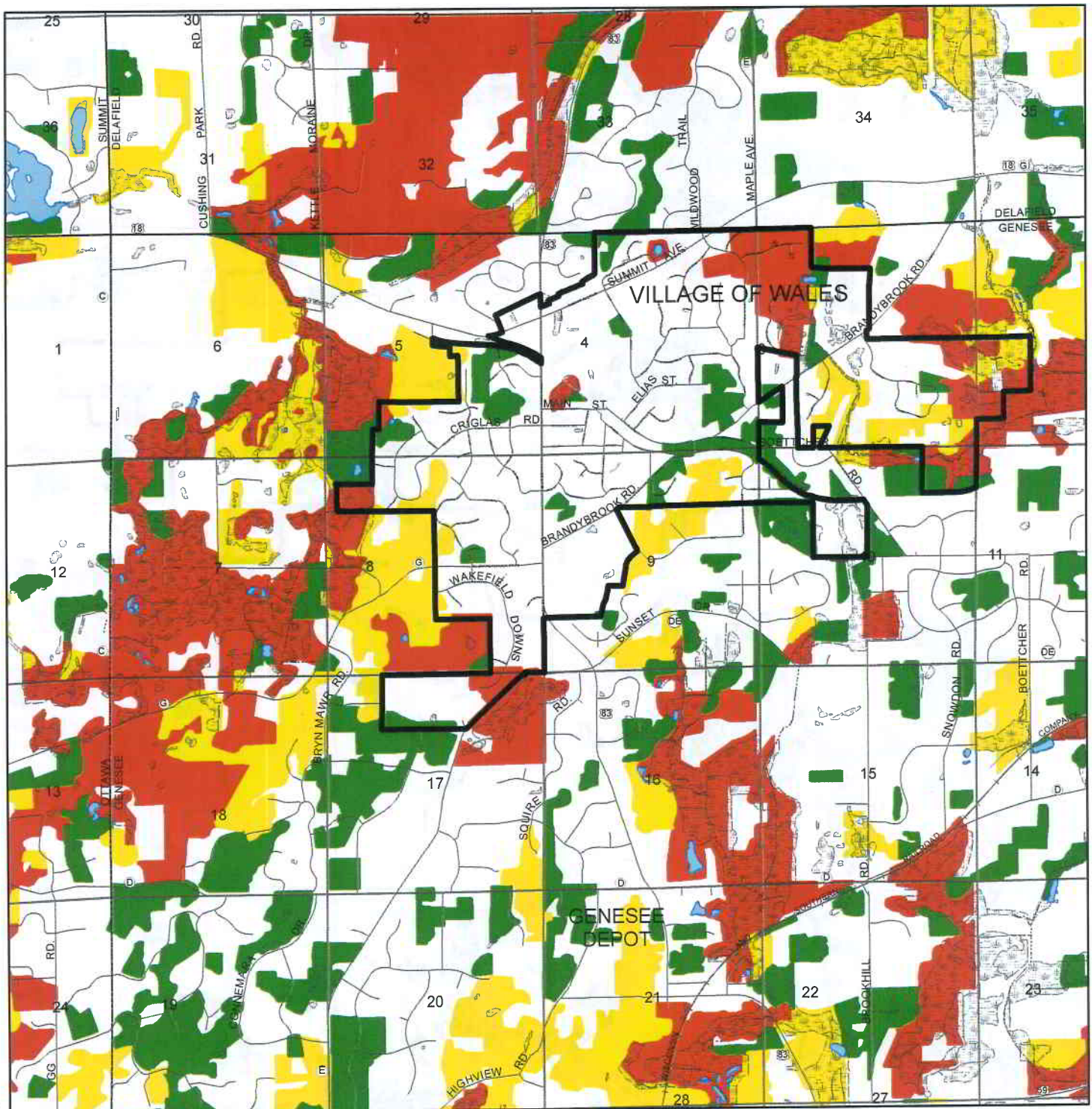
SOURCE: SEWRPC 2000 Land Use





## MAP III-10

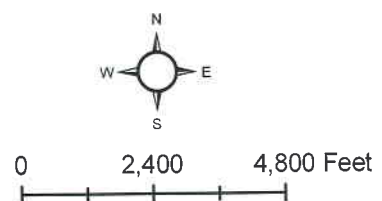
### WILDLIFE HABITAT AREAS IN THE VILLAGE OF WALES STUDY AREA: 1985



#### LEGEND

- |   |                   |   |                  |   |                            |
|---|-------------------|---|------------------|---|----------------------------|
|  | CLASS I HABITAT   |  | Village Boundary |  | Other Municipal Boundaries |
|  | CLASS II HABITAT  |  | Wetlands         |   |                            |
|  | CLASS III HABITAT |  | Surface Water    |   |                            |

SOURCE: WDNR, SEWRPC





## **NATURAL AREAS, CRITICAL AQUATIC HABITATS, AND SIGNIFICANT GEOLOGICAL SITES**

A special inventory was completed in 1994 to identify the most important remaining natural areas and critical species habitats, along with significant geological sites and archaeological sites, in Southeastern Wisconsin and to recommend means for their protection and management.<sup>4</sup> No known archaeological sites were identified in the Village of Wales study area. Natural areas, critical aquatic habitats, and significant geological sites in the study area are discussed below.

### **Natural Areas**

Natural areas are tracts of land or water so little modified by human activities that they contain intact native plant and animal communities believed to be representative of the pre-European settlement landscape. Natural areas are classified into one of three categories: natural areas of statewide or greater significance (NA-1), natural areas of countywide or regional significance (NA-2); or natural areas of local significance (NA-3). Classification of an area into one of the three categories is based upon consideration of the diversity of plant and animal species and community types present; the structure and integrity of the native plant or animal community; the extent of disturbance from human activities such as logging, grazing, water level changes, and pollution; the commonness of the plant and animal communities present; unique natural features within the area; the size of the area; and the educational value.

Two natural areas, encompassing a total of about 259 acres, or about 2 percent of the study area, were identified in the inventory completed in 1994. These sites are shown on Map III-11 and listed in Table III-6. One of the sites is located mostly within Lapham Peak State Park with some areas under private ownership, and the second site is entirely under private ownership.

### **Critical Habitats**

Critical habitats are those areas outside of natural areas where the main value lies in their ability to support rare, threatened, or endangered species. Such areas constitute "critical" habitat that is important to ensure survival of a particular species or group of species of special concern.

Four critical aquatic habitats that support threatened or rare fish, herptile (amphibians and reptiles), or mussel species were identified in the study area. The four habitats include two habitats of countywide or regional significance (AQ-2), and two habitats of local significance (AQ-3). As shown on Map III-11 and indicated in Table III-6, there are 5.6 stream miles and 42 lake acres of such habitats in the study area.

### **Geological Sites**

Significant geological sites are tracts of land that include such glacial features as eskers and kames, fossil beds, and rock outcrop and exposed bedrock sites of scientific and educational value. These sites, like natural areas and critical species habitats, are subject to inadvertent disturbance or destruction as urbanization within the Region continues, resulting in the loss of the opportunities which these sites afford such as educational and scientific pursuits. Geological sites identified as significant under the plan are classified as being of statewide or greater significance (GA-1), countywide or regional significance (GA-2), or local significance (GA-3).

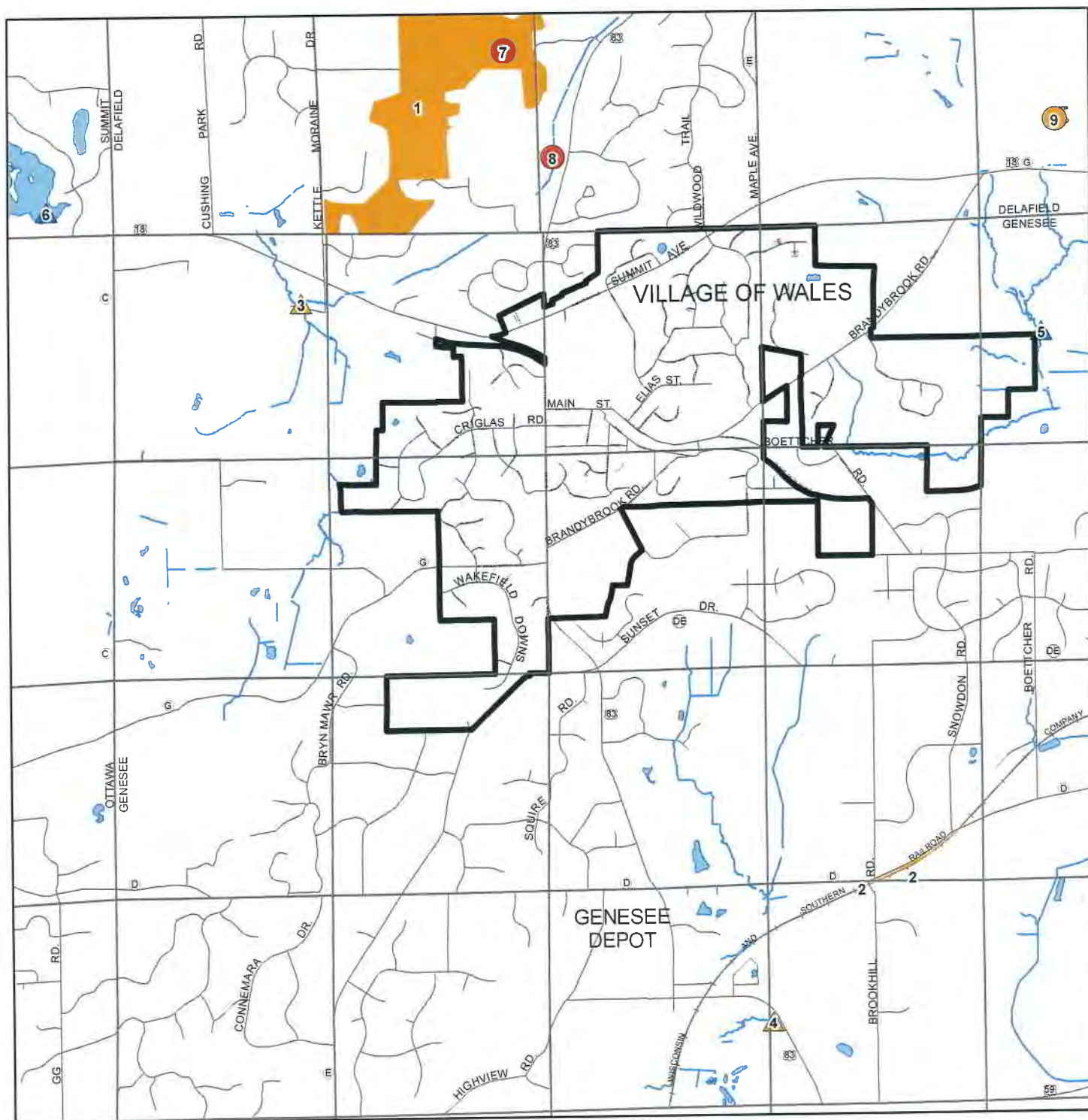
Three geological sites were identified in the Village of Wales study area, which is a part of the large Kettle Moraine interlobate geological area. These sites encompassed an area of about 993 acres, or about 6 percent of the study area, and are identified on Map III-11 and described in Table III-6.

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<sup>4</sup>SEWRPC Planning Report No. 42, A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern, Wisconsin, September 1997.

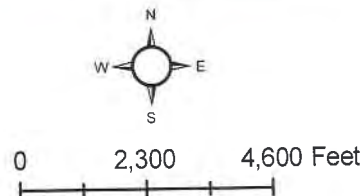
## MAP III-11

# NATURAL AREAS, CRITICAL AQUATIC HABITATS, AND SIGNIFICANT GEOLOGICAL SITES IN THE VILLAGE OF WALES STUDY AREA



### LEGEND

- NATURAL AREA OF LOCAL SIGNIFICANCE (NA-3)
- AQUATIC HABITAT OF COUNTYWIDE OR REGIONAL SIGNIFICANCE (AQ-2)
- AQUATIC HABITAT OF LOCAL SIGNIFICANCE (AQ-3)
- GEOLOGICAL AREA OF STATEWIDE OR GREATER SIGNIFICANCE (GA-1)
- GEOLOGICAL AREA OF COUNTYWIDE OR REGIONAL SIGNIFICANCE (GA-2)
- Village Boundary
- Other Municipal Boundaries
- SURFACE WATER





## Village of Wales Comprehensive Development Plan

**Table III-6  
NATURAL AREAS, CRITICAL AQUATIC HABITATS, AND  
SIGNIFICANT GEOLOGICAL SITES IN THE VILLAGE OF WALES STUDY AREA: 1994**

Number on Map 14	Area Name	Classification Code <sup>a</sup>	Location	Ownership	Size	Description and Comments
1	Lapham Peak Woods	NA-3 (RSH)	T7N, R18E Sections 29, 32, 33 Town of Delafield	Wisconsin Department of Natural Resources, Wisconsin Department of Health and Social Services, and private	254 (451) acres <sup>b</sup>	Extensive but isolated xeric oak woods on rough interlobate moraine, dominated by white, red, and bur oaks, shagbark hickory, and black cherry. There is a past history of grazing and selective cutting. Threatened by encroaching subdivisions. Contains the late coral-root orchid ( <i>Corallorhiza odontorhiza</i> ), a State-designated special concern species.
2	CTH D Railroad Prairie	NA-3	T5N, R18E Sections 15, 22 Town of Genesee	Private	5 acres	Patchy, moderate-quality dry-mesic prairie remnants along a one-half-mile-long stretch of railway right-of-way.
3	Scuppernong Creek and Wales Creek	AQ-2 (RSH)	T6N, R17E Town of Ottawa T6N, R18E Town of Genesee T7N, R18E Town of Delafield T7N, R17E Town of Summit	---	2.5 (10.2) stream miles <sup>b</sup>	Good fish population and diversity, including critical fish species habitat; good water quality.
4	Genesee Creek and Spring Creek	AQ-2 (RSH)	T5N, R18E Town of Mukwonago T6N, R18E Town of Genesee T6N, R19E Town of Waukesha	--	1.7 (9.7) stream miles <sup>b</sup>	Good overall water quality and fish population and diversity; Genesee Creek and Spring Creek are Class I trout streams.
5	Brandy Brook and Pebble Creek	AQ-3	T6N, R18E Town of Genesee T6N, R19E Town of Waukesha T7N, R18E Town of Delafield	--	1.4 (6.8) stream miles <sup>b</sup>	Cold-water stream which bisects a Natural Area, Pebble Creek Wetlands.
6	Waterville Pond	AQ-3 (RSH)	T7N, R17E Town of Summit	--	42 (68) acres <sup>b</sup>	A Scuppernong Creek impoundment with critical herpetile species habitat.
7	Kettle Moraine Interlobate Moraine	GA-1	Western portion of Region	Wisconsin Department of Natural Resources, Washington County, Waukesha County, and private	180 (15,714) <sup>c</sup> acres <sup>b</sup>	Interlobate moraine consisting of a complex system of irregular, knobby ridges, trending northeast-southwest across the western portion of the Region.
8	Scuppernong Creek Spillway	GA-1	T6N, R18E Sections 5, 6 Town of Genesee T7N, R18E Sections 32, 33 Town of Delafield	Wisconsin Department of Natural Resources, Waukesha County, and private	302 (406) acres <sup>b, d</sup>	One of the finest examples of a glacial spillway remaining in the United States. Studied on a national and international basis. Associated with several other interlobate glacial features including kames, kettles, and a kame delta.
9	Delafield Drumlin Fields	GA-2	T6N, R18E Sections 1, 2 Town of Genesee T7N, R18E Sections 34, 35, 36 Town of Delafield	Waukesha County and private	511 (3,763) acres <sup>b</sup>	A very well developed example of a drumlin field.

<sup>a</sup> NA-3 identifies Natural Area sites of local significance.

AQ-2 identifies critical aquatic habitat sites of countywide or regional significance.

AQ-3 identifies critical aquatic habitat sites of local significance.

GA-1 identifies Geological Area sites of statewide or greater significance.

GA-2 identifies Geological Area sites of countywide or regional significance.

RSH, or Rare Species Habitat, identifies those sites which support rare, threatened, endangered, or "special concern" species officially designated by the Wisconsin Department of Natural Resources.

<sup>b</sup> Site area, lake, or stream is located partially within the Village of Wales study area. The number without parentheses refers to the acreage or stream miles within the study area, and the number in parentheses is the total site area or stream miles, including those beyond the study area.

<sup>c</sup> This total reflects only the portion that lies within Waukesha County and within the established project boundary of the Southern Unit and the Lapham Peak Unit of the Kettle Moraine State Forest.

<sup>d</sup> Most of the site also lies within the general Kettle Moraine Interlobate Geological Area. A portion of the site, 144 acres, or 31 percent, is within the established project boundary of the Lapham Peak Unit of the Kettle Moraine State Forest (104 acres), or is located within the Ice Age Trail corridor (40 acres).

Source: Wisconsin Department of Natural Resources and SEWRPC.

## ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS

As defined by the Regional Planning Commission, environmental corridors are elongated areas in the landscape that encompass concentrations of recreational, aesthetic, ecological, and cultural resources. Such areas generally include one or more of the natural resource base elements previously discussed in this chapter.

Map III-12 shows the location and extent of environmental corridors and other environmentally significant areas, termed "isolated natural resource areas", within the study area as delineated by the Regional Planning Commission.<sup>5</sup> The essentially linear corridors represent a composite of the best remaining elements of the natural resource base in the study area and have immeasurable environmental and recreational value. Preservation of the

<sup>5</sup> A detailed description of the process for delineating environmental corridors in Southeastern Wisconsin is presented in SEWRPC Technical Record, Vol. 4, No. 2, Refining the Delineation of Environmental Corridors in Southeastern Wisconsin, March 1981, pp. 1-21.

primary environmental corridors, and careful consideration of preserving secondary environmental corridors and isolated natural resource areas, in an essentially open, natural state—including compatible park and open space uses and rural-density residential uses—will serve to maintain a high level of environmental quality, protect the natural beauty, and provide valuable recreation opportunities. Preservation will also avoid the creation of serious and costly environmental and developmental problems such as flood damage, poor drainage, wet basements, failing pavements and other structures, and water pollution.

### **Primary Environmental Corridors**

Primary environmental corridors are by definition at least 400 acres in size, two miles long, and 200 feet wide. These corridors include surface water areas, wetlands, woodlands, steep slopes, natural areas, and wildlife habitats. In 2000, about 5.7 square miles, (about 23%) of the study area, or 0.24 square miles (about 7.5%) of the Village of Wales, were encompassed within the primary environmental corridors shown on Map III-12. These corridors are mostly located in the undeveloped areas of the Kettle Moraine interlobate geological area and along perennial and intermittent streams, including Wales Creek, Scuppernong Creek, Genesee Creek, and Brandy Brook, and the large wetland areas associated with these streams within the study area. The protection of primary environmental corridors from intrusion by incompatible urban uses, and thereby from degradation and destruction, should be one of the principal objectives of a local development plan.

### **Secondary Environmental Corridors**

While secondary corridors may have many of the same qualities as primary corridors, they are smaller in size. Such corridors are by definition at least 100 acres in size and one mile long, except where they serve to connect primary environmental corridor, and often contain remnant resources from former primary environmental corridors which have been developed for intensive agricultural or urban land uses. As shown on Map III-12, about 0.1 square mile, or less than one percent of the study area, and no part of the Village of Wales, was encompassed within secondary environmental corridors in 2000. Secondary environmental corridors in the Village of Wales study area are mostly located along streams, including segments of Scuppernong Creek and Brandy Brook, and encompass wetlands associated with these streams. Secondary environmental corridors facilitate surface water drainage, maintain “pockets” of natural resource features, and provide for the movement of wildlife, as well as for the movement and dispersal of seeds for a variety of plant species. Such corridors should be preserved in essentially open natural uses as urban development proceeds within the study area, particularly when the opportunity is presented to incorporate them into urban storm water detention areas, associated drainageways, and parks and open space sites.

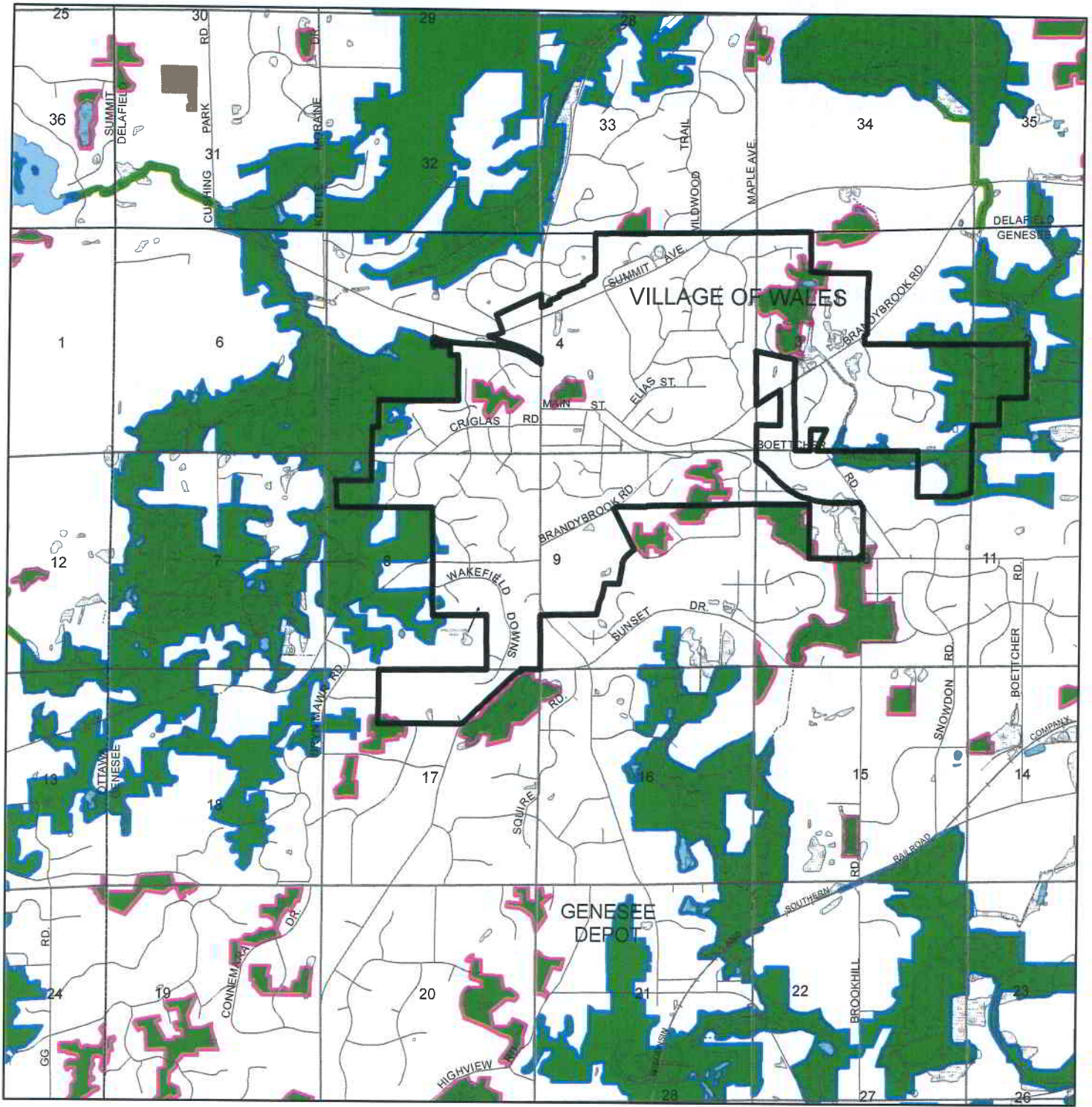
### **Isolated Natural Resource Areas**

In addition to the primary and secondary environmental corridors, other small concentrations of natural resource base elements exist within the study area. These elements are isolated from the corridors by urban development or agricultural uses and, although separated from the environmental corridor network, may have important residual natural values. Isolated natural features may provide the only available wildlife habitat in an area, provide good locations for local parks and nature study areas, and lend aesthetic character and natural diversity to an area. Important isolated natural resource areas within the Village of Wales study area include a geographically well-distributed variety of isolated wetlands, woodlands, and wildlife habitat. These areas should be protected and preserved in a natural state whenever possible. Isolated natural resource areas five acres or greater in size are shown on Map III-12. In 2000, these areas encompassed about 0.9 square miles (about 4%) of the study area, or 0.13 square miles (about 4.1%) of the Village of Wales.



# MAP III-12

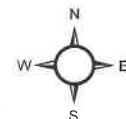
## PLANNED ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS IN THE VILLAGE OF WALES: 2008



### LEGEND

- |  |                                  |  |                  |  |                            |
|--|----------------------------------|--|------------------|--|----------------------------|
|  | Primary Environmental Corridor   |  | Village Boundary |  | Other Municipal Boundaries |
|  | Secondary Environmental Corridor |  | Wetlands         |  |                            |
|  | Isolated Natural Resource Area   |  | Surface Water    |  |                            |

SOURCE: SEWRPC



0 2,300 4,600 Feet



## RESOURCE-RELATED ELEMENTS

Elements closely linked to natural resources, such as scenic overlooks mentioned earlier, are considered in the planning process. Park and open space sites, as well as related trails, are enhanced by the presence of natural resources and, due to the commitment of land to such uses, contribute to the preservation of the resources.

### **Park, Recreation, and Open Space Sites**

An inventory of park and open space sites and outdoor recreational facilities in the Village of Wales study area was conducted in 2000. As shown on Map III-13 and listed in Table III-7, there were 18 such sites encompassing a total of approximately 583 acres, or about 4 percent of the study area. Of this total, 11 sites encompassing about 494 acres were publicly owned, and seven sites encompassing about 89 acres were privately owned. The Village of Wales owned three of these sites totaling approximately 89 acres. Village-owned park sites include Wales Firemen's Memorial Park, Breconshire Park, and Wales Community Park. The Village parks provide a variety of recreational facilities for local residents, from playgrounds to baseball diamonds, as noted in Table III-7.

### **Scenic Drive and Recreation Trails**

Opportunities for trail-oriented recreation activities such as hiking, bicycling, cross-country skiing, and nature study, and routes for pleasure driving are provided in the study area. In addition to the hiking, mountain-biking, and cross-country ski trails provided in Lapham Peak State Park, other major trail facilities traversing the study area are shown on Map III-13. These facilities offer the promise of enhancing the quality of the recreational amenities in the Wales area.

The Kettle Moraine Scenic Drive is a marked route over public roadways within, and between, the Northern and Southern Units of the Kettle Moraine State Forest, intended for pleasure driving. As shown on Map III-13, an approximately five-mile-long segment of this 75-mile route in the Region is located in the study area, west of the Village of Wales.

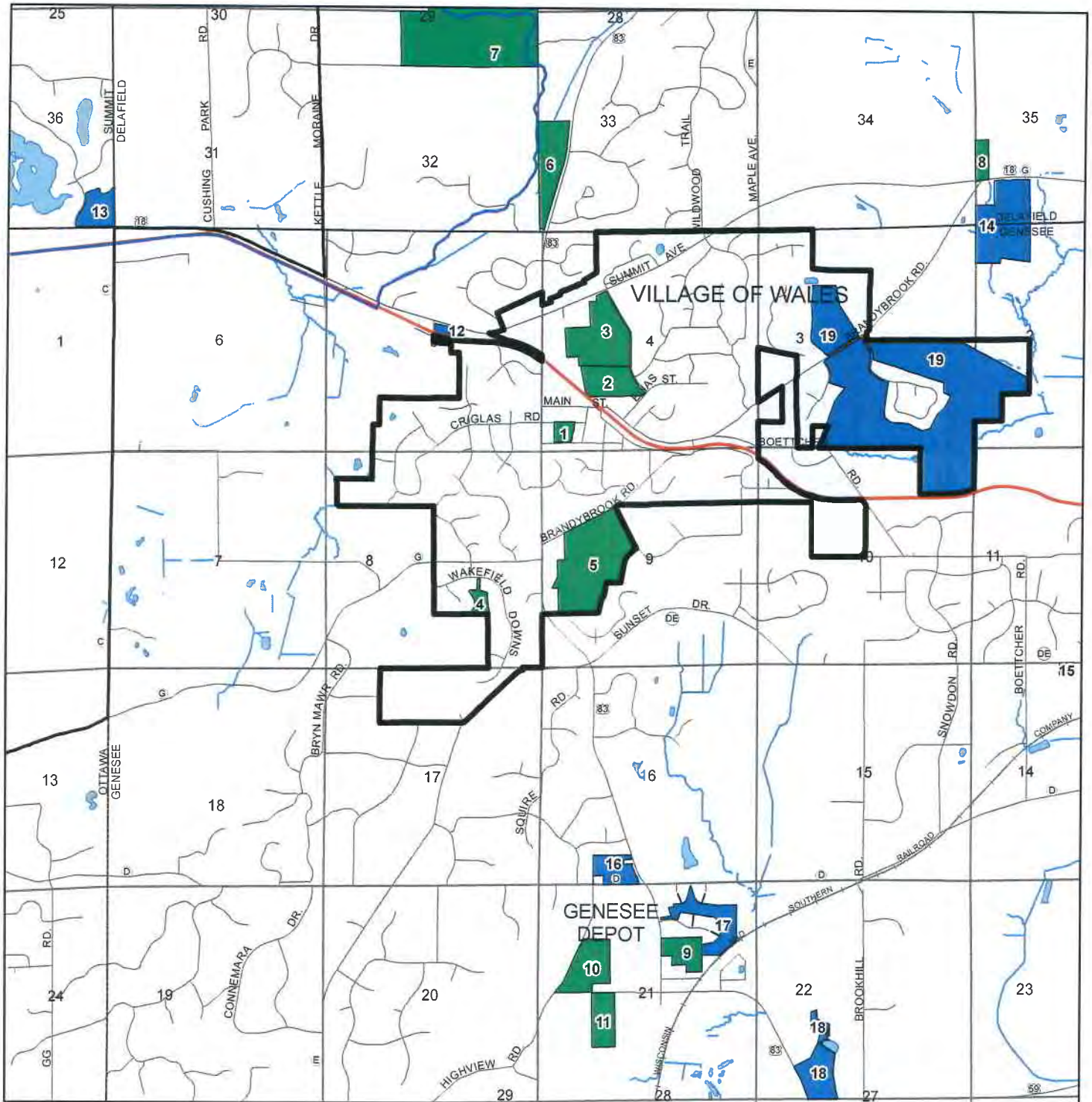
As shown on the map, approximately 5.3 miles of the existing 48-mile Glacial Drumlin State Trail is located within the study area. This multiple-use recreation trail is located on the abandoned Chicago & North Western Railway right-of-way and extends from the east side of the City of Waukesha to the Village of Cottage Grove, located east of the City of Madison. The trail is paved from the City of Waukesha to the Village of Dousman, including the segment that lies within the Village of Wales study area.

A portion of the Ice Age National Scenic Trail is also located in the Village of Wales study area. This trail is a planned 1,000-mile National scenic trail designated by Congress in 1982 as a hiking route which generally follows glacial moraines and other glacial features. The planned trail stretches from Door County in northeastern Wisconsin through the Kettle Moraine area in Southeastern Wisconsin to Interstate Park in northwestern Wisconsin. As shown on Map III-13, about 4.4 miles of the Ice Age Trail is developed and traverses through the study area, northwest of the Village of Wales.



## MAP III-13

### SCENIC DRIVE, MAJOR TRAILS, AND PARK, RECREATION, AND OPEN SPACE SITES IN THE VILLAGE OF WALES STUDY AREA



#### LEGEND

- GLACIAL DRUMLIN STATE TRAIL
- ICE AGE NATIONAL SCENIC TRAIL
- KETTLE MORAIN SCENIC DRIVE
- PRIVATELY OWNED SITE
- PUBLICLY OWNED SITE

10 REFERENCE NUMBER (SEE TABLE 20)



Village Boundary

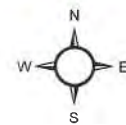


Other Municipal Boundaries



SURFACE WATER

(TRAILS SHOWN PARALLEL TO  
EACH OTHER SHARE SAME TRAIL)



0 2,300 4,600 Feet

SOURCE: SEWRPC, UPDATED BY YCA 2008



**Table III-7  
EXISTING PARK, RECREATION, AND OPEN SPACE SITES  
IN THE VILLAGE OF WALES STUDY AREA: 2000**

Number on Map III-13	Site Name	Acreage	Outdoor Facilities/Comments
1	Publicly-Owned	5	Playground, softball diamonds
2	• Wales Firemen's Memorial Park	20	Playground, playfield, softball diamond, basketball courts
3	Wales Elementary School	45 <sup>a</sup>	Playfield, softball diamonds, baseball diamond, tennis courts, football field, running track, soccer field
4	Kettle Moraine High School		
5	• Breconshire Park	5	Playground, playfield, softball diamond, tennis court, soccer field
6	• Wales Community Park	79	Baseball diamonds
7	Scuppernon Creek Parkway	50 <sup>b</sup>	Conservation area
8	Lapham Peak State Park	229 <sup>c</sup>	Trails, picnicking, amphitheatre
9	Brandybrook Community Center	6	Playfield, soccer field
10	Magee Elementary School	12	Playground, playfield, softball diamond, baseball diamond, basketball courts, soccer field
11	Butler Park	26	Playground, playfield, softball diamonds, baseball diamond, tennis courts, soccer field, basketball courts, volleyball courts, picnicking
12	Lunt-Fontanne Nature Center	17	Trails
11 Sites	Subtotal	494	--
12	Privately-Owned	1	Volleyball courts
13	Saxes	5	Riding stables
14	Stonehedge Riding Stables	4	Riding stables
15	Grant Herman Stables	2	Playground, playfield
16	Montessori Methods School	11	Playground, playfield, softball diamond, basketball courts
17	St. Paul's Catholic Church and School	6	Trails, beach
18	Victoria Pond	60	Conservation area
7 Sites	Subtotal	89	--
18 Sites	Total	583	--

\*Owned by the Village of Wales.

<sup>a</sup> The Village of Wales owns an approximately nine-acre portion of this site which consists of two soccer fields used mostly by the Kettle Moraine School District.

<sup>b</sup> Only a 50-acre portion of the total 59-acre existing parkway lies within the study area.

<sup>c</sup> Only a 229-acre portion of the total 1,024-acre park site lies within the study area.

Source: SEWRPC.

## HISTORIC RESOURCES

The preservation of historic places is intended to help ensure that the historic heritage of a community is protected and enhanced over time. Historic preservation planning recognizes that historic places are valuable resources whose damage or loss would be detrimental to the community.

The importance of historic preservation planning is based on this assumption that the historic resources of a community are valuable and should be carefully considered in planning for community development and redevelopment. Historic preservation can help to maintain the unique identity of a community, especially within a community's historic "downtown" area, such as the Wales Historic Village Center as delineated on Map III-14. Other benefits of historic preservation include: promoting tourism, increased real estate values and municipal tax revenues, arresting decay in declining areas, creating community pride, and conserving cultural resources. Despite these potential benefits, other forces such as economics, public attitudes, and existing laws can sometimes work against historic preservation. Through proper planning, however, the impediments to historic preservation can be reduced.



### **Existing Historic Preservation Inventory**

Realizing the importance of historic preservation, Waukesha County, with assistance from the University of Wisconsin–Milwaukee School of Architecture and Urban Planning, completed a historic resource inventory for the City of Oconomowoc and the southern unincorporated areas of the County, including most of the Village of Wales study area which lies within the Town of Genesee, but excluding those portions in the Town of Delafield. The State Historical Society of Wisconsin and the Village of Wales also contain such inventory information for the entire study area and the incorporated community, respectively. These inventories, however, would require additional research to further examine their potential eligibility for listing on the National and State Registers of Historic Places. Such a comprehensive inventory should focus on the identification, evaluation, documentation, and registration of the historically significant architectural and cultural resources. Specifically, this more detailed inventory should provide a listing of architectural and historic sites, including any historic districts encompassing many significant historic buildings. This information may be further used to increase public and private sector awareness of the Village’s historic and architectural heritage.

The more detailed comprehensive inventory is ultimately intended to provide a basis for nominating the most significant sites and buildings for inclusion on the National and State Registers of Historic Places, a mark of special status. If registered, such status would help protect the places from encroachment by State and Federal facilities development projects and may qualify for State and Federal tax incentives and Federal matching grants, when available, for research, restoration, acquisition, or stabilization. Any city or village containing property listed on the National or State Registers of Historic Places must enact a historic preservation ordinance to protect and preserve such resources. The survey document should present a descriptive inventory of the historic places and buildings in a given area and identify some of them as potentially eligible for listing in the National and State Registers, pending further detailed examination. The reconnaissance survey cards and the intensive survey forms used to conduct the inventory would elicit pertinent information about the sites and buildings, including those within a potential historic district, such as location, ownership, building site, construction and geographic data, historic significance, and major historic and bibliographic references. These data can be drawn upon when establishing historic preservation-related zoning districts, when making decisions regarding property identified as having historic value, or when making improvements in a historic district.

As indicated in Map III-15 and Table III-8, approximately 76 buildings and sites within the study area, 24 of these within the Village of Wales, have been identified as historic in one survey or more. The large number of identified potential historical places in the Village of Wales and the high concentration of such historic places in the Historic Village Center indicate that the area is rich in historic resources that should be protected for the present as well as future generations.

## MAP III-14

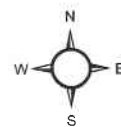
### HISTORIC VILLAGE CENTER



#### LEGEND

- HISTORIC VILLAGE CENTER
- RIGHT-OF-WAY
- VILLAGE BOUNDARY
- EXISTING PROPERTY LINES

SOURCE: SEWRPC



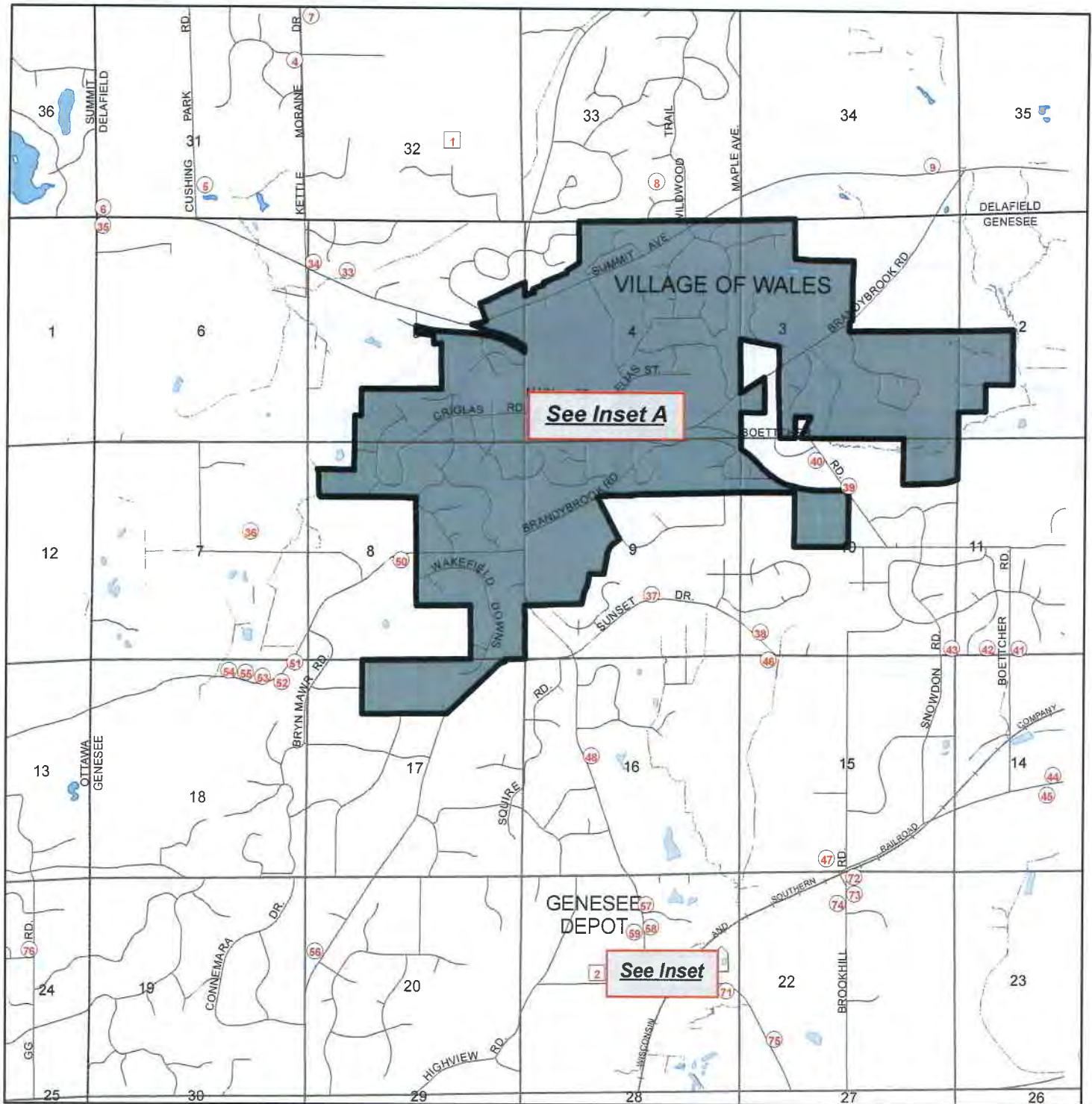
0 470 940 Feet










## MAP III-15

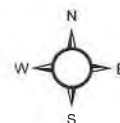
### KNOWN AND POTENTIALLY SIGNIFICANT HISTORIC PLACES IN THE VILLAGE OF WALES STUDY AREA: 2000



#### LEGEND

-  Potential Historic Place (Reference #s associated with Table III-28)
-  National and State Registered Historic Place or District
-  Village Boundary
-  Other Municipal Boundaries
-  Surface Water

SOURCE: SEWRPC, UPDATED BY YCA 2008

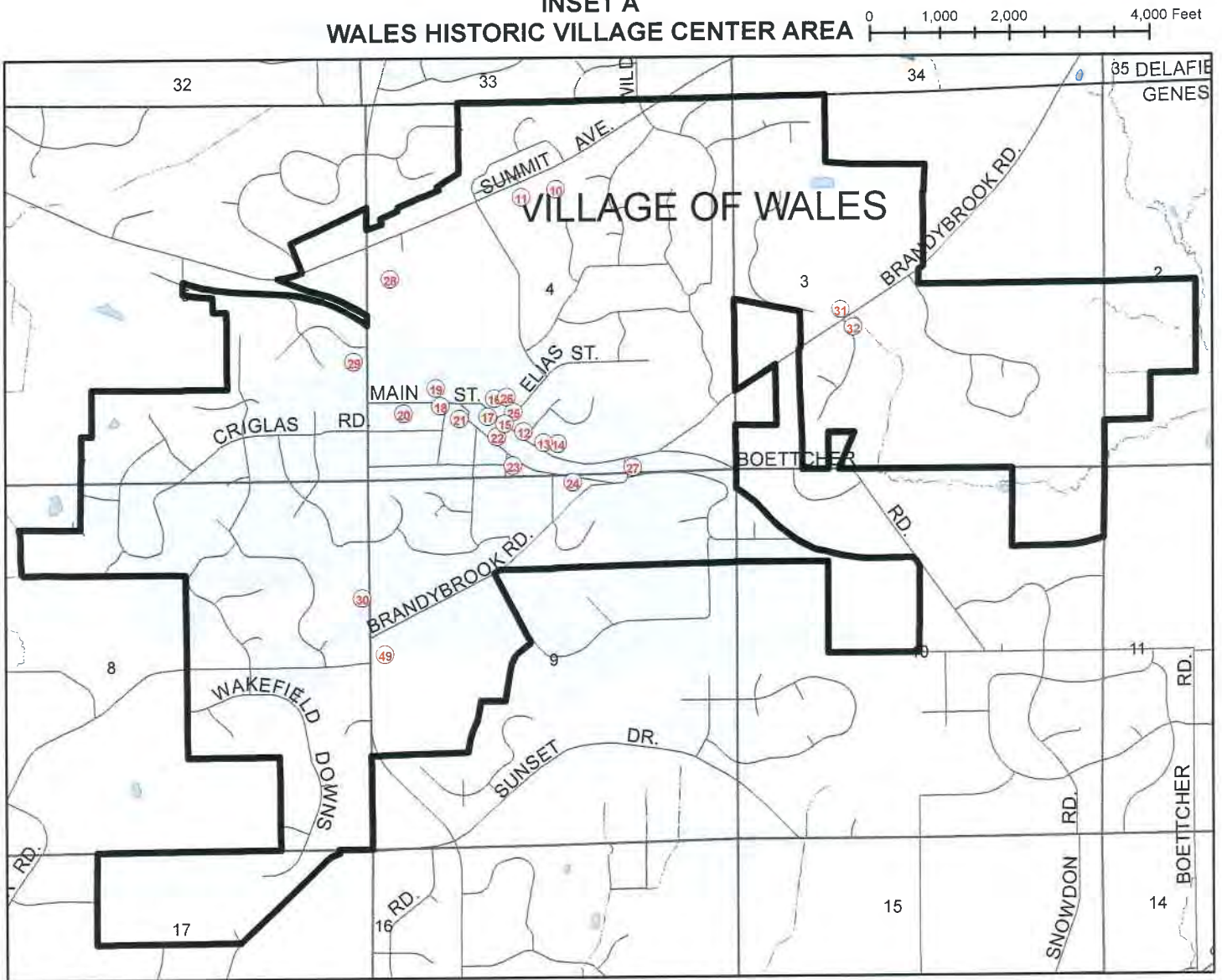


0 2,000 4,000 8,000 Feet



# INSETS TO MAP III-15

## INSET A WALES HISTORIC VILLAGE CENTER AREA



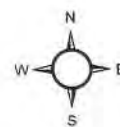
## INSET B GENESEE DEPOT AREA



### LEGEND

- 10 Historic Site (Reference #s associated with Table III-28)
- 1 National and State Registered Historic Place or District
- Other Municipal Boundaries
- Village Boundary
- Surface Water

SOURCE: SEWRPC, UPDATED BY YCA 2008





**Table III-8**  
**KNOWN AND POTENTIAL SIGNIFICANT HISTORIC PLACES**  
**AND HISTORIC DISTRICTS IN THE VILLAGE OF WALES STUDY AREA: 2000**

Number on Map III-15	Historic Name or Reference	Address or General Location	Civil Division
1a	Statesan Historic District consisting of a historic tuberculosis sanitarium, two dormitories, a dining hall, a power plant, a church, two office buildings, a barn, a root cellar, a machine shed, a jail/correctional facility, a U.S. Air Force TP-418 jet, two storage buildings, and another distinct building	Boys School Rd.; NE ¼ of Section 32	Town of Delafield
2a	Ten Chimneys	S42 W31610 Depot Rd.	Town of Genesee
3a	Genesee Depot Amusement Hall	S42 W31400 Hwy 83	Town of Genesee
4	Residence	W330 S465 Kettle Moraine Dr.	Town of Delafield
5	Residence	W334 S1224 Cushing Park Rd.	Town of Delafield
6	Moriah Church	S14 W33980 Hwy 18	Town of Delafield
7	Residence	W329 S152 Kettle Moraine Dr.	Town of Delafield
8	Residence	S11 W31252 Laughhun Dr.	Town of Delafield
9	Residence	S11 W30102 Hwy 18	Town of Delafield
10	Cadwalader Jones Residence and Barn	315 E. Summit Ave.	Village of Wales
11	Retail Building	245 E. Summit Ave.	Village of Wales
12	David Felix Residence	118 E. Main St.	Village of Wales
13	Residence	224-226 E. Main St.	Village of Wales
14	Morgan Jones Residence	238 E. Main St.	Village of Wales
15	Wales Bank/Wales Centennial	102-106 W. Main St.	Village of Wales
16	Residence	112 W. Main St.	Village of Wales
17	Village Hall	129 W. Main St.	Village of Wales
18	Jerusalem CM Welsh Church	207 W. Main St.	Village of Wales
19	Hugh Elias Residence	208-210 W. Main St.	Village of Wales
20	School	237 W. Main St.	Village of Wales
21	William H. Elias Residence	101 James St.	Village of Wales
22	Wales Post Office	110 James St.	Village of Wales
23	Office Building	203 James St.	Village of Wales
24	Reverend R. J. Evans Residence	312 James St.	Village of Wales
25	Old Village Hall and Fire Station	109 Elias St.	Village of Wales
26	J.J. Rees Residence	121 Elias St.	Village of Wales
27	Chicago Northwestern Railroad Bridge	CTH G; SE ¼ of Section 4	Village of Wales
28	Residence	410-430 Hwy 83	Village of Wales
29	Residence	225 Cymric Ct.	Village of Wales
30	Salem Cemetery	Hwy 83; NE ¼ of Section 8	Village of Wales
31	Residence	S20 W30814 CTH G	Town of Genesee
32	"King Jones" Residence; "Bronyberllan"	S20 W30819 CTH G	Town of Genesee
33	Thomas Jones Residence	S16 W32772 Hwy 18	Town of Genesee
34	Residence	W329 S1580 Hwy 18	Town of Genesee
35	District #13 School; Moriah School	S14 W33989 Hwy 18	Town of Genesee
36	Residence	S29 W33098 Morris Rd.	Town of Genesee
37	Residence	S28 W31318 CTH DE	Town of Genesee
38	Residence	S30 W30896 CTH DE	Town of Genesee
39	Residence	W304 S2484 Boettcher Rd.	Town of Genesee
40	Residence	W306 S2399 Boettcher Rd.	Town of Genesee
41	Residence	S31 W29708 CTH DE	Town of Genesee
42	Residence	S30 W29838 CTH DE	Town of Genesee
43	St. Paul's Lutheran Cemetery	CTH DE; SE ¼ of Section 10	Town of Genesee
44	Barn; Wern Farm	S36 W29633 CTH D	Town of Genesee
45	Residence; Wern Farm	S36 W29633 CTH D	Town of Genesee
46	Residence	S31 W30803 CTH DE	Town of Genesee
47	Shed	CTH D; SW ¼ Section 15	Town of Genesee
48	Barn	W316 S3636 Hwy 83	Town of Genesee
49	Capel Log/Jerusalem Cemetery	CTH G; NW ¼ of Section 9	Town of Genesee
50	Owen and Jennie Jones Residence, "Tanralit"	S27 W32569 CTH G	Town of Genesee
51	Bryn Mawr Hill	Bryn Mawr Rd; NE ¼ of Section 18	Town of Genesee
52	Bethania Church	S31 W33231 CTH G	Town of Genesee
53	Jon Evans Farm; "Tan-y-Bryn"	S31 W33372 CTH G	Town of Genesee

**Table III-8 (continued)**

Number on Map III-15	Historic Name or Reference	Address or General Location	Civil Division
54	Residence	S31 W33540 CTH G	Town of Genesee
55	Residence	S31 W 33372 CTH G	Town of Genesee
56	Residence	W329 S4229 CTH E	Town of Genesee
57	Residence	W314 S3986 Hwy 83	Town of Genesee
58	District #5 School	W313 S4134 Hwy 83	Town of Genesee
59	Lunt-Fontaine Gatehouse	W314 S4151 Hwy 83	Town of Genesee
60	Church	Hwy 83; NE ¼ of Section 21	Town of Genesee
61	Residence	S42 W34128 Hwy 83	Town of Genesee
62	Residence	W314 S4323 Hwy 83	Town of Genesee
63	Residence	S42 W31320 Hwy 83	Town of Genesee
64	Genesee Depot Station	S42 W32138 Hwy 83	Town of Genesee
65	Retail Building	S42 W31230 Hwy 83	Town of Genesee
66	Post Office	W313 S4343 Hwy 83	Town of Genesee
67	Storage Building	S42 W31254 Hwy 83	Town of Genesee
68	Barn	S42 W31216 Hwy 83	Town of Genesee
69	Residence	S43 W31257 Hwy 83	Town of Genesee
70	Residence	W313 S4335 Hwy 83	Town of Genesee
71	Residence	S43 W31127 Hwy 83	Town of Genesee
72	Dairy Farm Building	W305 S3990 Brookhill Rd.	Town of Genesee
73	Residence	W304 S4182 Brookhill Rd.	Town of Genesee
74	Brookdale Village consisting of three residences and a silo	W305 S4095 Brookhill Rd.	Town of Genesee
75	Residence	W308 S4484 Hwy 83	Town of Genesee
76	Outbuildings	4217 GG Rd.	Town of Ottawa

<sup>a</sup>Listed on both the National and State Registers of Historic Places.

Source: U.S. Department of the Interior, State Historical Society of Wisconsin, Waukesha County, Village of Wales, and SEWRPC.

## IMPLEMENTATION RECOMMENDATIONS

The following sets forth recommendations through plan year of 2030 that the Village of Wales may want to consider establishing and/or improving to maintain and protect its resources for the next 20 years.

### Water Resource Preservation

1. Continuing to require and enforce proper storm water management practices, such as rain gardens, detention, infiltration and wetland restoration to maintain or increase groundwater recharge and reduce excess runoff.
2. Continuing to require and enforce Best Management Practices to control erosion and sedimentation during construction.
3. Continue to require and enforce preservation of wetlands as essential components of the hydrologic system and as valuable wildlife habitat.
4. Discourage the regrading of large areas that may alter natural topography and drainage patterns.

### Historic Heritage of Wales Area

1. Continue to encourage the preservation of historically significant buildings and sites in Wales and encourage property owners who wish to rehabilitate and designate their historic properties. Adaptive reuse could be encouraged.
2. Continue updating a historic inventory as buildings and sites warrant such recognition.



## Village of Wales Comprehensive Development Plan

3. Consider establishing a Historic Preservation Chapter of the Zoning Code to include specific design guidelines for historic buildings and areas. The design guidelines should:
  - a. Recommend preserving the general integrity of the historic architectural features.
  - b. Provide an overview of the architectural styles and building types found in the Village.
  - c. Guide new development, as it pertains to encouraging “compatible infill”, to respect and enhance the existing character of the area.
4. Celebrate Wales’ Historic Village Center as an important Village amenity.

### **Agricultural Resources**

1. Work with neighboring jurisdictions to encourage an orderly, efficient development pattern that protects productive agricultural land and minimizes conflicts between urban and rural uses.

### **Natural Resources**

1. Look into the requirements to achieve designation as a Tree City USA.
2. Promote awareness of natural resources in the Village through public education, volunteer stewardship activities at public parks, and recycling efforts.
3. Consider creating an ordinance to protect existing mature trees and woodlands.
4. Continue to require important natural resource features to be depicted on all site plans and preliminary plats and certified survey maps in order to facilitate preservation of these resources.

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